AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2010

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

PETER J. VISCLOSKY, Indiana, *Chairman*

CHET EDWARDS, Texas
ED PASTOR, Arizona
MARION BERRY, Arkansas
CHAKA FATTAH, Pennsylvania
STEVE ISRAEL, New York
TIM RYAN, Ohio
JOHN W. OLVER, Massachusetts
LINCOLN DAVIS, Tennessee
JOHN T. SALAZAR, Colorado

RODNEY P. FRELINGHUYSEN, New Jersey
ZACH WAMP, Tennessee
MICHAEL K. SIMPSON, Idaho
DENNIS R. REHBERG, Montana
KEN CALVERT, California
RODNEY ALEXANDER, Louisiana

NOTE: Under Committee Rules, Mr. Obey, as Chairman of the Full Committee, and Mr. Lewis, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

TAUNJA BERQUAM, ROBERT SHERMAN, JOSEPH LEVIN, JAMES WINDLE, and CASEY PEARCE, *Staff Assistants*

PART 6

OVERSIGHT AND MEMBER REQUESTS

	Page
Oversight Hearing on the Corps of Engineers' Hurricane Recovery Efforts	**1**
Oversight Hearing on the Department of Energy Project Management	**51**
Oversight Hearing on the Nuclear Weapons Complex	**153**
Member Requests Hearing	**285**

Printed for the use of the Committee on Appropriations

PART 6—ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2010

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2010

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

PETER J. VISCLOSKY, Indiana, *Chairman*

CHET EDWARDS, Texas
ED PASTOR, Arizona
MARION BERRY, Arkansas
CHAKA FATTAH, Pennsylvania
STEVE ISRAEL, New York
TIM RYAN, Ohio
JOHN W. OLVER, Massachusetts
LINCOLN DAVIS, Tennessee
JOHN T. SALAZAR, Colorado

RODNEY P. FRELINGHUYSEN, New Jersey
ZACH WAMP, Tennessee
MICHAEL K. SIMPSON, Idaho
DENNIS R. REHBERG, Montana
KEN CALVERT, California
RODNEY ALEXANDER, Louisiana

NOTE: Under Committee Rules, Mr. Obey, as Chairman of the Full Committee, and Mr. Lewis, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

TAUNJA BERQUAM, ROBERT SHERMAN, JOSEPH LEVIN, JAMES WINDLE, and CASEY PEARCE, *Staff Assistants*

PART 6

OVERSIGHT AND MEMBER REQUESTS

	Page
Oversight Hearing on the Corps of Engineers' Hurricane Recovery Efforts	**1**
Oversight Hearing on the Department of Energy Project Management	**51**
Oversight Hearing on the Nuclear Weapons Complex	**153**
Member Requests Hearing	**285**

Printed for the use of the Committee on Appropriations

U.S. GOVERNMENT PRINTING OFFICE

50–065 WASHINGTON : 2009

COMMITTEE ON APPROPRIATIONS

DAVID R. OBEY, Wisconsin, *Chairman*

JOHN P. MURTHA, Pennsylvania
NORMAN D. DICKS, Washington
ALAN B. MOLLOHAN, West Virginia
MARCY KAPTUR, Ohio
PETER J. VISCLOSKY, Indiana
NITA M. LOWEY, New York
JOSÉ E. SERRANO, New York
ROSA L. DELAURO, Connecticut
JAMES P. MORAN, Virginia
JOHN W. OLVER, Massachusetts
ED PASTOR, Arizona
DAVID E. PRICE, North Carolina
CHET EDWARDS, Texas
PATRICK J. KENNEDY, Rhode Island
MAURICE D. HINCHEY, New York
LUCILLE ROYBAL-ALLARD, California
SAM FARR, California
JESSE L. JACKSON, JR., Illinois
CAROLYN C. KILPATRICK, Michigan
ALLEN BOYD, Florida
CHAKA FATTAH, Pennsylvania
STEVEN R. ROTHMAN, New Jersey
SANFORD D. BISHOP, JR., Georgia
MARION BERRY, Arkansas
BARBARA LEE, California
ADAM SCHIFF, California
MICHAEL HONDA, California
BETTY MCCOLLUM, Minnesota
STEVE ISRAEL, New York
TIM RYAN, Ohio
C.A. "DUTCH" RUPPERSBERGER, Maryland
BEN CHANDLER, Kentucky
DEBBIE WASSERMAN SCHULTZ, Florida
CIRO RODRIGUEZ, Texas
LINCOLN DAVIS, Tennessee
JOHN T. SALAZAR, Colorado

JERRY LEWIS, California
C. W. BILL YOUNG, Florida
HAROLD ROGERS, Kentucky
FRANK R. WOLF, Virginia
JACK KINGSTON, Georgia
RODNEY P. FRELINGHUYSEN, New Jersey
TODD TIAHRT, Kansas
ZACH WAMP, Tennessee
TOM LATHAM, Iowa
ROBERT B. ADERHOLT, Alabama
JO ANN EMERSON, Missouri
KAY GRANGER, Texas
MICHAEL K. SIMPSON, Idaho
JOHN ABNEY CULBERSON, Texas
MARK STEVEN KIRK, Illinois
ANDER CRENSHAW, Florida
DENNIS R. REHBERG, Montana
JOHN R. CARTER, Texas
RODNEY ALEXANDER, Louisiana
KEN CALVERT, California
JO BONNER, Alabama
STEVEN C. LATOURETTE, Ohio
TOM COLE, Oklahoma

BEVERLY PHETO, *Clerk and Staff Director*

ENERGY AND WATER DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR 2010

TUESDAY, FEBRUARY 24, 2009.

DEPARTMENT OF THE ARMY, U.S. ARMY CORPS OF ENGINEERS

WITNESSES

LIEUTENANT GENERAL ROBERT VAN ANTWERP, CHIEF OF ENGINEERS

Mr. VISCLOSKY. I would like to bring the committee to order, and, as the first order of business, would want to particularly general note—and this is beyond any of our control, and we all face these circumstances—is at least Mr. Olver and myself have our attendance required at the Rules Committee on the omnibus package. And so I would believe Mr. Edwards will take over the Chair and we will work from this, not out of disinterest and certainly not out of disrespect that we find ourselves here.

General VAN ANTWERP. I understand.

Mr. VISCLOSKY. Before we do begin, I want to welcome back my good friend and our colleague Mr. Frelinghuysen from New Jersey. We both serve on the Defense Subcommittee together. He has served on this subcommittee in past years and he will now serve as Ranking Member, and look forward in the sense that the subcommittee has always acted in a very professional nonpartisan perspective, have tried to work through the many problems that we face, whether it is water or energy together, and again would anticipate that that is certainly going to continue. I really appreciate having you back.

I also have three new members to the subcommittee. I would want to introduce them to everyone. First of all, Rodney Alexander who is from the great State of Louisiana and attended Louisiana Tech University and also served in the Air Force Reserve. I would point out that Mr. Frelinghuysen is also a veteran of the United States Army, if I am correct.

Mr. FRELINGHUYSEN. Two Rodneys on the committee, too.

Mr. VISCLOSKY. There you go.

We also have John Salazar who attended Colorado State University and Adams State College and is also a veteran of the United States Army. And we are very happy to have John with us.

And anticipating that most of the money in the subcommittee will now go to the State of Tennessee, would welcome Lincoln Davis as well, who attended Tennessee Tech University, and also

is a former mayor, which gives him a soft spot in my heart because that is what my dad did during one part of his life.

And I simply mention all of the educational institutions these gentlemen went to. Mr. Frelinghuysen attended Hobart College as well as Trinity College. I think they have all within the last year or two beaten Notre Dame in football.

Mr. SIMPSON. Who hasn't beat Notre Dame in football?

Mr. VISCLOSKY. And the people who do so much good work, and just as we caucused before we came in, Mr. Frelinghuysen and others noted we do have an exceptional staff. And at the outset of this fiscal year in Congress would want to again point all of them out.

First of all we do have our clerk Taunja Berquam who served as our clerk last year and is our clerk in the 111th Congress and has done a wonderful job; Terry Tyborowski, who is a veteran on the subcommittee and deals with renewables, environmental management cleanups, fossil and the nuclear programs. We have Bob Sherman who is continuing to be with us and is very focused on the nonproliferation and weapons program. A new addition on the administrative aide is Casey Pearce, who is a graduate of Brown University. He said he liked the color but also apparently is a very smart guy. Lauren Minto—thank you very much. I just was looking for one laugh. Lauren Minto is still with us as a detailee from the Corps and is helping us get over the hump here with the omnibus package in the 2009 legislation. And someone who has also been with us and done an exceptional job is Rob Blair who is a graduate of Cornell and the Fletcher School. Rob is here. And as I also pointed out during the caucus, you might congratulate him with a round of applause. He is a reasonably new father, with a daughter born on December 8.

And also a welcome addition to the subcommittee, although not new to the Appropriations Committee, has by and large served for the last 5 years on the Defense Subcommittee, Kevin Jones. Kevin joins us and has attended James Madison University and will deal with, among other issues, nuclear waste, energy efficiency and renewables, and has two young children, a 3-year-old daughter and a 2-year-old son.

The final introductions and then we will get on is Shari Davenport, who remains as my associate staff. Katie Hazlett who is with us is associate staff for Mr. Frelinghuysen.

And with that, I would continue now with my opening statement.

We have before us the Chief of Engineers, Lieutenant General Robert Van Antwerp. He is here today along with several members of his staff to provide the subcommittee an update on the Corps' recovery efforts in southeastern Louisiana and specifically the New Orleans area.

As we all remember, Hurricane Katrina made landfall on August 29, 2005, in southeast Louisiana and southwest Mississippi and caused one of the largest natural disasters in American history. Since that time, Congress has provided more than $14 billion to the Corps to repair and improve the southern Louisiana hurricane protection system. This is a large sum of money, even in the context of today's discussion of economic recovery funding, and far in excess of the $3.5 billion originally estimated. I understand, Gen-

eral, that the initial cost estimates were considered order of magnitude.

However, there is now speculation that we should anticipate further cost escalations on the order of $500 to $800 million. With the passage of more than 3 years, the excuses of early on-the-back-of-an-envelope estimates certainly are now gone.

What we, among other interests, have today is whether or not we have nailed down final cost figures and management issues that were evident in early issues and those that seemed to have remained through all of the many reviews of the Corps were even as late as December 2007.

In the subcommittee's hearing of our fiscal year 2009 budget, I expressed my frustration that we are spending nearly three times the annual budget of the Corps in one geographic region of the United States. I will reiterate that my concern in no way diminishes the tragedy or commitment to rebuild New Orleans. I only hope that the new administration will learn the lessons of the Gulf Coast hurricanes and the Minnesota highway bridge collapse. That lesson was simple: Invest today and you can eliminate the need for costly emergency needs tomorrow.

It is my hope that through the recovery funding provided to the Corps in the fiscal year 2009 appropriations we can make progress in ensuring that another tragedy does not result from underinvestment in our infrastructure.

General, we may have some follow-up questions for the record. I would ask that you expedite the response to those questions. All members who would have additional questions for the record must have them submitted to the subcommittee offices by 5:00 p.m. today.

And with those opening comments, I certainly am pleased to recognize Mr. Frelinghuysen for any comments he has.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman. Before I begin, I would like to say how happy I am to be back on this subcommittee. I was on the committee for a dozen years and then went on to be Ranking on Commerce, Justice in the science portfolio, and I know I can say on behalf of all committee members, we have always appreciated the bipartisan approach, truly amicable relationship that you had with my predecessor David Hobson and I know we will continue that approach. I know you had your differences on opinion and policies, but they never came between you as legislators and representatives of your constituents. And I am looking forward to carrying on your tradition.

I would also like to welcome Lieutenant General Robert Van Antwerp before the subcommittee. General, the Corps is in desperate need of good leadership, and I am pleased that you are still in your role. And may I say, I hope and trust that you won't be leaving anytime soon.

Hurricane Katrina still looms large in the memories of many Americans, even those who have never been to New Orleans. Perhaps no other event has grown in the human psyche to represent the human tragedy that can result from natural events.

Unfortunately, the words Hurricane Katrina also bring to mind empty trailers, bureaucratic mismanagement, suspicions of waste,

fraud and abuse of billions of taxpayers' dollars. I hope that is not the story we are going to hear today. I am confident it is not.

Since the last days of 2007, as the Chairman has pointed out, Congress has appropriated more than $14.45 billion to rebuild and improve the system that was supposed to protect the city of New Orleans. We know now that that system that was in place at the time of Katrina wasn't an integrated system at all, but a poorly coordinated patchwork of defenses that were bound to fail.

The improved hurricane protection system is supposed to fix all of that. It is supposed to be a true system, pulling all the parts together into a coordinated defense against a hurricane that should only happen once in every 100 years. But the truth, as usual, is a little more complex. No matter how high the levees, the possibility of a larger hurricane exists; let's be blunt. And New Orleans is still below sea level, surrounded by water on three sides. There is a risk inherent in just living there. I am still wrestling with the proper role of the Federal Government in protecting New Orleans. The city is an American treasure and its people have the right to expect reasonable protection from natural events. Yet there must not be any impression of a Federal guarantee to live anywhere, local authorities must ensure that people not build irresponsibly, or, if they do, it is at their own risk, not that of the Federal taxpayer.

I hope we will hear today about how local authorities—I think this is important—are coordinating with the Corps on these critical issues. It is absolutely essential.

With that, Mr. Chairman, I would like to welcome the general again to this subcommittee and I am looking forward to hearing his testimony and learning more about the Corps' work. And thank you, Mr. Chairman.

Mr. VISCLOSKY. Thank you. General, if you would proceed. And your entire statement will be entered into the record.

General VAN ANTWERP. Thank you, sir.

Mr. Chairman, members of the subcommittee, it is a pleasure to be with you today.

If you will allow me, Mr. Chairman, I would like to make a couple of introductions of the people behind me here so you know who the players are. Off to my left, your right, is Major General Bo Temple. Bo is the Deputy Commanding General for Civil and Emergency Operations, meaning he overwatches the civil works piece. And if there is a disaster anywhere in the world or country that we go to, he is heading that effort up and would be one of the first ones out the door to go there. So Major General Bo Temple.

Off to my right here, this is Brigadier General Mike Walsh. Mike is the Commander of the Mississippi Valley Division. The division has six districts going all the way from the Canadian border, St. Paul, all the way down to New Orleans.

And next to him is our SES on the ground, Karen Durham-Aguilera. She runs what we call Task Force Hope. So as we talk about those different terms today, you can see what our command and control structure is down there.

In addition, there are two other Colonels and they are not here today. But one is Colonel Al Lee. He is the District Commander for the New Orleans District. And the other one is Colonel Mike

McCormick. He is the Commander of the Hurricane Protection Office.

So in New Orleans we have Karen, who is Task Force Hope; and then we have the District Commander and we have the Hurricane Protection Office. Those three offices are the ones that are getting this mission done down there.

So it is my pleasure to be with you today. I want to thank you for this opportunity. I am going to talk about our reconstruction, our restoration and our improvement efforts for the hurricane storm damage risk reduction system. I would like to say, you will not hear me say "protection" today because I think as we look at this system, it was acknowledged, there is always something larger that Mother Nature could do. So you are not ever protected.

What we are doing here is reducing risk. We measure that risk in terms of probability of an event. And so where we are headed, the operational goal here is by 2011 hurricane season, June 2011, that we will have 100-year protection. That means a 1 percent chance in a year that we would have a storm of magnitude that it would exceed the design of what it is for this.

I know there may be discussion on categories versus this 100-year protection. For categories, Hurricane Katrina was a Category 2. Hurricane Gustav was a Category 2. And yet their effects were a lot different, the major difference being the surge associated with them. That is why it isn't sufficient just to say, Category 2 or 5 or whatever. There are so many other factors. The surge of Katrina in some places was up to 32 feet. The surge in Gustav was 12 feet. A much different result, similar winds, similar category. So just clarify that.

I have put a map in front of all your seats, and many of you have been down there. We are going to talk about miles of levees and many other features. And we won't point all of these out.

General VAN ANTWERP. But I also wanted you to see this is the map that we presented to the public as we approached hurricane season 2008. It will be updated for 2009 as we get close to June. But I wanted to give you an example of the products and then a little bit on the keys of this so you can see.

If you go to the lower left-hand corner of the map, you will see an assessment guide in different colors there, which correspond to the colors on the system. So if you see red as you do over near the Lake Borgne area, near the Gulf Intercoastal Waterway, going to the GIWW and the Inner Harbor Navigation Canal, you can see that is red. And that means most vulnerable area.

When Gustav hit, Gustav came right up the pipe, right from Lake Borgne and right in there when you saw Geraldo Rivera filming, standing behind a flood wall that had water at 11.6 on the 12-foot flood wall. That was in the inner harbor in that area right there, still most vulnerable. The yellow means doesn't meet the 100-year protection criteria, but less vulnerable. And, finally, 100-year protection established.

This year we will have pieces of this, lord willing, and as our construction comes through, that will be green. And as we progress to the 2011 time frame, most of this will be green unless it is a portion of it like the internal drainage that won't be 100-year. But we will have 100-year protection. I will explain that a little more.

The only other thing I would point out here, if you go to the red area and look right where it says Mississippi River Gulf Outlet, kind of on the line that goes from the upper left to the lower right, you will see three blocks of numbers. If you have your reading glasses on, like me, you can see it says, the blue says 16 to 17 feet. That was the pre-Katrina height of that area. And the 19.5 to 21.6 is the current elevation. And then the elevation when we have 100-year protection is 26.5 to 28. So what this does, it shows you there has been a tremendous amount of work because Congress, right after Katrina, you responded; 220 miles of these levees are stronger and more resilient than they were pre-Katrina. So there is more risk reduction right now, but not at the 100-year level.

The risk reduction system includes 350 miles. What you see on this map is about 220 miles of it. There are also some non-Federal levees that go down into Plaquemines Parish and Terrebonne Parish that aren't shown on this particular map which includes flood walls, four navigable gated structures, 73 pump stations, and numerous other structures. The threat of the 100-year storm surge is being addressed through improvements to the perimeter of the existing Lake Pontchartrain and Vicinity and West Bank and Vicinity projects. So that is how we have portrayed this. What is in the West Bank and Vicinity project is that which really looks south of the Mississippi River, if you will. But they call that the West Bank. And the other part is Lake Pontchartrain and Vicinity.

There is also an interior drainage system which provides for the removal of rainfall that is being addressed through improvements to the Southeast Louisiana Urban Flood Damage Reduction Project. We call that SELA. And SELA is designed right now for a 10-year rainfall event. So you will see even with the 100-year protection, when it rains and severely rains, it will handle about a 10-day event internal.

A major feature of the work we are doing in Louisiana includes erecting surge protection barriers. And I will just point out on your map, if you look at it again, off to the right where the red comes to a v, there is a dotted line there. That is the Inner Harbor Navigation Canal surge reduction barrier, or oftentimes referred to as Lake Borgne. It will be the largest, most complex surge barrier ever constructed in the world. And we have been to foreign countries that have a lot of people with my namesakes, with Van in front of their names; this is the largest in the world. Very complex. And we will talk about the cost of that as we go further.

We have already replaced the deficient I walls with stronger T walls. We have made repairs to existing pumping stations, stormproofing pumping stations, and we are improving the interior drainage of the system. The authorized and funded work also includes incorporating Plaquemines Parish non-Federal levees in the existing New Orleans to Venice Hurricane Risk Reduction Project and improving levees in Terrebonne Parish.

In addition, ecosystem restoration and higher levels of storm risk reduction measures are also being studied for coastal Louisiana as part of the authorized Louisiana Coastal Area program and ongoing Louisiana Coastal Protection Restoration study.

Today we are more than one-third done with the construction on the improved system. It is already stronger and more resilient, as

I said, than at any time in the history of this system. Extensive modeling, lessons learned and risk-informed processes have enhanced our design criteria and on-the-ground construction.

As you can imagine, the contracting effort for this is massive. I am proud to say we have already awarded over 170 contracts. When we are finished with this, there will be over 350. So we are at 170 contracts awarded of 350. The amount of obligation to date has been $3.5 billion.

We are cognizant also of the opportunities of this project to contribute to small business development, and so we have our eye on that. Our small business obligations have been about $1.2 billion thus far. That is a great news story.

With the assistance of the Federal Coordinator for Gulf Coast Rebuilding and in close partnership with Governor Jindal, we have signed all three of our major project partnership agreements with the State of Louisiana to proceed with construction. So all things are green in that category. We have also signed all deferred payment agreements with the State that extend the State's payments for the cost-shared portion of the work over a 30-year period. The State's estimated cost share is $1.83 billion, of which $330 million is the real estate acquisitions and $1.5 billion is for the State's required cash contributions that will be made at the 30-year period. Because of this deferred payment agreement, $1.5 billion of the $14.3 billion—that is the Federal funds appropriated—covers that $1.5 for this program. So the non-Federal cash requirement is contained in the $14.3 billion.

We have implemented a robust independent external peer review of the hurricane storm damage reduction system. This includes the overall design criteria and their application during design and construction, the armoring manual and the quality management plan. The most complex projects will receive additional peer review during design and construction.

To allow for the safe and continued operation of internal drainage system during hurricanes and storm events, we constructed five new safe rooms for pump station operators and added storm-proofing in Jefferson Parish. We completed 32 pump station repairs for a total of more than $35 million. We awarded contracts for 13 pump station repairs in Plaquemines Parish for more than $14 million. We are currently working on development of an overarching agreement that would address the remaining storm-proofing in Jefferson and Orleans Parishes. We have awarded all five Harvey Canal flood wall contracts totaling about $340 million. No Federal protection previously existed along the east side of Harvey Canal. On your map that is kind of in the lower center where you will see the Harvey Canal connecting to the Intercoastal Waterway, which is the yellow line depicting that it does not yet meet the 100-year protection. About 3.5 miles of flood walls and one mile of levee will be constructed along the eastside of the Harvey Canal. We expect this work to be completed by 2010. Just this month we completed rebuilding three pump stations in St. Bernard's Parish, $20 million.

In order to reach out to stakeholders and inform our decision making with the public, the Corps has hosted more than 100 public meetings for this project. And that is ongoing. We want to be trans-

parent in our communications and we want to transparently convey the risk. We have what is essentially a Google Earth ability where you can go in and type in your address, and you can find out for various storm events what the inundation would be on your property. It has been a great tool to have transparent communications.

During Hurricanes Gustav and Ike, we coordinated with the sewage and water boards of New Orleans to close the gates at the interim waterways structures. The three canals, if you take big Lake Pontchartrain and look at the middle of your map, you can see the 17th Street Canal, New Orleans Canal and the London Avenue Canal. At the end of those canals is where the gates are located and where the pumping stations are. We had a surge from Hurricane Gustav that required us to lower the gates and to operate the pumps. Both things happened flawlessly. It was a great test of the system, and they worked flawlessly.

The year of 2008 saw several major accomplishments. We awarded the largest ever Corps design-build contract for the Inner Harbor Navigation Canal. It is the surge barrier that we talked about in Lake Borgne. Other project features consist of 250-foot navigable floodgates in a concrete pile-supported barrier. Some of these concrete piles will go down 130 feet to provide a surge barrier across that entire distance that will withstand a surge that puts just enormous pressure.

It has been a very complex and challenging design to do this. This was a design-build contract. When we awarded the contract, we had about 5 percent of the design. The rest is being done by the contractor. Why? Number one, it took this project from being about 5 years to get started to being able to get started right away. They are already under construction for those pieces that have been designed.

The other part of it is to take advantage of the innovative nature of what our contractors can do. We are very confident that we are going to get a wonderful product here and we will talk about the cost of it in a minute.

The first constructed features of this project will provide risk reduction for a lot of the areas by this hurricane season, which was another real advantage of getting it started. It does provide some surge protection. Had that barrier been in there for surge protection, you would have not seen the issues that were happening during Gustav in the inner harbor. It would have damped down that surge.

Extensive effort in engineering analysis hydraulic modeling and simulation exercises with pilots have enhanced the navigation safety; we have been working closely with the Coast Guard.

We have recently updated our project cost estimate for this surge barrier. In addition to the added features for enhanced navigation safety, the other cost drivers were a more robust barrier wall to meet design criteria and the nourishment of 705 acres of marsh performed to meet the Louisiana Coastal Zone Management Standards. While the IHNC project requires additional funding to complete the work and to meet the scheduled commitments, the additional funding requirement can be met within the overall program and therefore does not require additional appropriations, assuming

that we have the ability to reallocate funds among features of work.

We are presently evaluating courses of action for reallocating funds to the IHNC project from funds that are currently available from within the overall program. We will continue to award construction contracts over the next several months and remain diligent in the overall cost management of this program. Should the reallocation for the IHNC projects occur on or before June 1 of this year, we do not anticipate that there will be a need for any delay in this project past the 2011 operational goal of being ready for hurricane season 2011.

Also included in the IHNC surge risk reduction is the Lake Pontchartrain floodgate. And you can see that up in the other parts, the other dotted red line in Lake Pontchartrain. Interim closure structures at the three outfall canals currently provide 100-year level of risk reduction.

Another major feature of the 100-year system is the Gulf Intercoastal Waterway west closure complex. And that is along in the lower center below the Mississippi River off to the left of your map.

We are continuing construction on nine SELA internal drainage projects worth about $110 million, several of which are being accelerated to completion under the third supplemental. One of the big projects here is the SELA internal drainage project.

We are engaged on several fronts with respect to ecosystem restoration and various levels of storm risk reduction measures in coastal Louisiana. These activities are conducted under numerous authorities and provide for varying levels of construction, design and planning. Since Hurricane Katrina, the Corps of Engineers has been involved in leading a number of simultaneous efforts located on or near the MRGO, the Mississippi River Gulf Outlet.

The comprehensive plan for deauthorization of deep draft navigation was completed in 2008. Construction crews are now placing over 400,000 tons of rock to complete the MRGO closure structure by July of this year. We recently received the draft results of the Army Audit Agency's follow-up audit of program management to restore and enhance the southern Louisiana hurricane protection system. The follow-up audit indicated that the Corps of Engineers adequately implemented the recommendations of the initial 2007 report.

The new report provided three additional recommendations related to the programmatic resource strategies and staff transition strategies. We take these recommendations very seriously, and we are currently working to analyze them and determine what is the best way to meet these recommendations.

In closing, we are using the overall resources of the entire Mississippi Valley Division, all six districts and other Corps districts across the Nation to keep this program on schedule and deliver on our commitment to provide 100-year risk reduction in 2011. Construction will continue after that date to complete some other features by 2013, one being the permanent pump stations.

Mr. Chairman, this concludes my testimony this afternoon. And I look forward to your questions.

[The information follows:]

DEPARTMENT OF THE ARMY

U.S. ARMY CORPS OF ENGINEERS

COMPLETE STATEMENT

OF

LIEUTENANT GENERAL ROBERT VAN ANTWERP
CHIEF OF ENGINEERS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ON

RECONSTRUCTION AND RESTORATION IN
NEW ORLEANS, LOUISIANA

February 24, 2009

Introduction

Chairman Visclosky and other Members of the Subcommittee, I am Lieutenant General Robert Van Antwerp, Chief of Engineers for the U.S. Army Corps of Engineers. Thank you for the opportunity to be here today to discuss the Corps of Engineers' ongoing reconstruction, restoration and improvement efforts on the Hurricane and Storm Damage Risk Reduction System (HSDRRS) for the Greater New Orleans area. The Federal Hurricane and Storm Damage Risk Reduction System projects for Greater New Orleans were extensively damaged by Hurricane Katrina in 2005. With quick action from Congress to provide authority and appropriations, the Corps repaired and restored 220 miles of the system to the pre-Katrina level of protection and is now working to provide risk reduction from hurricanes and storm surges that have a 1% chance of occurring in any given year (known as 100-year risk reduction). The Corps' operational goal is to provide that level of risk reduction by June 1, 2011. My testimony today will focus on the Greater New Orleans Hurricane and Storm Damage Risk Reduction System progress to date and other restoration efforts.

Hurricane and Storm Damage Risk Reduction System Status

The risk reduction systems in the New Orleans area include about 350 miles of levees and floodwalls, four navigable gated structures, seventy-three pump stations and numerous other structures. The threat of 100-year storm surge is being addressed through improvements to the perimeter system composed of the existing Lake Pontchartrain and Vicinity (LPV) and West Bank and Vicinity (WBV) projects that protect major areas of Jefferson, Orleans, Plaquemines, St. Bernard, and St. Charles parishes. There is also an interior drainage system which provides for the removal of rainfall that is being addressed through improvements to the Southeast Louisiana Urban Flood Damage Reduction Project (SELA) project. SELA is designed for a 10-year rainfall event.

Major features of the work we are doing in Louisiana include erecting surge protection barriers to reduce storm surges entering the Inner Harbor Navigation Canal (IHNC), adding scour protection, replacing deficient I-walls with stronger T-walls, making repairs to existing pumping stations, storm proofing pump stations, improving interior drainage and restoring and completing components of the Lake Pontchartrain and Vicinity (LPV) and West Bank and Vicinity (WBV) projects. The authorized and funded work also includes incorporating the Plaquemines Parish non-federal levees into the existing New Orleans to Venice hurricane risk reduction project, and improving levees in Terrebonne Parish. In addition, ecosystem restoration and higher levels of storm risk reduction measures are also being studied for coastal Louisiana as part of the authorized Louisiana Coastal Area program and the ongoing Louisiana Coastal Protection Restoration study.

Today we are more than one third through construction of the improved Hurricane Storm Damage and Risk Reduction System. The system is already stronger and more resilient than prior to Katrina and at any time in history. Extensive modeling, lessons learned, and risk informed processes have enhanced our design criteria and on-the-ground construction. The progress continues to occur.

The contracting effort to accomplish this massive construction project in a short time frame is immense. We are proud of our accomplishment in maintaining our aggressive obligation

schedule, originally laid out in 2007. We have already awarded over 170 contracts, obligating over $3 billion. The majority of funds are planned for obligation by the end of 2009. Current obligations include nearly $1.2 billion to Small Businesses. We are cognizant of the opportunities to contribute to small businesses' development.

With the assistance of the Office of the Federal Coordinator for Gulf Coast Rebuilding and in close partnership with Governor Jindal, we have signed all three major Project Partnership Agreements with the State of Louisiana necessary to proceed with construction, namely those agreements associated with the WBV, LPV, and SELA Projects. We have also signed all deferred payment agreements with the State of Louisiana that extend the State's payments for the cost-shared portion of the work over a 30-year period, supporting the policy announcement between the Federal government and the State of Louisiana in August 2008. The state's estimated cost share is $1.83 billion, of which $.33 billion is the real estate acquisitions and $1.5 billion is the state's required cash contribution. Because of the deferred payment agreement, $1.5 billion of the $14.3 billion in Federal funds appropriated for this program is funding the non-Federal cash requirement until the non-Federal funds are received.

We have implemented a robust independent external peer review of the Hurricane Storm Damage Risk Reduction System. This includes the overall design criteria and their application during design and construction, the armoring manual, and the quality management plan. The most complex projects will receive additional peer review during design and construction,

To allow for safe continued operation of the interior drainage system during hurricanes and storm events, we constructed five new safe rooms for pump station operators and added storm proofing in Jefferson Parish; completed 32 pump station repairs in Orleans and St. Bernard Parishes for a total of more than $35 million; and awarded contracts for 13 pump station repairs in Plaquemines Parish for more than $14 million --- all to be completed in 2009. The safe rooms and pump station repairs were all 100% federally funded. We are currently working on development of an overarching agreement that would address the remaining storm proofing work in Jefferson and Orleans parishes.

We have awarded all Harvey Canal floodwall contracts (five), totaling about $340 million. No federal protection previously existed along the east side of Harvey Canal, making this area the most vulnerable on the West Bank. About 3.5 miles of floodwalls and one mile of levee will be constructed along the east side of the Harvey Canal, and we expect to complete this work in the fall of 2010. However, the 100-year level of risk reduction will not be achieved until the Gulf Intracoastal Waterway - West Closure Complex is constructed.

Just this month, we completed rebuilding three pump stations in St. Bernard Parish to the Lake Borgne Basin Levee District. The Corps spent more than $20 million to rebuild the pumps, which were severely damaged during Hurricane Katrina.

Recognizing the need and fundamental responsibility to reach out to stakeholders and to inform our decision making with public input, the Corps has also hosted more than 100 public meetings in Jefferson, Orleans, Plaquemines, St. Bernard, and St. Charles parishes to obtain public comment into the development of the system.

Last year during Hurricanes Gustav and Ike, we coordinated with the Sewerage and Water Board of New Orleans to close gates at the Interim Closure Structures at the outfall canals at Lake Pontchartrain and then pumped storm water out of the canals. The 12-foot surge from Hurricane Gustav tested the system and the Nation watched as waves lapped over the floodwalls. The system performed as designed. No damages to the floodwalls occurred, due to the new T-walls, the armoring, and the splash pads installed for existing I-walls.

Inner Harbor Navigation Canal (IHNC) Surge Barrier

The year of 2008 saw several major accomplishments. We awarded the largest-ever Corps Design-Build contract for the IHNC surge barrier in Lake Borgne. Project features consist of two 150-foot navigable floodgates and a concrete pile-supported barrier wall stretching across the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet (MRGO). The first constructed features of this project will provide risk reduction from flooding to the Ninth Ward, Gentilly, New Orleans East, Orleans Metro, and St. Bernard Parishes by peak of hurricane season 2009, with overall project completion to provide 100-year risk reduction in 2011. Construction is underway. Extensive efforts in engineering analyses, hydraulic modeling, and simulation exercises with pilots have enhanced navigational safety to the fullest extent possible. With input from the navigation industry and the United States Coast Guard, enhanced features include lengthened and tapered guide walls, dolphins, increased impact resistance, navigational guide aides, and more. We will continue to work with industry and stakeholders on the operational scenarios of the project.

We have recently updated our project cost estimate for the IHNC surge barrier. In addition to the added features for enhanced navigational safety, other cost drivers include a more robust barrier wall to meet design criteria and the nourishment of 705 acres of marsh performed to meet Louisiana Coastal Zone Management standards.

While the IHNC project requires funding to complete the work and meet the schedule commitments, the additional IHNC funding requirement can be met within the overall HSDRRS program and therefore does not require additional appropriations, assuming we have the ability to reallocate funds among features of work. We are presently evaluating courses of action for reallocating funds to the IHNC project from funds that are currently available from within the overall HSDRRS program. We will continue to award construction contracts over the next several months, and remain diligent in the overall cost management of the program. Should the reallocation for the IHNC projects occur on or before June 1, 2009, we do not anticipate that the need for reallocation will delay the project past its June 1, 2011 operational completion goal for the 100-year level of risk reduction.

Also included as part of the IHNC surge risk reduction is the Lake Pontchartrain (Seabrook) Floodgate, a navigable surge barrier. This project is now going through the preliminary planning needed to meet the National Environmental Policy Act (NEPA) requirements. We plan to construct this project by the 2011 goal.

Permanent Protection for Outfall Canals

Interim Closure Structures at the three outfall canals (London Ave., 17th Street, and Orleans Ave.) currently provide the 100-year level of risk reduction. These Interim Closure Structures

are temporary facilities until a permanent solution is implemented. The sites under consideration for the Permanent Protection System for the Outfall Canals are currently being evaluated to comply with NEPA. We remain committed to providing permanent risk reduction at the outfall canals in 2013. As with the entire HSDRRS program, cooperation among the federal, state and local sponsors along with local communities is paramount to achieving this goal. We anticipate that the New Orleans District commander will sign the Individual Environmental Report (IER) document in April 2009 and we expect to execute an agreement for initiation of this work with the State of Louisiana soon thereafter.

Gulf Intracoastal Waterway--West Closure Complex (GIWW – WCC)

Another major feature of the 100-year system, the Gulf Intracoastal Waterway--West Closure Complex, part of the West Bank and Vicinity project which reduces risk for Jefferson, Orleans, and Plaquemines parishes, should be ready for award of an Early Contractor Involvement contract in the spring of 2009. This will follow the NEPA and Environmental Protection Agency (EPA) public comment periods and collaboration between the Corps and the State of Louisiana. The Corps has worked very closely with EPA, navigation interests, local government and non-government organizations to develop a plan to reduce risk of storm surge inundation on the West Bank. The Corps' proposed action to keep storm surge from entering the Harvey and Algiers canals would cause impacts to the Bayou aux Carpes area, a 3,200 acre wetland established by the EPA under the authority granted in Section 404(c) of the Clean Water Act (CWA). The Corps has requested that a modification of the 1985 EPA Final Determination be made for the actions proposed as a part of the Gulf Intracoastal Waterway West Closure Complex project. We recognize the importance of Bayou aux Carpes and would use special construction techniques to minimize impacts to the wetlands site. Early Contractor Involvement allows the construction contractors to become familiar with the project during the design phases and before construction starts. This allows them an opportunity to order long-lead-time items in advance. Implementation of the West Closure Complex will significantly reduce the risk to a large area of the West Bank by removing over 25 miles of levees, floodwalls, gates and pumping stations along the Harvey and Algiers Canals from exposure to storm surge. Risk reduction to the 100-year level will be completed by the 2011 hurricane season with interim pumping capacity. All project construction is scheduled to be completed in 2013.

Southeast Louisiana Urban Flood Damage Reduction Project (SELA)

We are continuing construction on nine Southeast Louisiana Urban Flood Damage Reduction Project (SELA) interior drainage projects worth about $110 million, with seven of those being accelerated to completion under the 3rd Supplemental Appropriations Act (Public Law 109-148). Four of these projects are substantially complete.

Of the work authorized, approved and funded under the SELA program, 51 of 74 contracts have been awarded. Scheduled work in Jefferson and Orleans Parishes is approximately 60 percent complete and the remaining work is scheduled to be completed in 2016. We also awarded a SELA contract for nearly $60 million for construction of the Dwyer Road Intake Canal in New Orleans East. While completion of the SELA projects is not a requirement to provide 100-year protection to the Greater New Orleans area, completion of SELA projects will continue to improve the system's ability to handle interior drainage.

The Project Partnership Agreement signed on January 16, 2009 with the State of Louisiana paved the way for construction of $1.3 billion of SELA features in Orleans and Jefferson Parishes.

Ecosystem Restoration Efforts

We are engaged on several fronts with respect to ecosystem restoration and various levels of storm risk reduction measures in coastal Louisiana. These activities are conducted under numerous authorities that provide for varying levels of construction, design and planning. The Corps is continuing to coordinate all of these activities, including Louisiana Coastal Protection and Restoration, Louisiana Coastal Area Plan, and the Mississippi River Gulf Outlet Ecosystem Restoration Study, to improve both hurricane storm damage risk reduction and ecosystem restoration in southeast Louisiana.

Since Hurricane Katrina, the Corps of Engineers has been involved in leading a number of simultaneous efforts located on or near the MRGO. The comprehensive plan for deauthorization of deep draft navigation was completed in 2008. Construction crews are now placing over 400,000 tons of rock to complete the MRGO closure structure in July 2009. We are also implementing or have previously implemented ecosystem restoration measures that include construction of 18,500 feet of rock dike along the bank of the eastern lobe of Lake Borgne to provide shoreline erosion control. The MRGO ecosystem restoration study is ongoing and feasibility scoping meetings are scheduled for April – May 2009.

We are using the overall resources of the entire Mississippi Valley Division and other Corps Districts across the Nation to keep the program on schedule and deliver on our commitment to provide 100-year risk reduction in 2011. Construction will continue after that date to complete other features in 2013.

We recently received the draft results of the Army Audit Agency's (AAA) "Follow-up Audit of Program Management to Restore and Enhance the Southern Louisiana Hurricane Protection System." The follow-up audit indicated the Corps of Engineers adequately implemented the recommendations of AAA's initial 2007 report. The new report provided three additional recommendations related to programmatic resource strategies and staff transition strategies. We have already incorporated these recommendations into a Mississippi Valley Division plan to ensure a future smooth transition of the Task Force Hope expeditionary mission in the future.

This concludes my testimony, Mr. Chairman. Again, thank you for allowing me to testify on the ongoing efforts of the Corps of Engineers in the New Orleans area. I will be happy to answer any questions you or the other Members may have.

Mr. VISCLOSKY. General, thank you very much. And I apologize, but as you heard, we have bells and we will have five votes. The first is a 15-minute vote, and four which I am anticipating realistically is about 40 minutes from now. So I hate to take your time but I am going to have to.

We will recess. And then Mr. Edwards will chair when we come back, and again it is not out of disrespect. I will have to go to Rules and we will proceed then.

General VAN ANTWERP. Okay, sir.

Mr. VISCLOSKY. Thank you very much.

[Recess.]

Mr. EDWARDS [presiding]. General Van Antwerp, thank you very much. Sorry about the delay. I am told this is a good job if it weren't for voting. So, sorry about the delay to you and your staff.

We would like to continue with the questions now. I would like to begin by recognizing Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman. I appreciate it. All of us apologize for that long hiatus.

Let me first recognize the incredible amount of work that has been done not only in Mississippi and Alabama, but in Louisiana and in the New Orleans area. It has been some time since I have been down there, but I know a lot of backs have been to the—people have been working very, very hard. And I think all of us are highly appreciative of the work that has been done. We may not fully understand it, but we are counting on the work being done successfully.

This is a very basic question. I would like to know whether the Corps has sufficient funding to meet its commitment to complete the Greater New Orleans area's 100-year protection system. A fairly basic question. And, you know, this was raised, when I wasn't here last year, of Secretary Woodley as to some of the outstanding costs. Where do we stand relative to your funding needs?

General VAN ANTWERP. I will be real direct. We feel we have sufficient funding to make the 2011 hurricane season of this project. We think we have sufficient funds. We do need the ability to reallocate funds among the different features of this.

Mr. FRELINGHUYSEN. So how much are we talking about reallocation? I took a look at a lot of the materials that I have been reading over, and obviously a lot of money has been obligated, but it hasn't been spent. And there is some significant money there.

General VAN ANTWERP. We have obligated $3.5 billion at this point; $14.3 billion is the total project cost. We are asking for the ability to reallocate, in this instance, between $550 million and $580 million.

Mr. FRELINGHUYSEN. While we are on the subject of additional funding requirements, what are the outyear costs associated with maintaining the system to meet this 100-year level?

General VAN ANTWERP. Basically what happens, once we complete the project, it is turned over to local authorities. The levees, for instance, will be then maintained. They are what we call federally built, but owned and maintained by the local entities.

Mr. FRELINGHUYSEN. Of course, that is sort of somewhat what got us into the problems.

General VAN ANTWERP. One of the things Katrina has done is there are very clear requirements for what that maintenance is today, and we are working that issue all across the country. There is one part of this that we are still working with the State, and that is the closure structures and the pumps, because they are different than taking care of a levee system. They are mechanical, and they need maintenance. So we are seeing whether or not the State would want the Corps to do that over the long term. But the levees and other features of this will be maintained and operated by the local authorities.

Mr. FRELINGHUYSEN. So you are saying on the record that there will be no outyear costs associated with maintaining the system?

General VAN ANTWERP. Not Federal funds, that is correct.

Mr. FRELINGHUYSEN. Federal. All right.

What would you estimate would be their financial obligations? I know you have a myriad of jurisdictions.

General VAN ANTWERP. Each Parish has that responsibility for those features that are in their Parish, just as they do now. I think one of the things in the long term, and I would like to just state this, we know, for instance, as there was in years past, there will be subsidence where some of the flood walls and levees are located. So, over the course of 50 years, it is very possible that at some point——

Mr. FRELINGHUYSEN. Actually, there is subsidence to some degree every year, isn't there? In certain areas, it is known for subsidence.

General VAN ANTWERP. We are accounting for that as we are building this part of the system. But if you now fast-forward 50 years, there is a strong likelihood that sometime during that 50-year period there is going to have to be additional height added on, just due to subsidence.

Mr. FRELINGHUYSEN. The term "100-year standard." I have been reading and rereading my material. I know a lot of time and effort and money has been spent getting the system back into shape such that it could withstand a Category 3 hurricane. It is a little unclear to me what we have done. I know a lot of money is going towards the real potential of what might happen with a Category 4 and a Category 5 hurricane.

General VAN ANTWERP. I would just describe the difference between a Category and a 100-year or a 500-year or a 10,000-year risk reduction or protection is that largely the categories are determined by wind velocities. That is why you can see as a hurricane approaches land and they come through the Gulf, as that wind drops, they will change categories. And they can even grow in category, depending on the prevailing winds.

The 100-year event accounts for more than just the wind. In the case of Katrina and Gustav is an easy comparison because they were both Category 2. By that Category 2, it means the wind velocities were very similar, but the surge associated with the two events was much different: 32 feet for Katrina, 12 feet for Gustav.

That was the game breaker for Hurricane Katrina——

Mr. FRELINGHUYSEN. So that actually raised it, just so I understand it. It was more than a Category 3 storm because of the surge.

So, to some extent, it might have been considered to be a 4½ Category in terms of the amount——

General VAN ANTWERP. Consequences greater than we would have expected with a Category 3. I think that is safe description, because of the surge that came in. We didn't recategorize it as a whatever because those categories go on wind velocities.

Mr. FRELINGHUYSEN. On the issue of State and local participation, what is the status of many of these local cooperation agreements, and where does the State stand relative to giving its assist in terms of land easements, rights-of-way, things of that nature? Has there been full cooperation?

General VAN ANTWERP. We have had great cooperation. We recently have signed all three of the partnership agreements; one for the Lake Pontchartrain, one for the West Bank, and one for SELA, which is the internal drainage. So we have all we need in that regard. I think our team has established a terrific working relationship.

You have huge issues here that we have to deal with, and just an alignment for a levee and the mitigation required, the lands, easements, rights-of-way. These impact people's properties. I think the State and local authorities have done a great job in that.

Mr. FRELINGHUYSEN. I understand the notion of protecting property, private property, but obviously we are also about here protecting lives.

General VAN ANTWERP. Absolutely.

Mr. FRELINGHUYSEN. When we weigh in on behalf of the taxpayers, we are assuming we are going to try to do both. I just wonder whether along that road you have encountered any major resistance. The picture many of us have is because so many people have been displaced in some areas, people have gone back into the very areas that were previously devastated and sort of reestablished a claim, and no one has done much to, shall we say, shake them of the illusion that they are in perhaps future danger.

General VAN ANTWERP. Well, I think we have been as transparent as we can be with the risk associated with going back into, say, the Ninth Ward or other areas. Incidentally, when the surge barrier gets constructed in Lake Borgne, that will greatly reduce the risk in some of those very high-risk areas, but that is why we have that area as red currently.

The lands, easements, rights-of-way are the responsibility of our partners in the State and local authorities. The Parish presidents are about risk reduction for their people. I have met with them. Our team has met with them. They want to deliver on this. They do not want that to be the thing that holds up a contract being let; that they don't have what is required. So they are really working with us.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. EDWARDS. Thank you, Mr. Frelinghuysen.

General Van Antwerp, let me ask you, if Katrina hit in July of 2011, same surge, 32-foot surge, everything were exactly the same thing, what would be the impact on the city of New Orleans with the facility you have in place at that point?

General VAN ANTWERP. I am confident that the system would—I am going to use the word "protection" in this case, because if

Katrina hit, the same event hit, it would be protected from that. The T-walls would hold, the levees would do their job. Would there be overtopping? Yes, in some areas. There would have been overtopping of Katrina of the level heights.

But will there be rain in the bathtub that needs to be pumped out? Yes. But the gates will work for the surge, the pumps will drain the canals as they are supposed to do, and the levees will hold.

Mr. EDWARDS. Is the 100-year flood protection standard defined—or how would you define that? Is it a combination of surge and wind velocity, or is it basically predicated on the surge levels? Could you define that for us?

General VAN ANTWERP. The basic definition of a 100-year flood is that you would have a 1 percent chance of having that magnitude of an event with all those different features you talked about, surge, wind, rain, all of that, in any given year.

Mr. EDWARDS. Is that magnitude defined as that magnitude of a Katrina, that magnitude of a certain level of surge? How do you define that magnitude?

General VAN ANTWERP. You first look back in history and look back at all the events and what type of events have ocurred. We have modeled over 152 different events coming in at all angles and determined to get at what is a 100-year event. That means that 1 percent chance it happens is fairly unlikely, but, at the same time, we always tell people this is why it is risk reduction. You can have two 100-year events back to back.

Mr. EDWARDS. Would Katrina be defined as a 100-year flood or a 200-year flood?

General VAN ANTWERP. It is a 400-year. Katrina would be a 400-year. That is why I say there would be overtopping, but the levees that are supposed to hold and be overtopped will hold. But there still will be flooding. It was a very severe event.

Mr. EDWARDS. So the levees would hold at a 400-year level as you are building to the standard for June of 2011; is that correct?

General VAN ANTWERP. When we build for 2011, that is at a 100-year protection. So now you have a 400-year event in Katrina because of the surge, not because of the wind category; that the levees that we are building right now still would be overtopped, but it wouldn't be the catastrophic.

A lot of what levees really do and should do is provide you time and provide you the ability to evacuate and do all the other things. But the real issue in Katrina was we had catastrophic failure.

Mr. EDWARDS. Is it the surge that provides most of the physical force that knocks down the levees?

General VAN ANTWERP. In this case the surge came up the canals as the drainage water was going down the canals, and there was nothing to block that surge from coming in from Lake Pontchartrain. Now there are gates, there are barriers that are going to take that surge and stop it at the canals. But this event will still be such that the levees could be overtopped.

Mr. EDWARDS. Overtopped, but not catastrophic flooding.

General VAN ANTWERP. We categorize a levee that does its job and is overtopped is armored so that it can take water on it, water

flowing over it, as different from one where you have a hole that is cut, and it fails.

Mr. EDWARDS. Okay. Let me ask you a couple of questions if I could on behalf of Chairman Visclosky, who is, as you know, at the Rules Committee. How are you ensuring that the 100-year standard is being applied consistently throughout the system? And what about in any area that is not under—directly under control of the Corps?

General VAN ANTWERP. The 100-year is based on modeling and historic data, so we are very confident in the 220 miles, what is on your map there, that make up the system. One of the things we are working, and this is a weak link argument, you can say, if there are seams between different features. So we are trying to bring the whole thing up, and in 2011 it will be a system that will work together. We are very confident that it will be 100-year protection.

Now, there are other levees, non-Federal levees, that are being worked under this that will not be at the 100-year level, but they will provide some level of risk reduction.

The other part is internal drainage. That internal drainage, if you had to compare 100-year for the ring system, if you will, internal it is 10-year at this point. So if they have a 10-year rain event—and actually down there last year there were, in the course of 2 or 3 weeks, a couple of 10-year rain events that provided that much water internal to the system.

So this is still a weak area, and the overall project does have that SELA, the internal drainage project, but that will not be completed until about 2014 to 2016.

Mr. EDWARDS. One more question on behalf of Mr. Visclosky, and then we will move on to the other Members.

Last March you testified that the Corps had addressed or was in the process of addressing the nine recommendations of the U.S. Army Audit Agency. Can you update the subcommittee on where you are in addressing all of those recommendations?

General VAN ANTWERP. We addressed all the recommendations from the 2007 report. The major one had to do with how we were staffing the effort, because what we did when Katrina hit, was utilize 41 districts out of the 45, and the ones that we didn't use are in either Iraq or Afghanistan. People have come from all those districts to work Katrina. The permanent staffing for the three organizations, New Orleans District, Hurricane Protection Office, and Task Force Hope—it took a long time to get the right people down there on a permanent basis. Karen, for instance, bought a house down there, and she is there.

The feeling from the audit agency is that would save in the neighborhood of $3 million to $8 million through permanent staffing. We are starting to see realization of that savings if you compare it with putting people on what we call temporary duty. That was a big part of it.

We also gained a lot of ground. We hired a number of retired annuitants to come back for debris removal and some of the recovery. Since then they have gone home.

What we have down there is pretty permanent in the workforce area. That was probably the major recommendation.

There are three new recommendations in the current report, and we are looking at those. It is just in draft now, and we will take those on and get them done.

Mr. EDWARDS. Can you report back to the committee when you take action on those three recommendations? Thank you.

Mr. SIMPSON.

Mr. SIMPSON. Thank you, Mr. Chairman. Thank you for all the work that you have done down there. And I would recommend to the committee that if they haven't been down there, it would be a good trip for the committee to go look at for maybe 2 or 3 days. New Orleans is a great place.

General VAN ANTWERP. By the way, it is Mardi Gras right now. This team wants to get home.

Mr. SIMPSON. This is really a good week to go do it.

I want you to educate me, I guess, because even having been down there, I am kind of stupid on this stuff. It seems to me like the levee protection is only as strong as the weakest link in the levees. And when I see on the map here that "more vulnerable areas" versus "does not meet the 100-year protection," it seems to me like if you have got areas that don't meet the 100-year protection, then the whole system doesn't meet the 100-year protection. Is that correct?

General VAN ANTWERP. That is correct.

Mr. SIMPSON. Some of these levees are locally owned, right?

General VAN ANTWERP. In this system, the 220 miles, these are federally owned, federally built levees, so they are not in that category. As you go down into Terrebonne Parish and Plaquemines Parish, they do have non-Federal levees there, some of which are actually in this, but not at the 100-year.

Mr. SIMPSON. So the entire levee system to protect New Orleans is federally owned.

General VAN ANTWERP. Federally owned, federally constructed.

Mr. SIMPSON. And federally constructed.

A couple of just curious questions. When I look at this out on the far right of this map, all the most vulnerable areas on the intercoastal waterway and stuff, we are taking those levees from 16 feet to 26 feet.

General VAN ANTWERP. Twenty-six to twenty-eight feet on that part that is the Mississippi River Gulf Outlet. That part is going to go to 26 feet.

Mr. SIMPSON. What are we using for materials? Where are we getting them? Is that a difficult thing?

General VAN ANTWERP. That is a difficult thing because we are talking, I don't know, 100 million cubic yards, 75 million cubic yards of material. What we used to do is use a dredge, go down. As you dug the material out, you side-cast it, and you shaped it. That was your levees. I would equate these levees to almost how we build a dam. They have impervious parts to them. They have armored parts to it so they can withstand penetration of water and pressure of water and also overtopping.

We are gathering that material far and wide, but the levee material is a big cost of this project itself. That is one of the areas where the local authorities are working with us to find borrow pits that are adequate to do this.

Mr. SIMPSON. On this IHNC surge reduction barrier and the Seabrook surge barrier, what are those going to look like? Are those going to look like the barriers they have got in the Netherlands?

General VAN ANTWERP. We do have a picture here, which I can show you after or at any point, but basically it is a wall, and it has—the actual pilings that are being driven down are about 150 feet on this wall; 130, 150. They are about 6 feet in diameter. Then you have batter piles that go back at an angle, and that is what really gives that wall the ability to withstand that pressure from a surge. The wall would look fairly common, but it is very strongly reinforced. There is a picture of it right there.

Mr. SIMPSON. And then it will have the same type of doors or gates.

General VAN ANTWERP. There are two navigation features on this surge barrier and this is where we have worked with the Coast Guard; this has been a real challenging thing, to make sure we can pass traffic, but that this, when we close those gates, assure that it will take this surge, because, again, that is a weak link in the surge barrier where you have gates that open and close. But it has got to withstand what the rest of the wall does.

Mr. SIMPSON. Interesting.

General VAN ANTWERP. It is about a mile long.

Mr. SIMPSON. Have we started construction on that?

General VAN ANTWERP. Yes. We broke ground at a ribbon cutting, and they are underway driving piles. What we want to have by June of this year is some level of protection, or some level of risk reduction, I would say. That is where we are headed. We will have the wall built to a certain height this year.

Mr. SIMPSON. Congress essentially loaned the State $1½ billion over 30 years to pay its share of the project's cost. The taxpayers around the United States have loaned this money to the people of New Orleans. That seems a pretty good deal, especially since the State of New Orleans ran a $900 million surplus last year, which I am sure most States would like, and I don't know if they have got a $900 million surplus this year.

We have discussed the possibility of a cost increase to elements of the total system. Is there the possibility of the State providing the additional funding and freeing up some of the Federal funds that were provided to allow the State repayment over time?

General VAN ANTWERP. At this time we do not feel that there will be a cost increase to the total project. We do not feel that. We feel we need to reallocate funds within the $14.3 billion.

At this point, the State's share is $1.83 billion, of which about $330 million of that is for lands and easements and rights-of-way. The other $1.5 billion is the cash, and that cash was put up by the Federal Government on the 30-year loan.

Mr. SIMPSON. When does the repayment of that begin?

General VAN ANTWERP. Thirty years from last year.

Mr. SIMPSON. Thirty years from last year is when the repayment begins.

General VAN ANTWERP. Construction completion. As the construction is completed, then the 30-year clock begins, and then it is repaid at the 30-year mark. It is an annual payment.

Mr. SIMPSON. The Army Corps got $4½ billion in the emergency supplemental that just passed?

General VAN ANTWERP. Yes, sir.

Mr. SIMPSON. Is any of that slated for New Orleans or for other projects?

General VAN ANTWERP. Not for any of this. There may be some projects apart from this system. This system is fully funded. The stimulus package will not be used for this system.

Mr. SIMPSON. I appreciate it. I know it is hard work you are doing down there. I know it is tough to protect a city that is below sea level. As the Ranking Member said, I have some of the same concerns he does of how much protection can you give to some areas. It is very costly to all of us. But I do appreciate the work you are doing down there.

General VAN ANTWERP. One of the things in any study we do, we look for nonstructural solutions also. A nonstructural solution might be the wetlands which provide, for instance, some surge protection. But we lost 200,000 acres of wetlands during Katrina. They just washed out to sea.

Mr. SIMPSON. Is that something that can be replaced somehow—I mean, we do things like beach renourishment and that kind of stuff—replacing some of those wetlands that have destroyed over the years?

General VAN ANTWERP. It is very challenging to do it, and then to get them to really hold. There are a lot of what I would call almost floating wetlands. This had become a little like that over time. So it doesn't hold, where it is rooted like some other wetlands. Very challenging. Some countries in the world are building islands. You may have seen them over in Qatar and Dubai. Another great feature is if you have barrier islands. In fact, Grand Isle here operates much like a barrier island. It takes the brunt of it and then levels off that surge.

Mr. SIMPSON. On the east coast along the Atlantic, the barrier island.

General VAN ANTWERP. The same with Galveston Island during Hurricane Ike. That is your barrier island, Galveston Island.

Mr. SIMPSON. I appreciate it. Thank you.

Thank you, Mr. Chairman.

Mr. EDWARDS. Thank you, Mr. Simpson.

Mr. Berry.

Mr. BERRY. Thank you, General Van Antwerp and all of your staff, for being here and the hard work that I know you do, and determination and dedication that you provide to it.

To kind of continue with what Mr. Simpson was talking about, I have met with some—I think the Governor put a task force together about trying to rebuild the marsh down there or the coastal wetlands, and I have met with some of them from time to time. They can present that where it looks just real simple, and I am sure that you have experienced all of that.

I don't question anyone's integrity or good intentions, but are we looking at that as a way to redirect the sediment coming out of the river to hopefully accomplish that and get some more natural storm protection in that area?

General VAN ANTWERP. We are definitely looking at diversions. There are a number of diversions already off the Mississippi River. That is one aspect of what you can do. You can reclaim some of those wetlands there, or marsh areas, using that. We are talking that there were massive damages here.

The other consideration for the long-term future is that there is sea level rise, and it is happening out there. It is small, but occurring over time. And what does that do to your systems? But, we are looking at diversions.

Mr. BERRY. I know the Mississippi River Commissioner from Houma in Louisiana. I believe I never see him that he doesn't remind me that Houma is going to be gone in a few years if we don't do something. I think that is a different basin. I am not sure. But you all know who I am talking about.

Thank you. That is all I have.

Mr. EDWARDS. Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. Where is the final report on the Louisiana Coastal Protection Restoration Study?

General VAN ANTWERP. Sir, that is a good question. I will tell you exactly where we are on that. It was directed, this report is late, and we confess, but it is the most complex thing we have ever done. We have all along informed of the status of the study.

Here is where we are today. In March, we will send the report to the National Academies of Science for their review. It is our external peer review. At that point, the report in draft will probably be made public because of their way of operating. They then will post it to the Web as part of their process. We hope by June——

Mr. FRELINGHUYSEN. So the delay of getting it to them. I assume it is pretty complicated. But you are going to tell us why it is so complicated.

General VAN ANTWERP. First of all, this is the most complex thing I think we have done, in the civil works area in our 234-year history at the Corps. The timeframe initially was really unrealistic for us to do it. Until we got into it, we didn't realize all the complexities. We modeled 152 storms coming from different directions. Every little adjustment in a direction of a storm had a different influence on this system and where it attacked. So unusually complicated.

When we got done with courses of action through this—and that is kind of what the study will have, it will have different options.

Mr. FRELINGHUYSEN. Different options and obviously economic consequences of each.

General VAN ANTWERP. If it is wetlands or a barrier island or a diversion or whatever. There are over 100 good ones. There are over a million different options of how to do this, but, coming out of the study, over 100 very valid ways of going at this to get what would be a 500-year level of protection. That is what we are looking at in the study, what would be a 500-year, or it would change that percentage and make it less. A lot more risk reduction, if you will.

So we are on path right now to get to the National Academies of Science in March, and then to go public in draft to the State and Agencies and other stakeholders in June. We will have——

Mr. FRELINGHUYSEN. So how do you go from a 100-year protection——

General VAN ANTWERP. To a 500-year. There are a lot of things that you can do, but at great cost. If this is $14.3 billion, I guess—and we will have some cost basis in here; not specific recommendations, but a number of things that you can choose from to do.

Mr. FRELINGHUYSEN. And you are putting it out there so the civil engineers from around the world and people that are capable, beside obviously all of you, but the civilian and private sector——

General VAN ANTWERP. This will be an international event. There will be many Ph.D. theses, I would predict, that would come from trying to figure out what is the best option on this. It is hugely complicated.

Mr. FRELINGHUYSEN. So you anticipate it will be ready this August?

General VAN ANTWERP. By June it will go public. In March it will go to the National Academies of Science, and there it will essentially be public because they will post it on the Web. We will then answer all of their critiques to what we have done. And then by June we will put it out for public comment. And then probably in the August timeframe, it will be ready to go to Mr. Woodley, or whoever is in the chair at that time as the Assistant Secretary.

Mr. FRELINGHUYSEN. I won't say changing direction, but the State of Louisiana directed the consolidation of the levee boards serving as sponsor for the several authorized projects making up the Greater New Orleans Protection System. Can you update us on how you feel this arrangement is working? Are we any closer to the desired effect? Reinforcing the protection system is just that, a system and not a collection of individual projects. That is a nice way of saying things have been done certain ways for generations, I assume.

General VAN ANTWERP. I think for generations, somewhat by how they are organized into parishes.

Mr. FRELINGHUYSEN. It is like a cultural thing. And I assume that cultural thing, there may be a need for those distinctions, but we are, in fact, raising the bar. Or is the State anticipating raising the bar, so to speak?

General VAN ANTWERP. I think the State is. The Governor has done great things. He has now got a staff that works this. And so they are pulling this together so that our partnership agreements——

Mr. FRELINGHUYSEN. Not forgetting the issue of sovereignty. You have got the State of Louisiana, and we are highly respectful of Governor Jindal, but you also have the city of New Orleans which has its own political dynamics. I just wonder what sort of planning is being done to minimize risk exposure to the people and businesses of New Orleans?

General VAN ANTWERP. There has been a lot of planning and zoning and things like that that really——

Mr. FRELINGHUYSEN. The public perception is——

General VAN ANTWERP. Just go back as we were.

Mr. FRELINGHUYSEN. So you are telling us from your vantage point there has been some smart growth and some smart urban planning going on here?

General VAN ANTWERP. They did a lot of work to designate areas that were at higher elevations. They promoted that by having those be the places where the schools and the hospitals and those things were going to be rebuilt. And so what this is is to encourage people to move to those areas.

Mr. FRELINGHUYSEN. You can encourage people to move, but human nature being what it is. And obviously if you are poor, and you are homeless or you have been displaced, you want some permanence to your life. I just wondered, how are you interacting with local planning boards, which I assume that there are a multitude of?

General VAN ANTWERP. Right. We are involved with all the local planning boards. We have town hall meetings.

Mr. FRELINGHUYSEN. Their rules as we know them, are they being enforced?

General VAN ANTWERP. Well, I will have to defer. Can I defer——

Mr. FRELINGHUYSEN. You can defer to anybody you want. This is sort of a basic question here. Maybe for the record you would be good enough to identify yourself.

Ms. DURHAM-AGUILERA. My name is Karen Durham-Aguilera.

General VAN ANTWERP. Karen is a resident.

Ms. DURHAM-AGUILERA. My name is Karen Durham-Aguilera with the Army Corps of Engineers. I am the Director of Task Force Hope, so I live and work in New Orleans. I lived there in the 1980s. And I was honored when the Chief at that time, General Strock, asked me to go back to New Orleans and serve—basically serve as a program manager for this Hurricane Storm Risk Reduction System. I have been back in New Orleans for over 2 years now. I live and work there, too, along with all our great folks that the Chief talked about.

Mr. FRELINGHUYSEN. You head up Task Force Hope. And you project hope, I hope.

Ms. DURHAM-AGUILERA. Absolutely, sir. Every day. Every single day.

Mr. FRELINGHUYSEN. So where are we relative to the question I asked?

Ms. DURHAM-AGUILERA. A couple of things. The city of New Orleans established a redevelopment czar, chief of redevelopment, that basically coordinates the project planning from across the city. They are still working on their overall master plan with all the community groups; what areas should be developed, which ones should have a spiral growth of communities, whether it is schools, churches, and so forth.

So what is our role in that? That is their responsibility, but our role is to provide the information, what areas we see as high risk and others, even when the system is in place, as the Chief has been testifying; putting out our risk mitigation maps; making sure the planners are up to date and fully informed with everything we can do.

Mr. FRELINGHUYSEN. So you are giving them the tools.

Ms. DURHAM-AGUILERA. Absolutely.

Mr. FRELINGHUYSEN. So this is sort of what my question is: They have the tools, and they have the rules. How closely are they heeding your advice?

Ms. DURHAM-AGUILERA. It is a work in progress. There are a lot of areas there that still have yet to recover, but they are very engaged as stakeholders to provide input to the Louisiana Coastal Protection Restoration Study with all these other alternatives that are structural, nonstructural and environmental features that will give you higher levels of protection past the 100 years.

Mr. FRELINGHUYSEN. This sort of worries me. If we are going to put all the stuff on the Internet and ask for the American Society of Civil Engineers to weigh in, that may be a wonderful exercise and I am sure will get lots of professional viewpoints, but if the total population continues to practice and the people sort of do whatever they want to do with the historic pattern, even given the tools you have given to identify certain vulnerabilities, then where are we?

Ms. DURHAM-AGUILERA. Let me give you a couple of examples. There are new building codes that have to do with elevations. One of the things that everyone who lives in New Orleans knows is their first floor elevation. When that city was established a couple hundred years ago, you can go look at the older homes and you will see the porches, the first floor level is 10, 12 feet off the ground. And there was a reason for that, and that reason still exists.

So the message to most people is to know your first floor elevation, know that you are at risk, know the amount of flooding that you could anticipate with these big storms. And we provide the risk mitigation maps to help people figure that out.

So there are new building codes, there are elevation requirements, there is flood insurance, the draft maps that FEMA has put out; but there are all these things working together. But to do better than that is the combination of the structural and nonstructural and the environmental features yet to come that could help dampen the effects of the higher surges.

Mr. FRELINGHUYSEN. The stuff yet to come.

Ms. DURHAM-AGUILERA. The Chief referred to the Louisiana Coastal Protection Study. That is the multiple line of defense.

Mr. FRELINGHUYSEN. Assuming that each of those options would have a certain degree of affordability.

Ms. DURHAM-AGUILERA. Yes, sir.

Mr. FRELINGHUYSEN. Okay.

Mr. SIMPSON. Would you yield for a second?

Mr. FRELINGHUYSEN. Happy to, if the Chair allows.

Mr. SIMPSON. Are there differences in insurance rates based on where you build there and the risk associated with where you build?

Ms. DURHAM-AGUILERA. Throughout Louisiana, there are differences in rates. The Chief talked about the system that we are working on, the 350 miles of levees and flood walls. They are all within that perimeter protection. But the outer areas will have less than a 100-year. They have that now. Even with the improvements, they will still be less than 100-year. So FEMA is still engaged in establishing what those rates would be.

Mr. SIMPSON. Okay.

Mr. EDWARDS. General Van Antwerp, let me ask this, and I am more interested in focusing on the future than the past, but the Army is famous for its lessons learned model. On that point, the Governor of Louisiana this weekend on national television basically laid the blame for the failure of the levee system on the United States Army Corps of Engineers.

My guess is that the causes that led up to the devastation of New Orleans were somewhat more complicated than that, with the responsibility to be spread out among State, local, and Federal agencies. I would like to give you an opportunity to give us a summary of what were the lessons learned, what were the responsibilities, and I don't know if this is correct.

I heard at one point the reason taller or stronger levees had not been built is the State of Louisiana, the city of New Orleans had not agreed to provide its local share match. Could you just give us some insight into that? I am not interested in finger pointing, but just an honest analysis of what got us to where we were when Katrina hit.

General VAN ANTWERP. We did a chronology of events, and we have that chronology going way back to the 1950s when the different projects were started. And I say that, projects, because it was never really dealt with as a system, and that is a failure. A lot of that is how we were funded over the years or how we even plan projects. We had areas that would have more risk reduction or protection and areas right next to it that had less, and it never really operated as a system.

Mr. EDWARDS. Was that a Federal responsibility?

General VAN ANTWERP. I would say a lot of that was Federal, and maybe the method of funding. But some of it is the way we have done business for a lot of years. I think just maybe in the last 4 or 5 years are we really, really looking at watersheds and total systems, whether it be the Mississippi River, the Columbia, but I think that is the important way to do it.

A big lesson learned is that you have to deal with these as systems, and they are only as good as the weakest link, and there were many in this.

There were techniques used in engineering in the 1950s we don't use today, but over time those levees weren't torn down and replaced. We knew they were side-cast levees that used a lot of organic material that did not have the staying power. There were projects that were on the books for the future that needed funding that we didn't get to.

Mr. EDWARDS. Federal funding.

General VAN ANTWERP. Both Federal and State. Both Federal and State. So many, many issues.

Like you, I am a future guy, and we are going after this, but I think some of the lessons we have learned you are seeing reverberating around the country as you look at maintenance of levees. We are doing borings all over to find out not only what does the levee look like on the outside, and maintained from that aspect, but what is inside in the bottom of it. Can it withstand having water up to the top foot of that levee without breaching and failing? So this has been a huge help to our country.

Mr. EDWARDS. Great. I appreciate your explanation.

In your testimony you mentioned the design-build contract for the Inner Harbor Navigation Canal Surge Barrier. Can you expand on the process for the procurement and why the Corps opted for this method?

General VAN ANTWERP. Generally I will just distinguish a design-build from what we normally think about, and that is a design, then bid, and then build. So this is design-build. First of all, that means that the same company that is going to build it designs it, and they do it after the contract is awarded. In this case we gave them about a 5 percent concept design. And once we awarded the contract, then they went to design, and then they build.

What they are able to do is when they know they have the foundation ready, and that is designed, they can begin to build. And so what you get is a much earlier begin-to-build schedule.

In a design-bid-build, the design is completed in total, and then you put it out for bids, and then a constructor, contractor bids on that.

So most of those are done on what we call a firm fixed price, meaning we know our exposure. And part of this, frankly, if we would have done design-bid-build, this would have been way after 2011. We have a possibility on this surge barrier that we are going to have some advance measures that will protect this year. So that is the advantage.

The other real advantage, if you do a design-bid-build, they basically build your design. When you do it this way, they design and they bring the innovation to it. So you have to be real careful in the selection of who you are going to have do this, but you get people who can really bring innovation. We have people who can really bring innovation and speed. Your risk is that when you award the contract, you don't know everything that you don't know.

Mr. EDWARDS. Can I ask, especially given some of the funding in the recovery package for the Corps, can you see this approach being applied in areas outside of New Orleans?

General VAN ANTWERP. We do. In fact, even in New Orleans for the pump system and the surge barriers at the canal, we use design-build. In the military programs that we use it on, the Fort Hoods of the world, and everyplace else, we use a tremendous amount of design-build. We are getting tilt-up construction, we are getting refabricated at the factory, and it is good. So we have cut literally 15 percent of the cost and almost 30 percent of the time on, for instance, barracks construction on our installations. So this is a new way of doing business, but we are using it very extensively. This is the first time on a civil works project of this magnitude, but we are wanting the innovation the industry can bring.

Mr. EDWARDS. Thank you.

Mr. Simpson.

Mr. SIMPSON. Let me follow up on that. How much of the design has to be done before you bid or before you go out to build?

General VAN ANTWERP. Before you go out to build? Well, it depends. In this particular case, before they begin to build the lower parts—you have got to figure out in that picture you saw what is going to be the size of those pilings for instance. So you have to design enough of the project to know that part of this project.

Mr. SIMPSON. Is there a certain percentage?

General VAN ANTWERP. Not really. It is almost by feature.

Mr. SIMPSON. Because we have had some concerns in the past, as you probably know, at waste treatment plants, as an example, in Hanford, in the Department of Energy, where we have required them to design more of it before they start to build it. Because of the cost overruns and other things that have come along, we figured that it wasn't designed enough once they started. Is that of concern here?

General VAN ANTWERP. I don't believe that is of concern here. I think, number one, is while they have never built something this large, there are only a small number of companies that can do this kind of work in the world. So you are having someone that knows how to do surge protection.

I will just use another analogy. Let's say on a barracks on an Army installation, if you have someone that has built 100 of these, and they are going to build the next version, you might require less of the design because they know they can start pouring the basement today because they know what it takes. It very much depends on, number one, their experience and how much they have done.

One thing you can do on a design-build, and we do this sometimes before we go to bids, we ask them to do a percentage of the design, 30 percent. The more you ask of that design up front, the more cost each bidder has in that process. So there is a certain point that, the way the construction world and the contractor world works, they set aside so much of their money every year to bid on projects. If you ask them to go to a 30 percent design, and they don't get it, they are not going to bid on a lot of other projects. So it is an art form.

Mr. SIMPSON. And part of it, I guess, is because when we do things like the waste treatment plant, which we have had the Army Corps look at in a few things, is that it is something new that has never been built before, and starting construction when you have got 5 percent of it designed is a problem. Whereas, if we go out and build a levee system, or barracks, as you mentioned, we built a lot of those in the past, we pretty much know what—with minor changes, what it is going to look like.

I know you look at dams. I am not sure how often. What, every 5 years or something like that? And you have to certify dams and so forth and give them different levels. Do we do that with levees?

General VAN ANTWERP. We are in a certification process for all of the levees.

Mr. SIMPSON. There is a process in place for certifying levees?

General VAN ANTWERP. There is a process, yes.

Mr. SIMPSON. How often will they be certified?

General VAN ANTWERP. That is a good question. I don't know what the criteria is. I think it is every 10 years, but I will have to get back with you on that.

General VAN ANTWERP. But it has a certain frequency, and there is criteria. We publish that criteria.

Mr. SIMPSON. Thank you very much.

Mr. VISCLOSKY [presiding]. Mr. Berry.

Mr. BERRY. I don't have anything else, Mr. Chairman.

Mr. VISCLOSKY. General, thank you for your forbearance here. The question is: Are increases in project costs influencing decisions

regarding project alternatives or resulting in the reevaluation of project alternatives that provide less effective means of protection?

General VAN ANTWERP. No, sir. If you are referring to——

Mr. VISCLOSKY. The causeway and flood gates on Metairie and Interstate 10, for an example.

General VAN ANTWERP. We are not going to build anything that doesn't provide the right level of risk reduction, the 100-year level on this project. So changes in cost is not influencing us building what will do what we say it will do here, if I understand your question. There are no Cadillacs or Lexuses, but they are going to do what they are intended to do in our designs. We are not cutting down or using a less stringent criteria.

Mr. VISCLOSKY. Has there been discussion about State and local participation?

General VAN ANTWERP. We have had some of the involvement of the State and local authorities.

Mr. VISCLOSKY. Specifically, just for my reference, and if it has been touched, you do not have to respond again, but with the loan extended to the State for $1.5—and the 30-year, was there a discussion about if the State, who actually ran a surplus last year, as I understand, makes an investment, is there any discussion that some of that could be, if you would, a paydown of that loan?

General VAN ANTWERP. Just a little recap. We did talk about the sum. But when construction is finished, the 30-year clock starts. And there is an annual payment that the State would make towards that 30-year to pay it off in that 30-year time period. Their cash contributions were $1.5 billion. So I am not sure if you are asking if they would go beyond that or whatever. That is their——

Mr. VISCLOSKY. If they have the resources and they would go beyond, would you consider that a payback? Or let me put it this way: Has there been any discussion?

General VAN ANTWERP. I think this was in the cost-sharing agreements for this project, their total part was $1.83 billion of which $330 million of that was lands easements and rights of way, where the other part is a cash contribution. And to my knowledge, that is the cost-sharing agreement. Unless there would be a change ordered or directed, that is all they owe. That is the extent of it, regardless of what the economy of Louisiana is.

Mr. VISCLOSKY. I would understand that there is no other question that I have. If you at this point—unless Mr. Frelinghuysen has any? Okay. General, I apologize—I mean there is nothing to apologize about. We were stuck. I appreciate your forbearance. I truly do.

General VAN ANTWERP. It is my pleasure.

Mr. VISCLOSKY. My absence and others' was not obviously intended. Mr. Frelinghuysen, I do appreciate——

General VAN ANTWERP. We would be glad to answer any questions for the record.

Mr. SIMPSON. Now that the Chairman is here, I will restate that looking at a map doesn't do justice on this. You really need to go down there and see it for about 2 days, 3 days, something like that. Just a suggestion.

Mr. VISCLOSKY. Thank you.

Mr. SIMPSON. And this week would be a good week, too, since it is Mardi Gras.

Mr. FRELINGHUYSEN. Can I put in a plug also? I know I am sure I say on behalf of the committee that we thank the Corps not only for their work in this area but also we anticipate you will be pretty busy in Afghanistan in the near future. I know you have got the brightest and best down in New Orleans doing all sorts of stuff, both civilian and military. But obviously a lot of people are out in the war zone. And boy, I assume you are going to have to redirect some of your talent, most of which I assume people will be volunteering, at least the civilians will.

General VAN ANTWERP. Just to give you a feel for that, we have three districts and a division in Iraq and we have a district in Afghanistan. We have almost 1,000 people deployed. Civilians are on 6-month rotations. We have deployed, over the 7 years we have been at this, almost 7,000 people from the Corps. So we have a very expeditionary force. We are doubling the size of the district in Afghanistan. We will go from about 350 that it is today to 680 by the end of this year. We are building seven new base camps as the 17,000 Marines, Special Forces, and Army soldiers go over there. We are doing our part. I just sent a general officer over there.

Mr. FRELINGHUYSEN. Let the record so reflect that we also note our appreciation for that effort.

Mr. VISCLOSKY. And General, any other observation I have made to audiences is with the stimulus. And that is not the point of the hearing, but the reason we are here is to make all deliberate speed but obviously spend those moneys as wisely as possible. And we are just happy we had some additional resources as we continue into 2010.

Well, I want to thank everyone, and we are adjourned.

QUESTIONS FOR THE RECORD

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
HOUSE COMMITTEE ON APPROPRIATIONS

OVERSIGHT HEARING ON THE CORPS OF ENGINEERS' HURRICANE RECOVERY EFFORTS
FEBRUARY 24, 2008

Federal Funding Requirements

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Does the Corps have sufficient funding to meet its commitment to complete the greater New Orleans area's 100-year protection system? Before you answer let me remind you of last year's testimony by Assistant Secretary Woodley in response to a question whether requests for additional funds for hurricane system would be an annual event, he said in part "I don't think so....The confidence level associated with the programmatic cost estimate is 90%".

LT. GENERAL VAN ANTWERP. Yes. We believe we can manage the overall program within the current appropriations but will need to reallocate some funds among different features of the program to meet certain project design requirements and features that we did not previously anticipate as well as recent cost increases that have been incurred.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. As I mentioned in the opening statement, there is some indication of an outstanding need for $500-$500 million in additional funding, are you going to tell me this is the other 10% of the confidence level that was testified to last year?

LT. GENERAL VAN ANTWERP. No. This is not an outstanding need. Rather, in order to complete the system as planned, the Corps currently estimates that it needs to reallocate $550 to 580 million to the IHNC Lake Borgne surge barrier project from available resources within funds that have already been appropriated for the HSDRRS program. We are working to refine the dollar amount required for this reallocation

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Why is this additional funding necessary? The Corps has had 3+ years to refine the cost estimates...what happened?

LT. GENERAL VAN ANTWERP. Additional funding is not necessary. We propose to reallocate funds within the current program appropriations to meet the IHNC Lake

Borgne surge barrier project requirement. To meet the commitment to provide a 100-year level of risk reduction in 2011, we used a design-build cost-plus procurement method for this highly complex, one-of-a-kind facility. The design-build contract process allowed construction to begin prior to having a 100% completed design and incorporated the innovation of industry into the facility's design and construction. Subsequent to award of the contract, we identified additional project requirements to include a more robust design for storm surge conditions, the addition of features for navigation safety in response and collaboration with the United States Coast Guard and the navigation industry, and the construction of containment dikes for dredged material to obtain the State of Louisiana Coastal Zone Management permit. Other cost increases were incurred due to nationwide escalation of fuel, steel, and cement construction materials during the year 2008.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Your testimony indicates the additional need for the Inner Harbor Navigation Canal can be met with a reallocation from existing appropriated funds. Which project would this funding be transferred from and why is the funding unnecessary for the source project?

LT. GENERAL VAN ANTWERP. We are looking at various courses of action to meet the IHNC Lake Borgne surge barrier requirement. The most likely option is to reallocate funds from the armoring where we have the greatest flexibility because the obligation of funds are not scheduled to begin until FY2011.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. While we're on the subject of additional funding requirements, what, if any, are the out-year cost associated with maintaining the system at the 100-year level? And who is responsible for paying this cost?

LT. GENERAL VAN ANTWERP. Upon satisfactory completion of construction of the features, the non-Federal sponsor will have 100-percent responsibility for Operations, Maintenance, Repair, Rehabilitation and Restoration (OMRR&R) of the completed work, or functional portion, in accordance with the Project Partnership Agreement, Title 33 CFR 208.10.

Future measures to restore components of the system to the authorized level of protection for reasons such as subsidence, sea level rise, new datum, or state-of-the art engineering will be considered a cost of construction and cost shared between the Federal government and the non-Federal sponsor at the 65:35 cost share ratio, subject to future appropriations from Congress.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Are increases in project costs influencing decisions regarding project alternatives, or resulting in the reevaluation of project alternatives that provide less effective means of protection?

LT. GENERAL VAN ANTWERP. No. We have a rigorous systematic process for evaluating project alternatives and choosing an alternative that will meet all required

engineering, design, public safety, and environmental stewardship criteria and provide the required 100-yr level of risk reduction.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. For instance, is the Corps reevaluating the use of floodgates on Causeway Boulevard in Metairie and Interstate 10 in eastern New Orleans, as opposed to raising Causeway Boulevard or building a bridge or ramp over the levee in Bayou Sauvage at I-10, in an effort to cut project costs?

LT. GENERAL VAN ANTWERP. As above, we have a rigorous process of analyzing solutions. Our decisions are not based solely on project costs, but costs are a factor. Engineering solutions are evaluated considering multiple criteria including technical sufficiency, risk, cost, schedule, traffic impacts during and after construction, maintenance of evacuation routes, constructability, operation and maintenance.

We plan to proceed with raising Causeway Boulevard and are working closely with the State of Louisiana and the local Levee authorities on how to best implement this solution.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. There are concerns that first responders would not be able to access the area if floodgates are used. How do you respond to this concern?

LT. GENERAL VAN ANTWERP. If floodgates are used on any major roadways that require emergency access, a feature such as an emergency ramp over the hurricane protection will be incorporated into the project to facilitate access.

Louisiana Coastal Protection and Restoration Study

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What is the status of the final report on Louisiana Coastal Protection and Restoration Study that was originally due to Congress in December 2007?

LT. GENERAL VAN ANTWERP. On March 3, 2009, the draft Technical Report was sent to the National Academy of Science to conduct the second independent external peer review on this report. Through the NAS peer review process the draft report became available to the public on March 5, 2009.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Will it be ready by August 31, 2009, as projected earlier this month?

LT. GENERAL VAN ANTWERP. After receipt and consideration of comments from the National Academy of Science and final review by the Corps, the final Technical Report will be formally provided to the states, agencies and stakeholders for final comments in early June 2009. We are on schedule to provide the final report to the Assistant Secretary of the Army (Civil Works) by August 31, 2009.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What is the reason for the 20 month delay in providing this report to Congress?

LT. GENERAL VAN ANTWERP. The charge from Congress was to develop a full range of comprehensive flood control, coastal restoration, and hurricane and storm damage reduction measures for south Louisiana that contemplates providing risk reduction for a storm surge equivalent to a "Category 5" hurricane. LACPR is a big study and more complex than has ever been conducted. This large and complex study covers 26 coastal Louisiana parishes that were divided into five planning units of similar characteristics. This area is equivalent to the size of the entire state of West Virginia. The amount of analytical data used to evaluate alternative plans is unprecedented and several advances in hydromodeling were made in order to gain the needed technical information to develop these alternatives.

In addition, a similar analysis was performed for the Mississippi Coastal Improvements Program study. As the public engineers responsible for water resource development, the Corps analyzed any potential regional effects to allow for consideration of the impacts of the projects' alternatives for both Louisiana and Mississippi.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What will the final report contain? Is this a list of ready to go projects, a comprehensive strategy for risk reduction, or perhaps a decision matrix?

LT. GENERAL VAN ANTWERP. The Technical Report describes the planning process that was used to narrow down the millions of possible options for Category 5 risk reduction in South Louisiana to a short-list of viable alternative plans to reduce risk.

These plans were created by building on the State Master Plan through an extended formulation process that included Corps and state planning teams as well as many other agencies, organizations, and stakeholders. This formulation yielded a range of risk reduction measures including freshwater diversions, marsh creation, buyouts and relocation, raising structures and barriers. These plans and the tradeoffs involved in each are presented in the Technical Report so that the public, stakeholder groups, other federal, state, and local agencies, and decision makers can consider tradeoffs and work together to implement long-term plans for reducing risk in South Louisiana.

All plans will impact the coast and the people who visit, live, and/or work in South Louisiana, potentially modifying communities, functions and activities. All final alternative plans may have social and economic impacts requiring further evaluation with our local and state partners, as well as sequencing them for implementation over time. The people of Louisiana need to select alternatives based on their determination of how safe their cities need to be, how sustainable their coast should be, and what values they want to enhance and protect.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Given that actions to date have resulted in a $14 billion cost for 100-year protection, what is the likelihood that further strengthening of the system will be economically justified?

LT. GENERAL VAN ANTWERP. With the 100-year greater New Orleans hurricane and storm damage risk reduction system, the risk of storm damage to New Orleans will be significantly reduced. However, given a region like New Orleans, a city located below sea level, there is a residual risk of damages from storm surges that exceed the capacity of the 100 year system. Additional structural, non-structural and coastal restoration measures are being evaluated under the ongoing Louisiana Coastal Protection and Restoration (LACPR) study. This study will address providing greater levels of hurricane and storm damage risk reduction to South Louisiana, including the City of New Orleans.

Although LACPR study is still in draft and the Corps has not completed its analysis, justification of increased levels of risk reduction may require criteria and consideration other than a traditional economic analysis. LACPR looks at risk to inform decision making and presents criteria for decision makers to consider in providing increased levels of risk reduction.

Management and Oversight

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. At the FY 2009 budget hearing we discussed in some detail a report by the U.S. Army Audit Agency (AAA) reviewing the program management of the hurricane and flood protection in southern Louisiana. The findings generally, were that the Corps lacked "sufficient long-term government personnel to provide adequate oversight (of) contractors."

General Van Antwerp, last March you testified that the Corps had addressed or was in the process of addressing the nine recommendations, can you update the Subcommittee on where you are in addressing all of the recommendations?

LT. GENERAL VAN ANTWERP. In response to the December 2007 AAA report A-2008-0033-FFD, we have taken actions to address the recommendations in the report. The follow up draft Audit Report closed out the previous recommendations as complete and issued three new more specific recommendations which we are also addressing.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. As indicated in your testimony, I understand that AAA has made three additional recommendations on staffing in a follow up report. The gist of the recommendations seems to be that the Corps does not have an adequate long-term staffing plan in place for personnel and contractors in the New Orleans area. This seems to echo the broader May 2008 GAO study on the national human capital plan that arrives at a similar conclusion.

General, a lot of time has passed since the GAO report and the original AAA audit, you've updated us on your actions in response to the AAA audit, what are you doing to ensure that the Corps has a human capital plan that aligns with its mission nationwide?

LT. GENERAL VAN ANTWERP. One of our four goals in the USACE Campaign Plan is to build and cultivate a competent, disciplined, and resilient team equipped to deliver high quality solutions. As part of this plan we are establishing tools and systems to get the right people in the right jobs, and are developing and retaining this highly skilled workforce in order to successfully deliver the Corps mission worldwide.

We believe we have an appropriate mix of government civilian and military personnel, permanent and temporary, rehired annuitants, and contractor support personnel for this expeditionary mission. Further, we have already begun to incorporate the most recent AAA recommendations into our staffing plans to ensure a smooth transition of the Task Force Hope in future years as we complete the HSDRRS mission.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, one of the conclusions of several Katrina studies was that the non-Federal levees, especially in Plaquemines Parish, were a weak link in the flood protection system. To fix this problem, the Corps has been mandated and funded to incorporate those levees directly into the Federal system.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Are there any other important facilities that are not under direct Corps responsibility and control? If so, what are they?

LT. GENERAL VAN ANTWERP. There are non-Federal and Federal but non-Corps levees, both interior and exterior to the Federal HSDRRS that yield localized flood risk reduction benefits. Examples include the Maxent levee that bisects New Orleans East, the 80 Arpent levee through St. Bernard Parish and the east bank Plaquemines Parish levee from Braithwaith to White Ditch.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. If these were to fail, what impact would they have on flood control for New Orleans?

LT. GENERAL VAN ANTWERP. The non-Corps levees that lie inside the HSDRRS are not part of the 100-year HSDRRS and consequently are not relied on to provide 100-year level of protection. However, these levees may provide storm damage reduction benefits for storms that exceed the 100-year level of protection by providing an interior secondary line of defense. Non-Corps levees that lie outside of the HSDRRS have no impact on the performance of the Federal system.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What is the Corps doing to ensure that these facilities don't become the weak link once again?

LT. GENERAL VAN ANTWERP. Where non-Federal levees have been authorized by Congress for incorporation into Federal projects, such as non-Federal levees on the west bank of the Mississippi River in Plaquemines Parish, the Corps is advancing design and construction to raise those levees to the height of the existing Federal Projects consistent with the revised Corps design criteria.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, you're constructing the improved system to a "100-year flood protection" standard for the facilities protecting New Orleans. I'd like to take a few minutes to understand what that really means. Before Katrina, New Orleans was supposedly protected against a "Standard Project Hurricane". However, some studies indicate that the definition was outdated, and that slightly different definitions were applied in each area.

How are you ensuring that the "100-year" standard is being applied consistently throughout the system? What about in any area that is not directly under the control of the Corps?

LT. GENERAL VAN ANTWERP. The events of hurricanes Katrina and Rita taught us the value of a comprehensive systems approach in the design and construction of Civil Works infrastructure and particularly flood damage reduction. The Corps commissioned the formation of the Interagency Performance Evaluation Task Force, a body of 150 scientists, to perform engineering forensics and analyze the hazard of storm surges that

have a 1% annual probability of occurrence. Their findings and exhaustive hydraulic modeling formed the basis of the 100-year system design for the greater New Orleans area. Rather than design for the standard project hurricane, we are designing for the effects of 152 historical and possible storms ranging in intensity from a 25 year to 5,000 year frequency over myriad tracks across the greater New Orleans area. Results of the modeling determined elevations of levees and floodwalls required to provide 100 year levels of protection at all points around the perimeter and formed the basis of the engineering designs for project features.

Areas that are outside of the control of the Corps could include non-Federal levees interior and/or exterior to the Greater New Orleans HSDRRS. The state of these features in no way compromises the function of the Federal HSDRRS, but could augment the system by providing additional lines of defense against storm surges or spreading of flood waters.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Parts of the New Orleans area are literally subsiding. And, with global warming, projections are that the sea level will likely rise. What does that mean for a "100-year" standard?

LT. GENERAL VAN ANTWERP. Subsidence will require levee lifts throughout the life of the project to maintain the levees to the 100 year standard. Sea level rise will increase the defining elevations of the 100 year standard, requiring additional levee lifts over time. Accordingly, periodic improvement of levees will be required to sustain the 100 year system. Levees are overbuilt during initial construction to account for some subsidence; however, there is a limit to the amount of overbuilding that can be accomplished during initial construction. The amount of initial overbuilding and the timelines for additional required levee lifts vary throughout the system.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Will the city have the same level of protection in 50 years as it will immediately after your construction is done?

LT. GENERAL VAN ANTWERP. Yes, but for earthen levees, sustainment of the 100 year design capacity will depend on periodic restoration of levee elevations to counter the effects of subsidence and sea level rise. For floodwalls, we are able to construct to elevations that match the estimated 100 year standard for the year 2057 (50-year project life).

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. In the nuclear weapons world, our experts have to certify every year that the stockpile is reliable. Is there any official certification by the Corps that the flood protection system has been fully inspected and is in good working order?

LT. GENERAL VAN ANTWERP. For levee systems maintained by the Federal government and for levees maintained by the local sponsor, there are three types of inspections:

(1) Final inspection upon construction completion
(2) Annual Compliance Inspections
(3) Periodic Inspections

In addition, there is a certification which can be done by several entities, (one of which is the Corps), to provide a basis for accreditation by FEMA in order to qualify the system for the National Flood Insurance Program. The Corps also completed an initial survey of federal program levee systems in July 2006 and developed a national database to capture information about each levee, including location and last recorded inspection rating.

Contracting and Schedule Risk

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. In your testimony you mention the design build contract for the Inner Harbor Navigation Canal Surge Barrier, can you expand on the process for the procurement and why the Corps opted for this method?

Will this method of procurement have applications outside the New Orleans area? Particularly in light of the additional funding the Corps is receiving through the Recovery package?

LT. GENERAL VAN ANTWERP. Corps Civil Works projects are typically designed first then advertised for bid to construct. This procurement method is referred to as Design-Bid-Build. Alternatively, in a Design-Build procurement, one contract is awarded to a firm for both design and construction. This process facilitates collaboration between the designer and construction contractor during the design, allows design innovation from industry, helps address potential constructability issues, and allows construction to begin prior to having a 100% completed design. Given the aggressive timeline to complete the HSDRRS the Design-Build procurement method was the most effective means to meet our commitment to reducing storm damage risk in 2011. We have used the design-build method of procurement for numerous years and with great success in our military construction program. Where applicable, we will assess the utility of using the Design-Build procurement method for other Civil Works construction projects .

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. In your testimony, you mention that the project includes two 150 foot navigable floodgates. I understand there are differences between some system elements in the accommodation for navigation, 125 foot versus 225 foot openings. Can you explain the differences in approach?

LT. GENERAL VAN ANTWERP. I believe your question refers to the navigation gates at the West Closure Complex and at the IHNC Lake Borgne Surge Barrier. The West Closure Complex requires a 225 foot navigational opening due to its location on the Gulf Intracoastal Waterway just south of the confluence of the Harvey and Algiers canals where approach angles are difficult due to the curvature of the waterway and the structure must also accommodate the increased currents due to the storm water drainage from the canals. The IHNC Lake Borgne Surge Barrier is located in a straight portion of the Gulf Intracoastal Waterway where narrower 150 foot navigational openings are sufficient for safe passage of commercial traffic.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, your information indicates that $3.5 billion in construction contracts, roughly half of the work needed to upgrade the system is up for award this calendar year. Much of this is for

large construction projects, such as up to $750 million for new floodwalls and levees in the West Bank and Vicinity region alone.

Do you foresee any problem in awarding all of this funding this year?

LT. GENERAL VAN ANTWERP. No, we are confident in our current schedule for construction contract awards and believe that we will achieve the anticipated contract awards during the calendar year.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What would the impact of a contracting delay be on achieving your 2011 date for 100-year protection?

LT. GENERAL VAN ANTWERP. Delays in awards of construction contracts may ultimately lead to delays in completion. At this time, 35 contracts are ongoing and about 150 more remain to be awarded. Each contract schedule has varying capacity to accommodate certain delays and still complete within our program objective. We have a rigorous, documented program and project management process, which applies state of the art management software and techniques to monitor and control the status of thousands of milestones. We are committed to having the 100-year system in place in 2011, but we cannot meet the commitment without the sustained support of our partners. Timely acquisition of real estate for project construction and borrow material is a critical responsibility of our non-Federal partner for maintaining contract award schedules.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What are the critical path elements that simply must be completed to keep you on schedule?

LT. GENERAL VAN ANTWERP. Critical path elements include: completion of environmental review requirements to comply with National Environmental Policy Act; acquisition of lands, easements and rights-of-way required for construction and borrow material; processing of Federal contracting procedures and completion of construction activities for perimeter levees, floodwalls and gated control structures. As indicated earlier, we must have the support of our state and local partners to acquire the necessary real estate interests to maintain our construction award schedules. With their support we remain confident that we will deliver the system on schedule.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, many of the external reviews of the Corps work, the issue of proper sequencing of project elements was brought up; early on in the reconstruction effort I can understand a certain amount of uncertainty in the schedule.

Does the Corps have a realistic and accurate understanding of the system to properly sequence the work?

LT. GENERAL VAN ANTWERP. Yes and we continuously monitor the status and sequencing of all system components using a rigorous program management system

containing thousands of activities to oversee execution and manage cost and schedule variances.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What are the risks associated with sequencing that might impact the ability of the Corps to deliver the 100-year protection on schedule and within the existing cost estimate?

LT. GENERAL VAN ANTWERP. We depend on our partners to work with us on real estate acquisition, on borrow areas, to resolve technical matters, and numerous other areas, to deliver the HSDRRS program to the public within the cost and within the schedule commitment we have all made to the public. We cannot execute this complex program without the total support and contribution of our partners and stakeholders.

Market Risk

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, last year fill material was at a premium and the Corps was pursuing three procurement strategies, will fill or any other market risk impact the Corps ability to meet the commitments you have made locally?

Has the current economic climate impacted any supply or labor issues negatively? [If any shortages are noted] What steps is the Corps taking to mitigate the cost and schedule impacts associated with any shortages? What is the risk that this issue will drive the final cost of repairs and new infrastructure even higher?

LT. GENERAL VAN ANTWERP. The programmatic cost estimate included an evaluation of market conditions at the local, regional and national levels to analyze how prices may respond to increases in demand for materials, including borrow, and applied appropriate risk factors for this contingency to the estimate. We conduct ongoing sessions with industry to assure they are best prepared to provide labor and materials at the time needed for construction. We remain confident that we can manage the overall program within the current appropriations.

State and Local Participation

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, what is the status of the local cooperation agreements, has the State provided all necessary lands, easements and rights of way for the projects?

LT. GENERAL VAN ANTWERP. The major Project Partnership Agreements required for the advancement of the 100-year HSDRRS program, including the 30-year deferred payment agreements, have all been executed. The State of Louisiana provides lands, easements and rights-of-way incrementally as the Corps completes designs to the point that real estate acquisition requirements are adequately defined. This effort is ongoing.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Are there areas where real estate acquisition will inhibit the overall schedule?

LT. GENERAL VAN ANTWERP. No, there are no areas at this time that would inhibit the overall completion schedule. However, timely real estate acquisition is essential to maintaining schedules for construction and the overall program.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, Congress has essentially loaned the State $1.5 billion over 30 years to pay its share of the project's costs. That is, taxpayers around the United States have loaned this money to the people of New Orleans. That seems a pretty good deal, especially since the State of Louisiana ran a $900 million surplus last year. We discussed the possibility of a cost increase to elements of the total system. Is there the possibility of the State providing the additional funding and freeing up some of the Federal funds that were provided to allow the State repayment over time?

LT. GENERAL VAN ANTWERP. The non-Federal sponsor's cost share responsibility is as defined by law and codified in our Project Partnership Agreements.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. At what point in time does the repayment of funds begin, when the entire system is complete, as elements of the system are completed?

LT. GENERAL VAN ANTWERP. Repayment with interest follows the completion of the authorized project or separable element and the District Commander's written notification to the non-Federal sponsor of completion. The non-Federal sponsors contribution of funds is to be provided in 30 annual installments. The first annual payment is estimated to be due on 01 December 2011, associated with the West Bank and Vicinity project and the Lake Pontchartrain and Vicinity project. Annual payments associated with the SELA project would follow thereafter.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. The State of Louisiana directed the consolidation of the levee boards serving as sponsors for the

several authorized projects making up the Greater New Orleans Hurricane Protection System. Can you update us on how you believe this arrangement is working; are we any closer to the desired effect of reinforcing that the protection system is just that, a system, not a collection of individual projects?

LT. GENERAL VAN ANTWERP. Pursuant to enactment of legislation in September 2006, two Flood Control Authorities were established; one overseeing flood control on the east bank of the Mississippi River and one on the west bank. The intent was to centralize operations responsibility for flood control projects; facilitate better coordination with Federal partners; and enhance the professionalism of district management. My assessment is that the consolidation has positively affected the desired outcomes and led to a common perspective of the Hurricane and Storm Damage Risk Reduction System as a system. The establishment by the state of Louisiana of the Coastal Protection Restoration Authority as the single Hurricane Protection System integrator for the State further centralizes responsibility and supports the "systems" approach for planning, design and construction of the HSDRRS.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, it's an unfortunate fact that New Orleans will never be protected against all flooding events. No matter how much the Corps builds, or how much Congress appropriates, there is some risk to living in New Orleans. After all, it's still below sea level, and it's still surrounded by water on three sides. Some observers have called for a more strenuous planning process within the city of New Orleans to keep people from building and living in the areas most likely to be flooded.

What sort of planning is being done to minimize risk exposure to the people and business of New Orleans?

LT. GENERAL VAN ANTWERP. Areas in New Orleans will always experience residual risk. Local governments have discretion in establishing building codes and standards to manage flood risk in their respective communities. For example, planners may use FEMA's recently issued Preliminary Flood Insurance Rate Maps, which establish standards for the National Flood Insurance Program, to guide flood risk management and investment decisions. Flood risk management is a shared responsibility of governments and individuals; through evacuation planning; insurance coverage; building codes and standards and construction of flood damage risk reduction features.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Is there any coordination between local planning boards and the Corps?

LT. GENERAL VAN ANTWERP. We provided local planning boards flood inundation risk maps to assist them in assessing local flood hazards. Additionally, we assisted FEMA in engaging local planners and the community to explain the technical aspects of the FEMA Flood Insurance Rate Maps and assist with Strategic Communications.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. If there are rules, are they being enforced?

LT. GENERAL VAN ANTWERP. Floodplain management is a local responsibility. The local regulations and ordinances are specific to each parish and municipality, and reflect the sentiments of the local constituency relative to the amount of risk each area is willing to assume. The Corps provides tools, such as risk mitigation maps, to ensure that the planners are fully informed.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. General, one of the more controversial components of the new system is the closing of the Mississippi River Gulf Outlet (MRGO), which some have called "hurricane highway" since it may have allowed the storm surge to quickly reach New Orleans. Now that the Corps has deauthorized the project for navigation, it can work with the State of Louisiana to define responsibilities and sign an MOU. The State has pledged to be the non-federal sponsor for the project, purchasing necessary lands and rights-of-way and eventually assuming maintenance costs for the project.

What is the current state of the MOA?

LT. GENERAL VAN ANTWERP. The Corps and State of Louisiana signed a Memorandum of Agreement for the MRGO Closure Structure on 31 October 2008.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Have the necessary lands and rights of way been secured by the State of Louisiana?

LT. GENERAL VAN ANTWERP. Yes. The State of Louisiana, through its Coastal Protection and Restoration Authority, granted the Corps of Engineers right of entry for construction, along with ingress and egress, over the required right-of-way on 12 December 2008. The Corps of Engineers issued a Notice to Proceed to the construction company on 19 December 2008.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. You've committed to completing the project by June of 2009. That's not so far in the future. Is the project on schedule?

LT. GENERAL VAN ANTWERP. Construction of the closure is underway and is progressing well. The current schedule to complete construction is 26 July 2009.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Your recommendation to close MRGO was premised on the non-Federal sponsor assuming several responsibilities, including compliance with federal relocation regulations.

LT. GENERAL VAN ANTWERP. In the Memorandum of Agreement the State of Louisiana agreed to perform all of the required activities.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. At the time of Katrina, at least seven companies were located on the MRGO that relied upon its deep-draft capabilities. How many businesses or residences must still be relocated?

LT. GENERAL VAN ANTWERP. The Corps of Engineers is not authorized to relocate any of the businesses that formerly utilized the MRGO navigation channel. The following businesses are still located in the MRGO area:

A. New Orleans Cold Storage
B. Southern Scrap
C. Lafarge Corp.
D. U.S. Gypsum Co.
E. Haliburton Inc.
F. Holcim Inc.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. What is the status of those relocations? Who is paying?

LT. GENERAL VAN ANTWERP. Section 3082 of WRDA 2007 provides the following: To support the relocation of the Port of New Orleans deep draft facilities from the Mississippi River Gulf Outlet, the Gulf Intracoastal Waterway, and the Inner Harbor Navigation Canal to the Mississippi River, $75,000,000 is authorized (but not yet appropriated) and administered by the Economic Development Administration. An additional $85,000,000 is authorized (but not yet appropriated) to be available to support revolving loan funds to assist private businesses in relocation. Funds shall be administered by the Assistant Secretary for Economic Development pursuant to sections 209(c)(2) and 703 of the Public Works and Economic Development Act of 1965.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Section 7013 of WRDA 2007 directed the Corps to develop a plan to restore natural ecosystem features of the Mississippi River Gulf Outlet (MRGO) channel that will reduce or prevent damage from storm surge and restore the areas affected by the navigation channel by May 8, 2008 – more than 8 months ago. While the Corps has planned and begun construction of a single closure structure across the MRGO to minimize saltwater intrusion, the Corps acknowledges that this portion of the plan will not minimize storm surge. The Corps has put off completing the critical restoration and storm surge reduction elements of this plan and recently announced that it would not release even a draft of these plan elements until March 2010 at the earliest.

Given the Congressional directive to complete the full plan by May 8, 2008, why has the Corps not prioritized this planning?

LT. GENERAL VAN ANTWERP. The Corps of Engineers has initiated a feasibility study to develop a comprehensive ecosystem restoration plan for the areas affected by the MRGO. Public Scoping meetings were held in November 2008 in Chalmette, LA and

Biloxi, MS to collect public input on the study area problems and opportunities. The planning team is expediting the feasibility study but preparing the required Environmental Impact Statement and completing the mandatory independent technical reviews takes time. Consistent with these requirements, our intent is to develop a cost-effective actionable plan that can proceed to design and construction if Federal funds are appropriated and a local cost share sponsor signs up to support the details of the plan. The timeline for completing a draft plan for public review is May 2010. In the meantime, the Corps will conduct a significant public participation effort aimed at allowing active citizen involvement in developing the plan components and details.

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Will the Corps utilize stimulus funding to quickly finalize this planning effort? If not, why not?

LT. GENERAL VAN ANTWERP. The MRGO ecosystem study authorized in Section 7013 of WRDA 2007 is being funded using appropriations provided in Public Law 109-148, Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza Act, 2006, as amended by Public Law 109-234, Emergency Supplemental Appropriations Act for Defense, the Global War on Terror and Hurricane Recovery, 2006. At this time there are no additional funding requirements.

WEDNESDAY, MARCH 4, 2009.

DEPARTMENT OF ENERGY: PROJECT MANAGEMENT OVERSIGHT

WITNESSES

INGRID KOLB, DIRECTOR, OFFICE OF MANAGEMENT, U.S. DEPARTMENT OF ENERGY

EUGENE ALOISE, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

JONATHAN BREUL, NATIONAL ACADEMY OF PUBLIC ADMINISTRATION

CHAIRMAN VISCLOSKY OPENING STATEMENT

Mr. VISCLOSKY. Good afternoon. We will bring the hearing to order.

Today's hearing has been called to examine the Department of Energy's inability to manage major construction projects, an issue that has been an ongoing concern with this subcommittee and a personal priority for me as Chairman. As a member of this subcommittee for more than a decade, I am forever aghast and appalled at the cost overruns and schedule slips of the Department of Energy's major construction projects. This year marks the 19th consecutive year since 1990 that DOE's contract management has made the government accountability's high-risk area.

My son Tim turned 19 this past Sunday. While Tim has moved on from his date of birth and grown and matured and become a responsible adult, the Department of Energy has not. In the past they have said we are making progress; in the past they have said it is really not that important. Last week a DOE representative said it is only a problem in Environmental Management and the National Nuclear Security Administration. I would note for the record that in fiscal year 2009, NNSA and EM accounted for $15,584,156,000 of taxpayers' money, or 58 percent of DOE's budget. And it is that attitude expressed to this subcommittee last week that has failed the American people.

The time for excuses is over. My frustration is for several reasons: the lack of attention by the previous three administrations to tackle this problem and the amount of taxpayers' dollars that have been squandered and wasted because of mismanagement. I am doubly concerned with the Department's ability to manage its resources as we have just provided another $40 billion in stimulus funds for the Department to execute. We have a new administration, and they might be tempted to say, it is not our problem, we have just gotten into town. Let me be clear, I don't ever want to hear another excuse by a Department of Energy official on why they cannot get something as basic to running a large organization right for 19 whole consecutive years.

Today we will hear from Mr. Gene Aloise, Director of the National Resources Division of the Government Accountability Office, who will testify on over 12 reports that GAO has issued since 2006 on DOE's contract and project management. I want to thank Mr. Aloise very deeply for all of his hard work, and particularly his hardworking staff at GAO for their good work and dedication in evaluating government spending to improve cost-effectiveness for the American taxpayer.

The committee also welcomes Mr. Jonathan Breul, fellow with the National Academy of Public Administration. Mr. Breul will report on the ongoing study requested by this subcommittee examining the operations of the Department's fiscal, personnel and contracting functions.

I thank both of you for being here.

Finally, I would want to note that I had invited Dr. Steven Chu today to testify, but given his recent appointment, I withdrew my request. Dr. Chu has promised me that this hearing will garner his full attention, and he has made a commitment to tackle these project management issues. As such, the representative for the Department of Energy is Ms. Ingrid Kolb, the head of the Office of Management for the Department. And, Ms. Kolb, I welcome you and thank you for your attendance as well. Ms. Kolb is a Federal employee of the Department and has been the Department's lead in cooperating with the National Academy study. Ms. Kolb, I would promise you that we will not make you the scapegoat for all of the Department's ills, but I thank you for being here.

Generally, we may have follow-up questions for the record. I would ask that you expedite the response to these questions, and all Members who have additional questions for the record would please be asked to submit them to the subcommittee offices by noon tomorrow.

[The information follows:]

OPENING STATEMENT
The Honorable Peter Visclosky
Chairman, Energy and Water Development Subcommittee
House Committee on Appropriations

Hearing on the Department of Energy's Project Management
March 4, 2009

Good afternoon. Today's hearing has been called to examine the Department of Energy's inability to manage major construction projects, an issue that has been an ongoing concern with this Subcommittee and a personal priority for me as Chairman. As a member of this Subcommittee for more than a decade, I am forever aghast and appalled at the cost overruns and schedule slips of the Department of Energy's major construction projects. This year marks the 19th consecutive year – since 1990 - that DOE's contract management has made the Government Accountability's "high-risk" area. My son Tim turned 19 this past Sunday. While Tim has moved on from his date of birth and grown, matured, and become a responsible adult, the DOE has not. In the past they have said, "We're making progress." In the past they have said, "It's not really that important." Last week a DOE representative said, "It's ***only*** a problem in Environmental Management (EM) and the National Nuclear Security Administration (NNSA)." I would note that in fiscal year 2009 NNSA & EM account for $15,584,156,000 and 58 percent of DOE's entire budget, and it's that attitude – expressed to the Committee a week ago – that has failed the American people. The time for excuses is over.

My frustration is for several reasons – the lack of attention by previous Administrations to tackle this problem; and the amount of taxpayer dollars that are squandered because of mismanagement. I am doubly concerned with the

Department's ability to manage its resources as we have just provided a whopping $40 billion in Stimulus funds for the Department to execute. We have a new Administration and they might be tempted to say, "it's not our problem, we just got into town." Let me be clear. I don't ever want to hear another excuse by a DOE official on why they can't get something this basic to running a large organization right for 19 years.

Today we will hear from Mr. Gene Aloise, Director of the Natural Resources Division of the Government Accountability Office, who will testify on over 12 reports GAO has issued since 2006 on DOE's contract and project management. I just want to thank Mr. Aloise and all the hard working staff at GAO for their good work and dedication in evaluating government spending to improve cost effectiveness for the American taxpayer.

The Committee welcomes Mr. Jonathan Breul, Fellow, with the National Academy of Public Administration. Mr. Breul will report on the ongoing study requested by this Subcommittee, examining the operations of the Department's financial, personnel and contracting functions. Thank you for being here.

And finally, I want to note that I had invited Dr. Steven Chu here today to testify. But given his recent appointment, I withdrew my request. Dr. Chu has promised me that this hearing will garner his full attention, and he has made a commitment to tackle these project management issues. As such, the representative for the Department of Energy is Ms. Ingrid Kolb, the head of the Office of Management for the Department. Ms. Kolb is a federal employee of the Department, and has been the Department lead in cooperating with the National Academy study. I promise we will not make you the scapegoat for <u>all</u> the Department's ills. Thank you for being here.

Generally, we may have some follow-up questions for the record; I would ask that you expedite the response to those questions. All Members who have additional questions for the record must have them submitted to the Subcommittee offices by noon tomorrow.

With those opening comments, I would like to yield to our ranking member, Mr. Frelinghuysen, for any opening comments that he would like to make.

Mr. VISCLOSKY. With those opening comments, I would like to yield to my partner Mr. Frelinghuysen for any opening comments he would like to make.

RANKING MEMBER FRELINGHUYSEN OPENING STATEMENT

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman. And good afternoon to everybody. First I want to thank you for holding this hearing. And I admit I am disheartened, substitute "aghast" or "appalled," to learn that the systematic problems at the Department of Energy identified so many years ago still exist today with little or no sign of improvement. While we all recognize the faults of the Department are not of this new administration's doing, they are indeed theirs to solve. So I do hope this hearing will provide some insight and instruction to the new administration. I think it is very important that we discuss these overarching issues before we start considering the fiscal year 2010 budget.

With that said, let me welcome the witnesses from the GAO and NAPA. Your independent reviews and objectives, often critical analyses of the Department, provide a depth of knowledge that, in my opinion, is too often shielded from Congress. So I would like to thank you all for all you have done to highlight the issues we hope to cover in this hearing.

I am also pleased to welcome Ms. Kolb from the Department of Energy. Where there is not a one-size-fits-all answer to all these management problem, it is particularly important that the product of today's discussion find its way back to the Department and indeed to Secretary Chu. So I look forward to your participation, Ms. Kolb.

Last week the GAO provided the committee with a list of 16 different reports that have been issued since the summer of 2007 of which have been issued—seven of which have been issued in just the last 7 months. Listen to the titles of just three of those: Nuclear Waste Action Needed to Improve Accountability and Management of Doe's Major Cleanup Projects; Nuclear Material: Doe Needs to Take Action to Reduce Risk Before Processing Additional Nuclear Material at the Savannah River Site's H-Canyon, which I incidentally visited just last month; Nuclear Weapons: NNSA Needs to Establish a Cost and Schedule Baseline for Manufacturing a Critical Nuclear Weapons Component.

Each title reflects what can only be described as a critical review of management deficiencies within our Nation's nuclear waste, nuclear material and nuclear weapons programs. Now, consider the fiscal year 2009 omnibus and stimulus bill that passed the House recently that include over $20 billion for these programs. Management problems in these programs put at risk billions of dollars, in addition to the health of our citizens. The Hanford site is a perfect waste example, billions of dollars in cost overruns and years of delay in schedule. It just seems to cascade through the entire organization.

The National Academy of Public Administration has spent the last 10 months and would give them credit for reviewing what I could call the critical building blocks of any organization: human resources, financial and acquisition management. Their conclusions underscore fundamental and systemic problems across the Depart-

ment that, if left unchecked, will constitute an enormous, if not historic waste of taxpayers' dollars.

On the issue of human capital, their findings suggest, and I quote, "a lack of urgency that the issue warrants," unquote. The Department, quote, "lacks strong strategic focus," unquote.

On fiscal management, the review finds, and I quote, "The current DOE budget formulation process lacks a long-term planning and programming component," unquote. And the process—and this is in quotations—"does not effectively link goals established in DOE's 5-year strategic plan to specific program decisions emanating from it," end of quotation marks.

As the report suggests, this is a hugely disappointing lack of progress, or simply a lack of attention to problems that have existed for some time.

Mr. Chairman, the Department's inspector general concurs. Even the Department's agency financial report for fiscal year 2008 identifies these very same issues. These are serious, serious problems, and to have seen them endure for as long as they have within this agency, whose mission is so vital to our environment and economic prosperity as well as our national security, is completely unacceptable.

However, I am compelled to take a more hopeful approach today as it is the start of a new Congress, the start of a new administration. Indeed the Department has a new Secretary with a remarkable record of achievement. Perhaps this overhaul is exactly what the Department needs. I certainly hope so.

So, Ms. Kolb and the entire Department, I would caution that the grace period will be extremely short. I, along with my colleagues on the dais, will expect an immediate improvement. Your mission is simply too great and the consequences too dire.

I thank all of you for your service that you provide Congress and to the public, and we look forward to your testimony.

Thank you, Mr. Chairman.

Mr. VISCLOSKY. Mr. Frelinghuysen, thank you very much.

[The information follows:]

Congressman Frelinghuysen Opening Statement

DOE Project Management Oversight

Thank you, Mr. Chairman. First, I want to thank you for holding this hearing. I admit that I'm disheartened to learn the systemic problems at DOE identified at least 6 years ago still exist today, with little or no sign of improvement. While we all recognize the faults of the Department are not of the new administration's doing, they are indeed theirs to solve. So, I do hope this hearing will be insightful and even instructive to the incoming administration. I think it's very important that we discuss these overarching issues before we start considering the FY10 budget.

With that said, let me welcome the witnesses from the GAO and from NAPA. Your independent reviews and objective, often critical analysis of the Department provide a depth of knowledge that, in my opinion, is too often shielded from the Congress. So, I'd like to thank you for all you have done to highlight the issues that we hope to cover in this hearing.

I'm also pleased to welcome Ms. Kolb from the Department of Energy. While there is not a "one-size fits all" answer to these management problems, it's particularly important that the product of today's discussion find its way back to the Department and, indeed, to the Secretary. So, I look forward to your participation in this hearing.

Last week, GAO provided the Committee a list of 16 different reports that have been issued since the summer of 2006…7 of which have been issued in just the last 7 months. Listen to the titles of just 3 of those:

- Nuclear Waste: Action Needed to Improve Accountability and Management of DOE's Major Cleanup Projects;

- "Nuclear Material: DOE Needs to Take Action to Reduce Risks Before Processing Additional Nuclear Material at the Savannah River Site's H-Canyon" – which, incidentally I visited just last month;

- "Nuclear Weapons: NNSA Needs to Establish a Cost and Schedule Baseline for Manufacturing a Critical Nuclear Weapons Component";

Each reflects what can only be described as a critical review of management deficiencies within our Nation's nuclear waste, nuclear material, and nuclear weapons programs. Now consider that the FY09 Omnibus and Stimulus bills that passed the House recently include over $20 BILLION for these programs. Management problems in these programs put at risk billions of dollars, in addition to the health of our citizens. The Hanford site is a perfect waste example...billions of dollars in cost overruns and years of delay in schedule. It just seems to cascade through the entire organization.

The National Academy of Public Administration has spent the last 10 months reviewing what I would call the critical building blocks of any organization: human resources, financial, and acquisition management. Their conclusions underscore fundamental and systemic problems across the Department that, if left unchecked, will constitute an enormous, if not historic, waste of taxpayer dollars.

On the issue of human capital, their findings suggest a "lack of urgency that the issue warrants" and that DOE "lacks strong strategic focus". On financial management, the review finds "the current DOE budget formulation process lacks a long-term planning and programming component", and the "process does not effectively link goals established in DOE's five-year strategic plan to specific program decisions emanating from it". As the report suggests, this a hugely disappointing lack of progress, or simply a lack of attention to problems that have existed for some time.

Mr. Chairman, the Department's Inspector General concurs. Even the Department's "Agency Financial Report for Fiscal Year 2008" identifies these very same issues. These are serious, serious problems. And to have seen them endure for as long as they have within this Agency...whose mission is so vital to our environmental and economic prosperity, *as well as* our national security...is completely unacceptable. However, I am compelled to take a more hopeful approach today, as it is the start of a new Congress, the start of a new administration, and indeed the Department has a new Secretary with a remarkable record of achievement. Perhaps this overhaul is exactly what the Department needs. I certainly hope so.

So, to Ms. Kolb and to the entire Department, I would caution that the grace period will be extremely short. I, along with my colleagues on the dais, will expect an immediate improvement. Your mission is simply too great and the consequences too dire. I thank you all for the service you provide the Congress and to the public, and I look forward to your testimony.

Thank you, Mr. Chairman.

Mr. VISCLOSKY. And for all the witnesses, your entire testimony will be entered into the record.

TESTIMONY OF EUGENE ALOISE

Mr. Aloise, if you would want to begin, please.

Mr. ALOISE. Mr. Chairman, Ranking Member, members of the subcommittee, I am pleased to be here today to discuss our work on contract and project management at DOE. GAO designated DOE's contract management at high risk in 1990, and it remains on our High-Risk List today. DOE's two largest offices, NNSA and EM, continue to experience significant problems completing projects on time and within budget. Together these two programs receive about $14 billion annually, roughly 60 percent of DOE's total annual budget.

Strong congressional oversight will continue to be vital as NNSA embarks on a major initiative costing tens of billions of dollars to modernize the aging nuclear weapons complex and to clean up radioactive waste at sites throughout the country. Strong oversight is further warranted because EM, an organization already at high risk for fraud, waste and abuse and mismanagement, is getting about $6 billion in additional stimulus funding, in essence doubling EM's budget.

In the nearly 3 years since I testified before this subcommittee on the Hanford Waste Treatment Plant, we have issued 12 reports, 9 at the request of this subcommittee, examining DOE's largest construction and cleanup projects. These reports detail a host of contract and management problems that have led to massive cost increases and schedule delays. Two of these reports examine the performance of DOE's largest construction and radioactive waste cleanup projects. When totaled, the cost and schedule increases just for the cleanup and construction projects we looked at is about $56 billion over initial cost estimates, and up to 111 years over initial schedule estimates.

In summary, these reports documented that the cost increases and schedule delays that have occurred for most of these projects is the result of poor performance on the part of DOE and its contractors, including failure of DOE to follow its own project guidance and internal controls; initial cost estimates for projects that are not credible; insufficient and ineffective project reviews; approving construction before final designs are complete; poor technology development, including not knowing if the technology will even work before millions are invested in the project; insufficient DOE staffing and expertise; and a lack of open communication, mutual trust and close coordination.

These construction and cleanup projects are located throughout the DOE complex, including the Hanford site, Savannah River, Oak Ridge and Los Alamos. By far, in our view, the two most critical construction projects for EM are the Waste Treatment Plant in Hanford and the Salt Waste Processing Facility at Savannah River. Until these construction projects are completed, EM cannot begin to address its two riskiest cleanup projects, removing the highly radioactive and hazardous tank wastes at both sites.

Our work has found that the significant delays at both of these construction projects have added thus far billions to the overall cost

of completing these tank waste cleanup projects. The project management failures that contributed to the delays include using a fast-track approach, which attempted to simultaneously design, build and develop the technology for the Hanford facility, and ignoring warnings about seismic standards, which led to a 2-year construction shutdown at two of the major facilities in Hanford and a costly redesign at the Savannah River facility, resulting in over a billion dollars in cost increases.

Mr. Chairman, the list of examples of mismanagement at DOE goes on and is included in my written statement and in our issued reports. We are continuing to look at the major cleanup and construction projects, including the Mixed Oxide Fuel Fabrication Facility, known as the MOX facility, at Savannah River, a nearly $5 billion project managed by NNSA. Our preliminary work on the MOX facility has identified problems with NNSA's construction schedule. In our view, NNSA's schedule may be unreliable because it does not conform with best practices. As a result, NNSA cannot state with confidence that the project will be completed on time and within budget. We are working with NNSA to correct this problem.

Mr. Chairman, there is some good news to report. DOE has taken steps to better understand the weaknesses underlying its project and contract management and has recently completed a root cause analysis and a corrective action plan. In addition, at least one part of DOE is getting contract and project management right. In our recent report on DOE's Office of Science, we found that more than two-thirds of that office's 42 projects were completed or were under way from fiscal years 2003 to 2007 were completed or being carried out within original cost and schedule targets.

Science's ability to achieve its target is due in part to factors considered fundamental to effective project management, including leadership commitment to meeting cost and schedule targets; appropriate management and technical expertise; disciplined, rigorous implementation of project management policies; and frequent independent management reviews of projects.

Until EM and NNSA adopt these principles and consistently complete projects on time and within budget, cost overruns on projects will continue to drain the Department's resources, and excessive schedule delays will affect the Department's ability to effectively carry out its mission.

Mr. Chairman, that concludes my remarks. We would be happy to respond to any questions you or members of the subcommittee may have.

Mr. VISCLOSKY. I appreciate it very much.

[The information follows:]

United States Government Accountability Office

GAO

Testimony

Before the Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives

For Release on Delivery
Expected at 2:00 p.m. EST
Wednesday, March 4, 2009

DEPARTMENT OF ENERGY

Contract and Project Management Concerns at the National Nuclear Security Administration and Office of Environmental Management

Statement of Gene Aloise, Director
Natural Resources and Environment

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

GAO
Accountability * Integrity * Reliability

GAO-09-406T

March 2009

GAO
Accountability · Integrity · Reliability
Highlights

Highlights of GAO-09-406T, a testimony before the Subcommittee on Energy and Water Development, Committee on Appropriations, House of Representatives

DEPARTMENT OF ENERGY

Contract and Project Management Concerns at the National Nuclear Security Administration and Office of Environmental Management

Why GAO Did This Study

The Department of Energy (DOE) manages over 100 construction projects with estimated costs over $90 billion and 97 nuclear waste cleanup projects with estimated costs over $230 billion. DOE has about 14,000 employees to oversee the work of more than 93,000 contractor employees. Due to DOE's history of inadequate oversight and management of contractors, GAO continues to include DOE contract and project management on its list of government programs at high risk for fraud, waste, abuse, and mismanagement. This testimony discusses (1) recent GAO work on contract and project management within two of DOE's largest program offices—the National Nuclear Security Administration (NNSA) and the Office of Environmental Management (EM), (2) preliminary results of ongoing GAO work on project management at NNSA's Mixed Oxide Fuel Fabrication Facility (MFFF) project at the Savannah River Site in South Carolina, and (3) actions needed by NNSA and EM to improve contract and project management.

GAO's reports over the past 3 years have contained nearly 60 recommendations collectively calling for DOE to ensure that project management requirements are consistently followed, to improve oversight of contractors, and to strengthen accountability. While DOE has generally agreed with these recommendations and some actions have been taken, the majority are still open and awaiting action by DOE.

View GAO-09-406T or key components. For more information, contact Gene Aloise at (202) 512-3841 or aloisee@gao.gov.

What GAO Found

Since 2006, GAO has issued 12 reports examining DOE's contract and project management. Two of these reports examined the performance of DOE's largest construction projects—nearly all of which are managed by NNSA or EM—and EM's largest nuclear waste cleanup projects. These reports documented that the cost increases and schedule delays that have occurred for most of these projects have been the result of inconsistent application of project management tools and techniques on the part of both DOE and its contractors. Specifically, GAO reported in March 2007 that 8 of the 10 major NNSA and EM construction projects that GAO reviewed had exceeded the initial cost estimates for completing these projects—in total, DOE added nearly $14 billion to these initial estimates. GAO also reported that 9 of the 10 major construction projects were behind schedule—in total, DOE added more than 45 years to the initial schedule estimates. In particular, the Waste Treatment Plant project at the Hanford Site had exceeded its original cost estimate by almost $8 billion and experienced schedule delays of over 8 years. GAO also reported in September 2008 that 9 of the 10 major EM cleanup projects GAO reviewed had experienced cost increases and schedule delays—in total, DOE estimated that it needed an additional $25 billion to $42 billion to complete these cleanup projects over the initial cost estimates and an additional 68 to 111 more years than initially estimated. In addition, GAO has issued a number of other reports over the past 3 years on specific projects which found similar management problems with NNSA and EM.

Preliminary results from GAO's ongoing review of NNSA's MFFF project indicate project management concerns continue. The facility, which is designed to convert 34 metric tons of surplus weapons-grade plutonium into fuel for use in commercial nuclear reactors, is estimated to cost about $4.8 billion and begin operations in 2016. One of the key management systems NNSA uses to measure and report on the project's progress—the project's earned value management system—depends on a reliable schedule that specifies, for example, when the project's work activities will occur, how long they will take, and how they relate to one another. GAO has previously identified nine key practices necessary for developing a reliable schedule. However, the project's schedule, in addition to other problems, does not adhere to a key practice that is fundamental to having a sufficiently reliable schedule—specifically, MFFF project staff have not conducted a risk analysis on their current schedule using statistical techniques. DOE officials responded that they plan on conducting a risk analysis of the schedule for the MFFF project during the summer of 2009. Consequently, NNSA cannot adequately state its level of confidence in meeting the MFFF project's completion date, and NNSA's schedule for the project therefore may not be reliable. GAO's work on this project is continuing, and GAO intends to work with NNSA to resolve these issues.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss GAO's work on contract and project management at the Department of Energy (DOE). As you are aware, we issue a high-risk status report at the start of each new Congress to help in setting congressional oversight agendas and to promote a more effective, credible, and results-oriented government. GAO designated DOE's contract management as a high-risk area in 1990—the first year the high-risk list was published. DOE, the largest civilian contracting agency in the federal government, relies primarily on contractors to carry out its diverse missions and operate its laboratories and other facilities—about 90 percent of its annual budget is spent on contracts. DOE has about 14,000 employees to oversee work performed under contract by more than 93,000 contractor employees. DOE's record of inadequate management and oversight of its contractors resulted in our initial high-risk designation for contract management and, as noted in our January 2009 high-risk report, [1] DOE's contract management, including both contract administration and project management, continues to be at high risk for fraud, waste, abuse, and mismanagement.

The two largest program offices within DOE—the National Nuclear Security Administration (NNSA) and the Office of Environmental Management (EM)—continue to experience significant problems completing projects on time and on budget. Together, these two offices account for about $14 billion annually—roughly 60 percent of DOE's annual budget. Strong congressional oversight will continue to be important as NNSA embarks on a major initiative costing tens of billions of dollars to modernize the nation's aging nuclear weapons infrastructure and EM continues to spend billions of dollars to build facilities to treat and dispose of millions of gallons of radioactive waste. Further scrutiny is warranted because EM is the recipient of approximately $6 billion in additional funding under the recently enacted American Recovery and Reinvestment Act.

In the nearly 3 years since we testified before this Subcommittee on the Hanford Site's waste treatment plant, one of DOE's most technically complex and largest construction projects, we have issued 12 reports—9 at the request of this Subcommittee—examining DOE's largest

[1] GAO, *High Risk Series: An Update*, GAO-09-271 (Washington, D.C.: Jan. 22, 2009).

construction and cleanup projects.[2] These projects are projected to cost, in total, roughly $127 billion and take decades to complete. Nearly all of these projects are managed by NNSA or EM. These reports detail a litany of contract and management problems that have led to, in many cases, massive cost increases and significant schedule delays.

My testimony today discusses (1) our work over the past 3 years on NNSA and EM contract and project management of large projects, (2) the preliminary results of our ongoing review of the cost and schedule performance and the status of licensing on a major NNSA construction project—the nearly $5 billion Mixed Oxide Fuel Fabrication Facility (MFFF) at the Savannah River Site in South Carolina, and (3) actions needed by NNSA and EM to improve contract and project management. Today's statement is based on published GAO products and ongoing work for this Subcommittee. In conducting our work on the MFFF project, we met with NNSA and contractor officials, visited the MFFF construction site in South Carolina, reviewed relevant project documents such as project execution plans and performance reports, examined the reliability of the project's earned value management data, and examined the reliability of the project's schedule. We conducted the performance audit work that supports this statement in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to produce a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our statements today.

GAO's Recent Work Shows That NNSA's and EM's Projects Continue to Be at High Risk for Fraud, Waste, Abuse, and Mismanagement

Over the past 3 years, we have reported on significant problems with NNSA's and EM's ability to manage major projects within cost and schedule targets. Two of these reports examined the performance of DOE's largest construction projects—nearly all of these projects are managed by NNSA or EM—and EM's largest nuclear waste cleanup projects. The estimated cost of completing these construction projects is about $27 billion, and the estimated cost of completing these cleanup projects is about $100 billion. In summary, these reports documented that the cost increases and schedule delays that have occurred for most of these projects have been the result of inconsistent application of project management tools and techniques on the part of both DOE and its

[2]A listing of related GAO products appears in appendix I.

contractors. These reports identified issues, including inadequate systems for measuring contractor performance, approval of construction activities before final designs were sufficiently complete, ineffective project reviews, and ineffective development and integration of the technologies used in these projects.

Regarding DOE's largest construction projects, we reported in March 2007 that 8 of the 10 major NNSA or EM construction projects we reviewed had exceeded the initial cost estimates for completing these projects—in total, DOE added nearly $14 billion to these initial estimates.[3] We also reported that 9 of the 10 projects were behind schedule—in total, DOE added more than 45 years to the initial schedule estimates. These projects included:

- the MFFF, the Pit Disassembly and Conversion Facility, the Tritium Extraction Facility, and the Salt Waste Processing Facility at the Savannah River Site;
- the Waste Treatment and Immobilization Plant at the Hanford Site;
- the Highly Enriched Uranium Materials Facility at the Y-12 National Security Complex in Tennessee;
- the National Ignition Facility at the Lawrence Livermore National Laboratory in California; and
- the Depleted Uranium Hexafluoride 6 Conversion Facilities at DOE sites in Kentucky and Ohio.

Cost increases ranged from $122 million for the Tritium Extraction Facility to $7.9 billion for the Waste Treatment and Immobilization Plant, and schedule delays ranged from almost 2 years for the Highly Enriched Uranium Materials Facility to over 11 years for the Pit Disassembly and Conversion Facility, with seven projects having schedule delays of 2 years or more. Although external factors, such as additional security and safety requirements, contributed to cost growth and delays, we found that cost growth and schedule slippage in many of the DOE projects we reviewed occurred principally because of ineffective project management oversight on the part of DOE and poor project management on the part of DOE's

[3]GAO, *Department of Energy: Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays*, GAO-07-336 (Washington, D.C.: March 27, 2007).

contractors. We also found that, while DOE requires final project designs to be sufficiently complete before beginning construction, it has not systematically ensured that the critical technologies reflected in these designs have been demonstrated to work as intended prior to the start of construction.

For example, we found that NNSA's National Ignition Facility project had over $1 billion in cost overruns and years of schedule delays, in large part because of poor management of the development and integration of the technologies used in the project's designs. The requirements for the National Ignition Facility—the use of 192 high-power laser beams focused on a single target in a "clean room" environment—had not been attempted before on such a large scale. According to the NNSA project director, early incorrect assumptions about the original facility design and the amount of work necessary to integrate the technologies and assemble the technical components contributed to about half of the project's cost increases and schedule delays.

In addition, we found that EM's Salt Waste Processing Facility project at the Savannah River Site had cost overruns and project delays, in part due to inadequate communication between officials on site and at DOE headquarters. This project, which is designed to treat radioactive waste from activities at the Savannah River Site, was originally scheduled to begin operating in 2009 but has been delayed twice and is not now projected to begin operations until as late as November 2013. We found that the Defense Nuclear Facilities Safety Board had expressed concerns in June 2004, 5 months after the preliminary design was started, that the facility design might not ensure nuclear wastes would be adequately contained in the event of earthquakes. However, project managers did not address these concerns for 17 months and continued to move forward with the existing project design. According to the DOE project director, better and more timely discussions between site officials and headquarters to decide on the actions needed to adequately address these safety and security requirements might have hastened resolution of the problem, and up to 1 year of design rework might have been avoided. Project delays added $180 million to the total project cost. EM officials now require a more rigorous safety analysis earlier in the decision-making process.

In regard to EM's largest cleanup projects, in September 2008, we reported that 9 of the 10 major EM cleanup projects had experienced cost increases and schedule delays—in total DOE estimated that it needed an additional $25 billion to $42 billion to complete these cleanup projects over the initial

cost estimates and an additional 68 to 111 more years than initially estimated.[4] These projects included:

- the solid waste stabilization and disposition project at the Idaho National Laboratory in Idaho;
- the nuclear facility decontamination and decommissioning project at the Oak Ridge Reservation in Tennessee;
- the nuclear material stabilization and disposition project and the radioactive liquid tank stabilization and disposition project at the Savannah River Site in South Carolina;
- the soil and water remediation project at the Los Alamos National Laboratory in New Mexico; and
- the nuclear material stabilization and disposition project, the solid waste stabilization and disposition project, the soil and water remediation project, and the radioactive liquid tank stabilization and disposition project at the Hanford Site in Washington.

Cost increases ranged from $139 million for the Los Alamos soil and water remediation project to more than $9 billion for the Hanford radioactive liquid tank stabilization and disposition project. Schedule delays ranged from 2 years for the Hanford nuclear material stabilization and disposition project to 15 years for two additional projects at the Hanford Site—the solid waste stabilization and disposition project and the soil and water remediation project. We found that these changes arose primarily because the initial baseline estimates for these projects made schedule assumptions that were not linked to technical or budget realities. Also, most of the 10 projects had cost increases and schedule delays because the previous baselines (1) had not fully foreseen the type and extent of cleanup needed, (2) assumed that construction projects needed to carry out the cleanup work would be completed on time, or (3) had not expected substantial additional work scope. We also found that DOE had not effectively used management tools—including independent project baseline reviews, performance information systems, guidance, and

[4]GAO, *Nuclear Waste: Action Needed to Improve Accountability and Management of DOE's Major Cleanup Projects*, GAO-08-1081 (Washington, D.C.: Sept. 26, 2008).

performance goals—to help oversee major cleanup projects' scope of work, costs, and schedules.

For example, the initial schedule estimate for a solid waste disposition project at DOE's Idaho National Laboratory was influenced by an EM-wide effort to accelerate the office's cleanup work by creating new, earlier completion dates for key cleanup projects and for closing entire sites to reduce the public health and environmental risks posed by the waste at these sites. To meet its 2012 accelerated completion date, the laboratory assumed its waste treatment plant could process waste at a rate that was more than 50 percent higher than the rate demonstrated at the time EM established the baseline. Because the plant had only recently begun operating, project staff lacked confidence that they could meet the processing rate. Moreover, the independent team reviewing the baseline reported that the rate was optimistically high. Nevertheless, EM proceeded with the initial baseline and attempted to meet the optimistic rate by providing the contractor with performance incentives, which proved ineffective. When the waste treatment plant did not meet that processing rate, EM revised its baseline, deferring 4 years of cleanup work, which added about $450 million to the project.

In addition, we found that cost increases and schedule delays occurred because EM project officials did not accurately anticipate site or safety conditions. For example, an EM project at the Oak Ridge Reservation in Tennessee to decontaminate and decommission approximately 500 facilities and remediate 160 sites experienced cost increases of $1.2 billion and a 9-year delay in its completion date from 2008 to 2017. These occurred because project officials did not accurately anticipate the site conditions or the types of work activities necessary to safely conduct the work, despite multiple estimates generated by the contractor, DOE, and the Army Corps of Engineers. In this case, a 1940s-era building was far more contaminated and deteriorated than first estimated. As a result, DOE changed its cleanup plan and implemented a more extensive—and therefore more expensive—approach to tearing down the building. In addition, after a worker fell through a weakened floor, the contractor had to reinforce the building's structure so that contaminated equipment could be removed safely.

In addition to the findings in these two reports, we have issued other reports over the past 3 years that also found similar project management problems with NNSA and EM. We issued eight other reports that found poor scheduling practices, incomplete cost estimates, poor

communication between DOE headquarters and its field locations, and other issues related to ineffective project management.

- In January 2007, we reported that management problems within NNSA persisted, in part, because NNSA and DOE had not fully agreed on how NNSA should function within the department as a separately organized agency.[5] This lack of agreement resulted in organizational conflicts that have inhibited effective operations. We also identified the following areas where additional management improvements were needed: (1) regarding project management, we found that NNSA had not developed a project management policy, implemented a plan for improving its project management efforts, or fully shared project management lessons learned between its sites; (2) regarding program management, we found that NNSA had not identified all of its program managers or trained them to a certified level of competency; and (3) regarding financial management, we found that NNSA had not established an independent analysis unit to review program budget proposals, confirm cost estimates, and analyze budget alternatives.

- In May 2007, we reported that despite a number of efforts by DOE to improve its approach to project management, the department's overall performance on projects had not substantially improved.[6] DOE had set a performance goal of having 90 percent of its ongoing projects being managed within a 10 percent variance of cost and schedule baseline targets. However, we found that since October 2002, when DOE began reporting monthly project performance data, the department had achieved its performance goals for construction projects only about one-third of the time. Also, we found that since February 2004, EM's cleanup projects met cost and schedule performance goals only about one-fifth of the time.

- In June 2007, we reported that DOE's preliminary estimate of the cost to address the five waste sites where transuranic wastes are buried was about $1.6 billion in 2006 dollars, but the estimate was likely to increase for several reasons.[7] For example, DOE's estimate reflected the costs of

[5]GAO, *National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Programs*, GAO-07-36 (Washington, D.C.: Jan. 19, 2007).

[6]GAO, *Department of Energy: Consistent Application of Requirements Needed to Improve Project Management*, GAO-07-518 (Washington, D.C.: May 11, 2007).

[7]GAO, *Nuclear Waste: Plans for Addressing Most Buried Transuranic Wastes Are Not Final and Preliminary Cost Estimates Will Likely Increase*, GAO-07-761 (Washington, D.C.: June 22, 2007).

leaving most waste under earthen barriers—typically the least expensive approach. If DOE was required to retrieve substantial portions of these wastes, costs would increase dramatically. In addition, DOE's estimate excluded unknown costs, such as the cost of disposing of wastes off-site, if necessary. For example, DOE's lifecycle cost estimate to remove transuranic wastes buried near the Columbia River at the Hanford Site could triple once options and costs for disposal are fully evaluated.

- Also, in June 2007, we reported that EM did not follow key departmental project management requirements for its Bulk Vitrification Demonstration Project, which aimed to demonstrate an alternative technology to treat low-activity radioactive waste at the Hanford Site.[8] Specifically, early in the demonstration, EM did not conduct key internal and external reviews that would have evaluated the project's design, procurement, and construction management approaches to identify potential problems and address them before starting construction. In addition, EM did not fully develop or update key project planning documents, such as a project execution plan, an acquisition plan, and a validated estimate of project costs. Without these management tools, EM initially overlooked a number of technical and safety problems facing the demonstration project, such as uncertainties about the quality of the glass formed using the bulk vitrification technology and inadequate systems to shield and confine radioactive material from workers and the environment. These problems contributed to an increase in estimated project costs from $62 million to $230 million, a 6-year delay, and an increase to the estimated life-cycle cost of a future full-scale bulk vitrification facility from about $1.3 billion to $3 billion. The project was subsequently suspended, after an investment of $100 million and several years of effort.

- In July 2007, we reported that EM had performed little or no review of contractor invoices or supporting documents for millions of dollars in charges billed to DOE each month by the contractor for the construction of the Waste Treatment Plant at the Hanford Site.[9] Given the multibillion-dollar cost and schedule overruns already experienced with the project, the need for close, ongoing review of invoiced transactions and support is particularly compelling. We found that the contractor's invoices provided

[8]GAO, *Nuclear Waste: DOE Should Reassess Whether the Bulk Vitrification Demonstration Project at Its Hanford Site Is Still Needed to Treat Radioactive Waste*, GAO-07-762 (Washington, D.C.: June 12, 2007).

[9]GAO, *Hanford Waste Treatment Plant: Department of Energy Needs to Strengthen Controls over Contractor Payments and Project Assets*, GAO-07-888 (Washington, D.C.: July 20, 2007).

little detail as to the items purchased, contrary to federal acquisition regulations and contract requirements. EM officials chose to rely primarily on another agency (the Department of Defense's Defense Contract Audit Agency) to review and approve the contractor's corporate-wide financial systems, which EM officials believed allowed them to rely on the contractor's systems with little or no DOE oversight. In addition, EM relied primarily on its contractor to review and validate subcontractor charges without having a process in place to assess whether its contractor was properly carrying out its subcontractor oversight responsibility. EM's heavy reliance on others, with little oversight of its own, exposed the hundreds of millions of dollars it spent annually on the project to an unnecessarily high risk of improper payments. We also concluded that the property control weaknesses we identified, coupled with the lack of DOE oversight, created an environment in which property could be lost or stolen.

- In May 2008, we reported that NNSA's project to manufacture pits—the key component in a nuclear warhead that starts the nuclear chain reaction— at the Los Alamos National Laboratory in New Mexico did not include all associated costs in its estimates and did not establish a clear schedule for manufacturing pits.[10] NNSA established a goal in 2002 to create the capability to manufacture 10 pits per year starting in 2007 and to deliver a single war reserve pit—a pit that can be used in the U.S. nuclear weapons stockpile—for the W88 nuclear warhead in 2007. NNSA estimated that this effort would cost about $1.55 billion between fiscal years 2001 and 2007. NNSA subsequently reported that it was implementing the project under budget by spending $1.29 billion on the pit manufacturing effort between fiscal years 2001 and 2007. However, NNSA's cost estimate did not include costs for a variety of activities that directly and indirectly supported the pit manufacturing project. These support activities, which included scientific experiments as well as facility operations and maintenance, totaled over $1 billion. In addition, we found that NNSA did not establish a clear, consistent schedule of the number of war reserve pits it planned to produce. Specifically, although NNSA produced eight W88 war reserve pits in 2007—exceeding the goal established in 2002 of one W88 war reserve pit in 2007—other NNSA documents (including budget requests to the Congress) called for a goal of delivering 10 W88 war reserve pits per year starting in 2007.

[10]GAO, *Nuclear Weapons: NNSA Needs to Establish a Cost and Schedule Baseline for Manufacturing a Critical Nuclear Weapon Component*, GAO-08-593 (Washington, D.C.: May 23, 2008).

- In June 2008, we reported that EM had made limited progress in its cleanup efforts at the Hanford Site, specifically in transferring waste from its 149 single-shell tanks to its larger and more robust double-shell tanks.[11] We also reported that DOE's cost estimate for retrieving tank waste was significantly understated and that DOE's 2003 estimate of $4.3 billion increased to $7.6 billion. Under the current Tri-Party Agreement—an agreement between DOE, the state of Washington, and the Environmental Protection Agency laying out milestones for the cleanup efforts at Hanford—DOE agreed to empty all 149 single-shell tanks at the site by September 2018 and close them by 2024. To date, only seven tanks have been emptied, and at its present rate of progress—currently only one tank is emptied per year—DOE will not achieve the milestones it committed to in the Tri-Party Agreement. DOE has since acknowledged that (1) the start of waste treatment operations will be delayed by at least 8 years (from 2011 to 2019) and (2) the completion of waste treatment operations may be delayed by at least 29 years (from 2018 to 2047).

- In July 2008, we reported that EM's cost estimate for processing 23 metric tons of highly enriched uranium and plutonium at a facility at the Savannah River Site known as H-Canyon did not include all associated costs.[12] Although EM estimated that it would cost approximately $4.3 billion to $4.6 billion to process these materials through 2019, this estimate did not include several costs EM expects will be associated with canyon operations. According to EM and NNSA officials, more highly enriched uranium and plutonium may be identified as suitable for processing using H-Canyon, which could delay its shutdown and increase its operational costs. In addition, the estimate did not include the cost of storing and treating the waste generated by H-Canyon operations through 2019—approximately $253 million, according to EM. We also reported that completion of some safety and environmental analyses have been delayed by as much as 2 years, and any further delays could affect canyon operations.

[11]GAO, *Nuclear Waste: DOE Lacks Critical Information Needed to Assess Its Tank Management Strategy at Hanford*, GAO-08-793 (Washington, D.C.: June 30, 2008).

[12]GAO, *Nuclear Material: DOE Needs to Take Action to Reduce Risks Before Processing Additional Nuclear Material at the Savannah River Site's H-Canyon*, GAO-08-840 (Washington, D.C.: July 25, 2008).

Preliminary Results From Ongoing GAO Work on NNSA's Mixed Oxide Fuel Fabrication Facility Indicate Continuing Project Management Concerns

We are currently reviewing the cost and schedule performance and the status of licensing the MFFF construction project at the Savannah River Site, a nearly $5 billion facility that is designed to convert 34 metric tons of surplus weapons-grade plutonium into fuel for use in commercial nuclear reactors.[13] In accordance with DOE's project management requirements, NNSA is using an earned value management system to measure and report the progress of the MFFF construction project. One critical component of an effective earned value management system is the development of a reliable schedule. For example, a schedule should specify when the project's set of work activities will occur, how long they will take, and how they relate to one another. The schedule not only provides a roadmap for the systematic execution of a program but also provides the means by which to gauge progress, identify and address potential problems, and promote accountability.

GAO has identified nine practices associated with effective schedule estimating: (1) capturing key activities, (2) sequencing key activities, (3) establishing the duration of key activities, (4) assigning resources to key activities, (5) integrating key activities horizontally and vertically, (6) establishing the critical path for key activities, (7) identifying "float time" between key activities, (8) performing a schedule risk analysis, and (9) distributing reserves to high-risk activities.[14] Most of these practices are also identified by DOE in a recent guidance document on establishing performance baselines.[15]

Although the MFFF project's schedule was developed using many of these practices, the schedule, in addition to other problems, does not employ a key practice that is fundamental to having a sufficiently reliable schedule—specifically, MFFF project staff have not conducted a risk analysis on their current schedule using statistical techniques. Consequently, NNSA cannot adequately state its level of confidence in meeting the MFFF project's completion date of October 2016, and NNSA's schedule for the project therefore may not be reliable. In addition, we

[13]Our March 2007 review of DOE's major construction projects found that the MFFF had incurred more than a $3.2 billion cost increase over the initial cost estimate and a schedule delay in excess of 11 years more than initially estimated.

[14]GAO, *Cost Assessment Guide: Best Practices for Estimating and Managing Program Costs – Exposure Draft*, GAO-07-1134 SP (Washington, D.C.: July 2, 2007).

[15]U.S. Department of Energy, *Performance Baseline Guide*, G 413.3-5 (Washington, D.C.: September 12, 2008).

found that the schedule does not fully employ other key practices that are also fundamental to having a sufficiently reliable schedule. For example, another key scheduling practice—the proper sequencing of key activities—requires that project officials logically schedule key activities in the order that they are to be carried out to establish a basis for guiding work and measuring progress. However, based on the preliminary results of our analysis, the MFFF project only partially satisfied this practice. Specifically, we found that almost 1,500 of the over 24,000 activities listed in the MFFF project's schedule were not sequenced in a logical manner. As a result, we have reduced confidence in the ability of the MFFF project's schedule to accurately reflect how the MFFF project will be executed (see app. II for the preliminary results of our analysis of the MFFF project's schedule).

As recently as December 2008, the MFFF project's earned value management system indicated that the project was meeting its cost and schedule goals. However, correcting weaknesses in the MFFF project's schedule is important because the project is currently spending approximately $25 million a month and plans to spend an additional $3.6 billion before the project is completed in 2016. In our view, correction of these schedule reliability concerns now could avert potentially expensive schedule overruns in the future and will enable NNSA to more effectively measure the performance status of the MFFF project. NNSA and contractor officials told us that they recognize some of the problems we identified with the MFFF project's schedule and are planning to make improvements. Specifically, project officials told us that they plan to conduct a schedule risk analysis during the summer of 2009. Our work on this project is continuing, and we intend to work with NNSA to resolve these issues to the extent possible. In the meantime, we would urge caution in using the results from the MFFF project's earned value management reports until these issues have been addressed.

In addition to our work on the MFFF project, we are also currently conducting work on DOE cost estimating for this Subcommittee. Specifically, we are examining cost estimating practices within NNSA, EM, and DOE's Office of Science by selecting a sample of large projects and comparing their cost estimates with DOE policy and GAO-identified best practices. We also plan to identify any impediments that DOE may face in developing reliable, credible, and comprehensive cost assessments. Finally, we are evaluating the cleanup strategy DOE is using to address the 56 million gallons of radioactive and hazardous waste at the Hanford Site in Washington State. Specifically, we will be evaluating the legal, technical,

and risk issues affecting this multi-billion, decades-long project. We plan to update the Subcommittee on the status of our work later this spring.

Action Underway and Needed to Reduce Project Vulnerability to Fraud, Waste, Abuse, and Mismanagement

In the nearly 3 years since we last testified before this Subcommittee, the reports we have issued on projects across NNSA and EM have contained nearly 60 recommendations. These recommendations collectively call for DOE to ensure that project management requirements are consistently followed, to improve oversight of contractors, and to strengthen accountability for performance. Although DOE's responses to these recommendations have been largely positive, and some corrective actions have been taken, most of the recommendations are still open, awaiting action by the department.

DOE has also taken steps to better understand weaknesses underlying its contract and project management.[16] First, with input from headquarters and field officials with contract and project management expertise, it completed a root-cause analysis. In this analysis, DOE found a number of problems, including:

- Risks associated with projects are not objectively identified, assessed, communicated, or managed through all phases of planning and execution.
- Ineffective project oversight has resulted in failure to identify project performance issues in a timely manner.
- DOE is not effectively executing its ownership role on some large projects with respect to overseeing and managing contracts and contractors.

On the basis of its root-cause analysis, DOE also completed a comprehensive corrective action plan to address these weaknesses, with both near-term and long-term goals and objectives.

Because of these actions, and other improvements made over the past decade to establish a more structured and disciplined approach to contract and project management, we believe that DOE as a whole has substantially met three of the five criteria necessary for removal from our high-risk list. Specifically, DOE has (1) demonstrated strong commitment

[16]Department of Energy, *Root Cause Analysis: Contract and Project Management* (Washington, D.C.. April 2008).

and leadership; (2) demonstrated progress in implementing corrective measures; and (3) developed a corrective action plan that identifies root causes, effective solutions, and a near-term plan for implementing the solutions.

Two criteria remain for removal from our high-risk list: having the capacity (people and resources) to resolve the problems and monitoring and independently validating the effectiveness and sustainability of corrective measures. Regarding capacity, DOE's April 2008 root-cause analysis report recognized as one of its top 10 issues a lack of an adequate number of federal contracting and project personnel with the appropriate skills (such as cost estimating, risk management, and technical expertise) to plan, direct, and oversee project execution.

Monitoring and validating the effectiveness and sustainability of corrective measures will take time to demonstrate. Our recent work has shown that the Office of Science—DOE's third-largest program office—has demonstrated strong performance in meeting cost and schedule targets.[17] Specifically, we found that, of 42 Office of Science projects completed or under way from fiscal years 2003 through 2007, more than two-thirds were completed or being carried out within original cost and schedule targets. The office's ability to generally achieve projects' original cost and schedule targets is due in part to factors often considered fundamental to effective project management: leadership commitment to meeting cost and schedule targets; appropriate management and technical expertise; and disciplined, rigorous implementation of project management policies. The Office of Science's frequent independent reviews, in particular, were cited by DOE officials as a key reason for its project management performance. Until NNSA and EM can demonstrate these principles and consistently complete projects on time and within budget, it will be difficult to demonstrate that any of the corrective actions taken have achieved their desired effect—improved cost and schedule performance. Until that time, both NNSA and EM will remain vulnerable to fraud, waste, abuse, and mismanagement and therefore will remain on our high-risk list.

[17]GAO, *Department of Energy: Office of Science Has Kept Majority of Projects within Budget and on Schedule, but Funding and Other Challenges May Grow*, GAO-08-641 (Washington, D.C.: May 30, 2008).

Agency Comments and Our Evaluation

We provided a draft of our preliminary findings with respect to the MFFF project's schedule to NNSA for its review and comment. Overall, NNSA and project officials agreed with many of our specific findings, including the fact that project officials have not conducted a risk analysis of the current project schedule using statistical techniques. However, NNSA officials did not agree with our conclusion that, as a result of some of the shortcomings we identified, the project's schedule may not be reliable. In addition, project officials told us that they planned to conduct a schedule risk analysis on the current schedule during the summer of 2009.

Mr. Chairman, this concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have at this time.

GAO Contacts and Staff Acknowledgments

For further information on this testimony, please contact me at (202) 512-3841 or aloisee@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Ryan T. Coles, Daniel Feehan, and Janet Frisch, Assistant Directors; Alison Bawden; Carole Blackwell; James Espinoza; Stephanie Gaines; Eugene Gray; Jason Holliday; Chris Pacheco; Tom Perry; Leslie Pollock; Steve Rossman; Peter Ruedel; and Carol Herrnstadt Shulman made key contributions to this testimony.

Appendix I: Related GAO Products

High Risk Series: An Update. GAO-09-271. Washington, D.C.: January 22, 2009.

Nuclear Waste: Action Needed to Improve Accountability and Management of DOE's Major Cleanup Projects. GAO-08-1081. Washington, D.C.: September 26, 2008.

Nuclear Material: DOE Needs to Take Action to Reduce Risks Before Processing Additional Nuclear Material at the Savannah River Site's H-Canyon. GAO-08-840. Washington, D.C.: July 25, 2008.

Nuclear Waste: DOE Lacks Critical Information Needed to Assess Its Tank Management Strategy at Hanford. GAO-08-793. Washington, D.C.: June 30, 2008.

Department of Energy: Office of Science Has Kept Majority of Projects within Budget and on Schedule, but Funding and Other Challenges May Grow. GAO-08-641. Washington, D.C.: May 30, 2008.

Nuclear Weapons: NNSA Needs to Establish a Cost and Schedule Baseline for Manufacturing a Critical Nuclear Weapons Component. GAO-08-593. Washington, D.C.: May 23, 2008.

Hanford Waste Treatment Plant: Department of Energy Needs to Strengthen Controls over Contractor Payments and Project Assets. GAO-07-888. Washington, D.C.: July 20, 2007.

Nuclear Waste: DOE Should Reassess Whether the Bulk Vitrification Demonstration Project at Its Hanford Site Is Still Needed to Treat Radioactive Waste. GAO-07-762. Washington, D.C.: June 12, 2007.

Nuclear Waste: Plans for Addressing Most Buried Transuranic Wastes Are Not Final, and Preliminary Cost Estimates Will Likely Increase. GAO-07-761. Washington, D.C.: June 22, 2007.

Department of Energy: Consistent Application of Requirements Needed to Improve Project Management. GAO-07-518. Washington, D.C.: May 11, 2007.

Department of Energy: Major Construction Projects Need a Consistent Approach for Assessing Technology Readiness to Help Avoid Cost Increases and Delays. GAO-07-336. Washington, D.C.: March 27, 2007.

National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Programs. GAO-07-36. Washington, D.C.: January 19, 2007.

Appendix II: GAO's Preliminary Analysis of the Mixed Oxide Fuel Fabrication Facility Project's Schedule

Table 1: Extent to Which the MFFF Project's Schedule Used Key Practices

Practice	Explanation	Satisfied?	GAO analysis
Capturing key activities	The schedule should reflect all key activities as defined in the program's work breakdown structure, including activities to be performed by both the government and its contractors.	Yes	The project's schedule reflects both government and contractor activities, such as the building and testing of software components, as well as key milestones for measuring progress.
Sequencing key activities	The schedule should be planned so that it can meet critical program dates. To meet this objective, key activities need to be logically sequenced in the order that they are to be carried out. In particular, activities that must finish prior to the start of other activities (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Partially	Of 24,289 total activities, 1,474 are not logically sequenced—that is, the schedule does not identify interdependencies among work activities that form the basis for guiding work and measuring progress.
Establishing the duration of key activities	The schedule should realistically reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, historical data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. The schedule should be continually monitored to determine when forecasted completion dates differ from the planned dates; this information can be used to determine whether schedule variances will affect downstream work.	Partially	1,064 of the 24,289 total activities have durations of over 200 days. Durations should be as short as possible and have specific start and end dates to ensure the objective measurement of progress.
Assigning resources to key activities	The schedule should reflect what resources (e.g., labor, material, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.	Yes	The schedule reflects $3.2 billion in resource costs.
Integrating key activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link the products and outcomes associated with other sequenced activities. These links are commonly referred to as "handoffs" and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that traceability exists among varying levels of activities and supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Yes	The program has provided evidence that the schedule is sufficiently integrated.
Establishing the critical path for key activities	Using scheduling software, the critical path—the longest duration path through the sequenced list of key activities—should be identified. The establishment of a program's critical path is necessary for examining the effects of any activity slipping along this path. Potential problems that might occur along or near the critical path should also be identified and reflected in the scheduling of the time for high-risk activities.	Partially	A critical path has been established but the program first needs to satisfy the other scheduling best practices listed above before the critical path can be considered reliable.

Practice	Explanation	Satisfied?	GAO analysis
Identifying the "float time" between key activities	The schedule should identify float time—the time that a predecessor activity can slip before the delay affects successor activities—so that schedule flexibility can be determined. As a general rule, activities along the critical path typically have the least amount of float time. Total float time is the amount of time flexibility an activity has that will not delay the project's completion (if everything else goes according to plan).	Partially	The schedule contains 885 activities with extremely low float values (1 day or less).
Performing a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a program's completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect program status.	No	The MFFF project has not performed a schedule risk analysis using statistical techniques. Project officials told us that they plan to address this issue during the summer of 2009.
Distributing reserves to high-risk activities	The baseline schedule should include a buffer or a reserve of extra time. Schedule reserve for contingencies should be calculated using a schedule risk analysis. As a general rule, the reserve should be applied to high-risk activities, which are typically found along the critical path.	Partially	Although project officials have not identified appropriate schedule reserves based on a schedule risk analysis, they have identified contingency funding using a programmatic risk program to identify high-risk activities.

Source: GAO analysis of the MFFF project schedule, February 2009.

GAO's Mission	The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.
Obtaining Copies of GAO Reports and Testimony	The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday afternoon, GAO posts on its Web site newly released reports, testimony, and correspondence. To have GAO e-mail you a list of newly posted products, go to www.gao.gov and select "E-mail Updates."
Order by Phone	The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's Web site, http://www.gao.gov/ordering.htm. Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537. Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.
To Report Fraud, Waste, and Abuse in Federal Programs	Contact: Web site: www.gao.gov/fraudnet/fraudnet.htm E-mail: fraudnet@gao.gov Automated answering system: (800) 424-5454 or (202) 512-7470
Congressional Relations	Ralph Dawn, Managing Director, dawnr@gao.gov, (202) 512-4400 U.S. Government Accountability Office, 441 G Street NW, Room 7125 Washington, DC 20548
Public Affairs	Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548

STUDY BY NATIONAL ACADEMICS OF PUBLIC ADMINISTRATION

Mr. VISCLOSKY. Mr. Breul.

Mr. BREUL. Thank you, Mr. Chairman, members of the committee. My name is Jonathan Breul, and I am a fellow at the National Academy of Public Administration and Chair of an ongoing Academy study of three of the Department's major mission-support functions: human resources, procurement and financial management. The Academy is a congressionally chartered nonprofit institution established in 1967 to help governments at all levels effectively respond to current circumstances and changing conditions.

PRIOR ACADEMY STUDIES

The Academy's association with the Department of Energy began in 2003 when the House Interior Appropriations Subcommittee asked the Academy to asses a comprehensive reorganization and the procurement and financial management operations in one of the Department's smaller program offices, the Office of Energy Efficiency and Renewable Energy, EERE. Then in 2005, the House and Senate subcommittees asked the Academy to undertake a management review of the Department's Environmental Management Program, focusing on procurement and project management, as well as an assessment of human resource operations.

As part of the analysis undertaken at that time with the EM study, the Academy examined the workload planning methodologies used by the Nuclear Regulatory Commission, the Naval Facilities Engineering Command and the Army Corps of Engineers. Chief among the challenges facing EM was a significant mismatch between the work EM was asked to perform and the staff resources required to perform it. In particular, the Academy analysis raised questions about EM's capacity in areas of project management, cost and price analysis, safety, quality assurance, acquisition and contract administration. The panel found that EM staffing allocation would have to be increased by at least 200 FTE over budgeted levels in order to meet performance expectations.

REASONS FOR THIS CURRENT STUDY

The Academy panels for EERE and EM noted that many of the problems found in human resources and procurement could not be resolved by the program offices acting alone because of the critical role of the departmental human resources and procurement offices in the execution of those activities. As a result, last year this subcommittee asked the Department to again contract with the Academy to examine these mission-support activities, as well as those in the area of financial management, and to recommend steps to improve how they function.

IMPORTANCE OF MISSION SUPPORT OFFICES

Let me begin with the challenges facing the Department as a whole. To accomplish the Department's important mission, the Secretary and the Department Secretary, when confirmed, will depend upon the Department's program assistant secretaries to achieve program results. In order to be successful, those program assistant secretaries must in turn rely on departmental support organiza-

tions for human resources, procurement, and financial management resources.

While each of these mission-support functions is important in and of themselves, they only really matter in the context of the Department's larger mission, and the test of these functions and how they contribute should be the measure of success in the Department's operating programs.

NEED FOR STRONGER MISSION SUPPORT ORIENTATIONS

We have identified two critical challenges in this regard. First is a need for the mission-support functions to strengthen their mission focus and their orientation towards mission-support activity. These three mission-support offices, and most notable among them Human Resources, need to develop a stronger mission-support orientation.

During our interviews throughout the Department, from lower-level staff to program assistant secretaries and other senior program leadership, Academy staff consistently heard concerns that the departmental mission-support offices are not focused on supporting the mission of the program offices. They are not meeting mission requirements, and they are not driven by customer needs. It is the Academy's conclusion that the service delivery strategies for these three mission-support offices needs to reflect a stronger customer service orientation.

The second challenge is the need to better integrate these three mission-support offices in order to support and provide a coordinated approach to providing their services to the program divisions. At present they operate independently of one another. There is no formal ongoing mechanism for coordination, and we view this as a serious problem.

MOST CRITICAL PROBLEMS IN HUMAN RESOURCES

Let me begin with the human resource area. Of the three mission-support offices we have looked at, by far the most critical problems are in the human resources and workforce area. First, many of the Human Resources Office customers, lack trust and confidence in that office's ability to deliver quality and timely human resources services.

Secondly, the office lacks a strategic focus and any formal ongoing mechanism for working collaboratively with the Department stakeholders to develop departmentwide human resource strategies. As we began this study and interviewed officials at the Assistant Secretary and Deputy Assistant Secretary level, a recurring theme was great dissatisfaction with the staffing services, which include classification, recruitment and hiring. When Academy staff asked one senior official whether his organization needed more staff to perform its mission, he responded, "I do not know because I have never been able to fill all of my vacant positions." His response was illustrative of the frustrations we have heard from many DOE headquarter officials.

SPECIFIC PROBLEMS IN HUMAN RESOURCES

The functions of filling positions are mission-critical to the program, for the staff and for other mission-support offices. The panel believes that the headquarters Human Resources Office's inability to meet its customer needs in this area is compromising DOE's mission.

As the Academy dug into this issue, we found a number of very specific factors I would like to just explain quickly. First is that the DOE is not actively managing departmentwide positions. As a result, Human Resources is not able to depict the vacancy fill rate of the Department, or quantify the workload required to fill actual or anticipated vacancies. The panel finds it troubling that Human Resources does not use vacancy fill rate as a primary metric for how they operate.

Secondly, regulatory compliance seems to be the primary driver for the Human Resources Office. The office is responsible for ensuring that the Department's human resource transactions and managements comply with regulations. However, the Academy is concerned that this regulatory compliance focus overshadows their ability to provide creative and innovative solutions to the servicing programs.

For example, the panel has recommended that the office work with customers to develop alternatives for using DOE's field HR offices to provide staffing support for the headquarters. Human Resources' response has been that they have regulatory concerns with some of these field human resources offices. In the panel's view, this shows a lack of customer focus and inadequate management of the Department's human resources. Where there are legitimate concerns, Human Resources should work to fix them. Where the Human Resource functions are complying with regulations and are providing good services, the office should explain how these offices might be used more fully to provide high-quality mission support for the other parts of DOE.

Third, the Human Resource Office is not taking advantage of staffing flexibilities that are already available. At the June 2008 Academy panel meeting, the prior Chief Human Capital Officer was lamenting on his office's difficult task of ensuring the Department complies with the Office of Personnel Management's regulations with the so-called "rule of three," which guides how you deal with veterans' preference in the staffing process. In the past, many agencies have complained about these regulations and how they have hindered them from hiring individuals with superior job qualifications. However, since the passage of the Chief Human Capital Officers Act in 2002, OPM has authorized alternative ways of assessing job applicants, called "categorical rankings." The Human Resource Office has only now begun to explore these flexibilities, and until they begin to use these more fully, the DOE will continue to miss opportunities to find the best person for a job and increase the amount of time available to fill key positions across the Department.

PROCUREMENT AND PROJECT MANAGEMENT

Let me turn to procurement and project management. A major issue that the Academy examined during its study of the EM programs was the length of time it took to execute major procurements. As you know, the GAO did a study in 2006 which said that delays in obtaining the required review and approval from DOE headquarters caused an average 5-month delay in contract award. We looked at this and traced a large part of the delays to the Department's business clearance process, where the headquarters Procurement Office, the Office of General Counsel and others review various documents generated through the contract award process for large procurements. Delays in that process were a constant frustration and were so for the EM program and contracting officials.

Because many of EM's contracts are in the tens to hundreds of millions of dollars, the relatively low threshold of $5 million compounded the program. Although the business process was not under EM's control, the Academy made a series of recommendations to improve the process, recommending that they raise the review level to $100 million. The Procurement Office subsequently raised the review level to $50 million in partial recognition of the problem.

We also recommended a reengineering review of the business clearance process to find ways to reduce the time it took. We have not yet completed an assessment of that effort, however, and disappointingly, initial indications are that while some improvements have been made, there has been no major reduction in procurement lead times.

During our look at EM, we spent a considerable time examining EM's project management activities. We found a workforce with insufficient numbers and training to effectively oversee contractor employees, a lack of Federal cost-estimating capability, and a workforce that lacked proficiency with principles of earned value management and project tracking.

OFFICE OF THE CHIEF FINANCIAL OFFICER

Let me turn to the Office of the Chief Financial Officer, the third of the three mission-support offices we were asked to review. Overall, we found the CFO's office has developed a much more strategic approach to guide its operations than the Human Resources and Procurement Offices. And there were frankly very few complaints about the services it provides the rest of the Department. Nevertheless, we found several issues that are included in our report.

One issue is budget formulation. Even though many DOE programs have a multiyear dimension with significant long-term costs, DOE's budget formulation lacks a long-term planning and programming component to ensure that these long-term program goals and costs are efficiently and effectively met. DOE does have a process called the critical decision process in developing and approving and costing major capital projects, but this project is independent of and not formally integrated into the annual budget. So we have made recommendations to add a formal long-term planning and

programming component, and to initiate that process earlier in the year, and to integrate it with a critical decision process.

The allotment process is the second issue. Unlike virtually every other Federal department agency, the DOE allots its funds to field managers and field CFOs, not the program assistant secretaries whom Congress, the Secretary and the public hold accountable. And although the CFO procedures allow program assistant secretaries to provide direction to these field offices on how funds should be used through a separate "approved funding program", the program assistant secretaries do not have the ultimate legal authority for controlling funds. The panel believes this practice violates the basic management principle of aligning program responsibility with funding resources. In addition, the "approved funding process" adds much more paperwork to an already burdensome process for issuing funds. So the panel has recommended the Department change its budget allotment process by allocating its funds to those program assistant secretaries and holding them responsible for allocating the budgetary resources to the field.

IMPORTANCE OF MISSION SUPPORT FUNCTIONS

Mr. Chairman, I want to reemphasize what I said at the beginning of my testimony. These three mission-support functions are essential to carrying out the missions of the Department. To the extent they don't have a mission-oriented focus, they compromise the ability of the Department's important ongoing program activities to accomplish their missions. And most important right now, that could hinder the Department's ability to inject urgently needed Recovery Act funding and investments into the economy as quickly as possible.

Mr. Chairman, this completes my testimony. I must add that the Academy has enjoyed its association with this subcommittee, and we look forward to continuing service. I also want to add that we, the Academy panel and its staff, have had a very interactive, collaborative relationship with the Department throughout this series of studies.

Thank you.

[The information follows:]

TESTIMONY OF JONATHAN BREUL
CHAIR, NATIONAL ACADEMY OF PUBLIC ADMINISTRATION PANEL ON DOE MISSION-SUPPORT ORGANIZATIONS

Mr. Chairman and Members of the Committee, my name is Jonathan Breul. I am a Fellow of the National Academy of Public Administration (the Academy) and the chair of an ongoing Academy study of three of the Department of Energy's major mission-support functions—human resources (HR), acquisition, and financial management. I am pleased to be here today to provide information on the work our Academy Panel has been carrying out for the Department of Energy. Although our study will not be completed until May, I would like to provide you with the Academy Panel's findings to date and the recommendations it has made to the Department to improve these critical management areas.

The Academy is a congressionally chartered, non-profit institution, established in 1967 to help governments at all levels respond effectively to current circumstances and changing conditions. The Academy's congressional charter requires that, " ... whenever called upon by Congress, or the federal government, [the Academy] will investigate, examine, experiment and report upon any subject of government..." Congressional committees request many of the Academy's studies, which give Members, their staffs, and agency officials actionable recommendations focused on solving governance and administrative challenges.

With me today is Mr. Albert Kliman, a newly-elected Academy Fellow and the project director for all of the DOE studies we have conducted over the last 6 years. I am also pleased to see here today representatives of the Government Accountability Office. The Academy has had a very good working relationship with the GAO, collaborating extensively with them and exchanging information on our respective tasks.

SCOPE OF THE DEPARTMENT OF ENERGY

As you know, the Department of Energy contributes to the future of the Nation by promoting our energy security; maintaining the safety and reliability of our nuclear stockpile; cleaning up the environment from the legacy of the Cold War; and developing innovation in science and technology. To accomplish this important mission, the Secretary and Deputy Secretary depend upon the Department's Program Assistant Secretaries for program results who, in turn, depend on departmental support organizations to effectively deliver mission-support services.

The Department has a workforce of approximately 14,200 civil servants and relies on more than 90,000 contractor employees to execute its programs. For fiscal year 2008, the Department's budget was approximately $26 billion, most of which was awarded in contracts and financial assistance agreements to pay for the goods and services needed to accomplish DOE's mission. In fiscal year 2009, the Department's budget request was approximately $25 billion, and it has received $38.7 billion in grants authority and $130 billion in loan authority to inject stimulus funding into the economy as quickly as possible. These facts and figures demonstrate that the Department of Energy is not just a world of policy issues or headline-grabbing events. It also is a world where federal executives and managers actually direct the government's business and where good management is vitally important. The public should expect and demand exceptional performance from an organization entrusted with such a critical mission and the sixth largest civilian agency budget in the entire federal government.

BACKGROUND OF THIS STUDY

The Academy's association with the Department began in 2003 when the House Interior Appropriations Subcommittee asked the Academy to assess a comprehensive reorganization and the acquisition and financial management operations of one of DOE's smaller program offices—the Office of Energy Efficiency and Renewable Energy (EERE). Then in September 2005, the House and Senate Energy and Water Development Appropriations Subcommittees asked the Academy to undertake a management of review of DOE's Environmental Management (EM)

Program focusing on the management and organization of EM, its acquisition and project management operations, and an assessment of EM's HR operations.

As part of the analysis undertaken during the EM study, Academy staff examined the workload planning methodologies used by the Nuclear Regulatory Commission, the Naval Facilities Engineering Command, and the Army Corps of Engineers. Chief among the challenges facing EM was a significant mismatch between the work EM was asked to perform and the staff resources required to perform it. In particular, the Panel raised concerns about EM's staff capacity in the areas of project management, cost-price analysis, safety, quality assurance, acquisition, and contract administration. The Panel found that EM's staffing allocation would have to be increased by at least 200 over budgeted levels in order to meet performance expectations. It also was during the EM project that the Academy became more fully aware of problems in both the HR services that DOE headquarters provides to the program offices and the Department's business clearance process for major acquisitions.

The Academy Panels for the EERE and EM studies noted that many of the problems found in the human resources and acquisition areas could not be resolved by the program offices acting alone because of the critical role the DOE departmental human resources and acquisition offices play in the execution of those activities. As a result, last year, the House Energy and Water Development Appropriations Subcommittee asked the Department to contract once again with the Academy to examine these mission-support activities as well as the office of the Chief Financial Officer (CFO) and to recommend steps to improve how they function.

Several of the Academy Panel members and staff, including Mr. Kliman and myself, have worked on all three studies, which have given us an in-depth understanding of the Department and the challenges it faces. The primary means of data collection for the three studies were interviews with DOE personnel—including senior leadership, managers, and staff—DOE stakeholders, regulators, congressional staff, OMB and GAO. Academy staff, often accompanied by Panel members, visited 14 DOE sites around the country to meet with people. In addition, staff conducted benchmarking interviews with 14 federal agencies to draw

comparisons with how other agencies conduct their mission-support functions and to identify practices that might serve DOE. During the course of the three studies, Academy staff conducted interviews with approximately 1,000 individuals.

CHALLENGES FACING DOE

I want to first begin by highlighting two critical challenges that face these three mission-support organizations. The Academy believes that these overarching issues must be addressed, and must be addressed quickly. The first is a need to strengthen the mission focus and orientation of these mission-support activities. The second is the need to better integrate the mission-support offices in order to provide a coordinated approach to providing essential support services.

Challenge One: Greater Mission-Oriented Focus

The three mission-support offices—most notable among them, the Office of the Chief Human Capital Officer (OCHCO)—need to develop a stronger mission-support orientation. During our interviews throughout the Department, from lower-level staff to Program Assistant Secretaries and other senior program leadership, Academy staff consistently heard the common concerns that the DOE headquarters mission-support offices are not focused on supporting the mission of the program offices, they are not meeting mission requirements, and they are not driven by customer needs. It is the Academy Panel's conclusion that service delivery strategies for the mission-support offices need to reflect a stronger customer service orientation.

Challenge Two: Improved Coordination and Integration

The three mission-support offices operate independently of one another. There is no formal, ongoing mechanism for coordination. While each of these functions is important in and of themselves, they only really matter in the context of the Department's larger mission. The test of their success should be how they contribute to the success of the Department's operating programs.

The Impact of the Stimulus

The President, Congress, as well as the citizens of this country are expecting that the money from the new stimulus legislation be put to its intended uses as quickly as possible. As such, the Nation's economic recovery is partly dependent on timely action by the federal government. The stimulus funding approved for DOE is over one-and-a-half times the Department's current annual budget. This will place large demands on DOE's mission-support organizations. Several programs, such as the Loan Guarantee Program, will need to hire large numbers of additional staff as soon as possible. DOE's acquisition offices must be ready to execute the contracts and financial assistance agreements that will move money out of DOE and into the hands of organizations that can create new jobs. The Department's mission-support organizations must be focused on meeting their customers needs and have an integrated strategy for dealing with the additional demands that the stimulus funding presents.

Panel Recommendations

To address the challenges and overarching problems the Panel found in DOE's mission-support functions, the Panel concluded that DOE needs to revamp the degree and manner in which these offices work with one another and the degree and manner in which they support the program offices. DOE needs to have a management focus and an ongoing mechanism whereby the mission-support organizations meet regularly to identify common functional issues and agree upon corporate mission-support strategies that meet the Department's needs. To accomplish this, the Panel recommended in January 2009 that DOE create an Undersecretary for Management position. If the Department chooses not to create an Undersecretary for Management position, the Panel has recommended that DOE establish a Business Council, consisting of the leadership of the four major mission-support functions—human resources, acquisition, financial management, and information technology—and chaired by the Deputy Secretary to provide a forum where these critical functions can develop an integrated approach to serving their customers. The Panel also recommended that DOE create an Operations Management Council, consisting of the leadership of the mission and mission-support organizations and chaired by the

Deputy Secretary, whose responsibility it is to determine and assess mission-support requirements that will enable DOE to successfully accomplish its mission.

HUMAN RESOURCES

To help assess DOE's human resources operations in its current study, the Academy is using the human resources standards, performance elements, and success attributes and indicators that are the basis for the Certified Assessment of Human Resources Systems (CAHRS), which the Academy developed for the University of California. These validated standards balance both strategic and operational dimensions and are one means of determining successful performance in the complex and diverse human resources practices found within DOE. The Academy also is assessing DOE's human resources activities against the Office of Personnel Management's Human Capital Accountability and Assessment Framework.

Of the three mission-support offices being reviewed in the current Academy study, by far, the most critical problems have been found in the Office of the Chief Human Capital Officer. These problems can be summarized in two key sentences.

1. Many of the OCHCO's customers lack trust and confidence in that office's ability to deliver quality and timely HR services.
2. The OCHCO lacks the strategic focus and a formal, ongoing mechanism for working collaboratively with the Department's stakeholders to develop corporate, Department-wide HR strategies.

Quality and Timeliness of Service

Let me first address the quality and timeliness of HR services. As we began this study and interviewed officials at the Assistant Secretary and Deputy Assistant Secretary level, a recurring theme was a great dissatisfaction with the staffing services, which include classification, recruitment, and hiring, that OCHCO was providing to the program offices. When Academy staff asked one senior official whether his organization needed more staff to perform its mission,

he responded, "I do not know, because I have never been able to fill all of my vacant positions." His response was illustrative of the frustrations we heard from many DOE headquarters officials. The primary HR function of filling positions is mission critical for program, staff, and other mission-support offices at DOE. The Panel believes that the headquarters HR office's inability to meet its customers' needs in this area is compromising DOE's mission.

As Academy staff dug into this issue, they found a number of very specific factors that seem to contribute to OCHCO's service delivery problems.

DOE does not actively manage the Department-wide utilization of its positions. As a result, OCHCO is not able (1) to depict the vacancy/fill rate of the Department or (2) quantify the HR workload that is required to fill actual or anticipated vacancies. As a result, OCHCO is not really able to manage its staffing workload. The Panel also finds it troubling that the DOE OCHCO does not use vacancy/fill rates as a primary HR service delivery metric.

Regulatory compliance appears to be the primary driver for the Office of the Chief Human Capital Officer. OCHCO is responsible for ensuring that the Department's HR transactions and management decisions comply with regulations. However, the Academy Panel is concerned that this regulatory compliance focus is overshadowing OCHCO's ability to provide creative and innovative solutions to its servicing problems. For example, the Panel has recommended that OCHCO work with its customers to develop alternatives for using DOE's field HR offices to help provide staffing support for the headquarters offices. OCHCO's response has been that it has regulatory concerns with *some* of the field HR offices. In the Panel's view, this shows a lack of customer focus and inadequate management of the Department's HR resources. Where there are legitimate concerns, OCHCO should work to remedy them. Where the field HR offices are complying with regulations and are providing good service, OCHCO should explore how those offices might be better utilized to provide high quality mission support for other parts of DOE.

The Office of the Chief Human Capital Officer is not taking full advantage of staffing flexibilities that are already available. At the June 2008 Academy Panel meeting, the prior DOE CHCO lamented on his office's difficult task of ensuring that DOE management complies

with OPM regulations such as the "rule of three," which guides how to deal with veterans' preference in the staffing process. In the past, agencies have sometimes complained that these regulations have hindered them from hiring individuals with superior job qualifications. However, since the passage of the Human Capital Officers Act of 2002, OPM has authorized an alternative way to assess job applicants, called "categorical ranking," which considers veterans' preference yet provides greater flexibility in providing high quality selection certificates. OCHCO has only recently begun to explore these flexibilities. Until OCHCO more fully utilizes them, DOE will continue to miss opportunities to find the best person for a job and increase the amount of time needed to fill key positions across the Department

Lack of a Strategic Focus

The Academy Panel believes that OCHCO is preoccupied with HR operational issues, such as providing staffing services to headquarters offices, and has found numerous examples where there is a lack of an HR strategic focus.

Until very recently, the OCHCO has not taken a leadership role to manage executive-level positions as a departmental asset. In the summer of 2008, DOE program and administrative organizations identified new executive-level staffing requirements that exceeded available executive positions. As a consequence, the OCHCO conducted a remedial partial position prioritization that resulted in previously approved executive positions being annotated as "no longer suitable for fill," much to the astonishment of DOE managers who had only recently established and filled some of these positions. More disturbing, however, is that currently, 441 of the Department's 450 executive positions are filled, which leaves the new administration with little flexibility to establish and fill positions that it may consider necessary to achieve the Department's mission.

There has been little corporate management of DOE's intern programs. Early in this study, the Academy staff were told repeatedly that DOE had over 40 different intern programs. Additional probing into the matter revealed that this was incorrect and that DOE's intern programs were variations of the government's traditional intern/trainee programs—the Career

Interns Program, Presidential Management Fellows, and the Student Temporary Employment and Student Career Employment Programs. In early December 2008, the Academy staff asked DOE OCHCO for a report showing the current number of DOE interns and trainees by site. After several iterations, OCHCO provided a report in early January; however, it did not contain the information requested. These events have raised the Panel's concerns about the OCHCO's strategic management of DOE's intern programs. How can DOE effectively manage them if it does not have a solid grasp of the types of programs being utilized and cannot produce in a timely fashion data on the number of interns?

The Office of the Chief Human Capital Officer is not positioned to optimize the Department's human resource professionals. As part of its data gathering, the Academy team asked the OCHCO for the HR servicing ratio in each of the Department's HR offices, including headquarters. The servicing ratio computes the number of employees each HR professional services within a given organization, and is used to help manage the HR workload of an organization. The OCHCO had to initiate a Department-wide data call to calculate these ratios.

Panel Recommendations

To better serve and regain the confidence of its customers, the Panel has recommended that the OCHCO develop a Transformation Action Plan to address problems within its operation. An integral part of this plan should be alternatives for how the staffing-related workload for DOE headquarters can be shared immediately with the field HR offices. It also should include a comprehensive automation strategy that addresses Department-wide HR automation needs.

After its October meeting, the Panel also recommended that DOE establish an HR Steering Committee whose charter is to examine the development of human resources initiatives and strategies and oversee the implementation of the Transformation Action Plan. However, if DOE establishes the Operations Management Council, a separate HR Committee is not needed.

What Has DOE Done?

DOE officials, including the Office of the Chief Human Capital Officer, have accepted the Academy staff's findings and the Panel's human resources recommendations. And the OCHCO has developed an action plan that begins to address its service delivery problems. But until recently, there has been no meaningful action to implement the Panel's recommendation to immediately develop alternative service delivery configurations using DOE's field HR offices. We are pleased to note, however, that Secretary Chu has recognized the urgent need to improve DOE's recruitment and hiring function and has directed the Director of the Office of Management to do so. She has formed a task force whose goal is to recommend alternatives that enable the HR system to operate quickly to hire staff with the right skills at DOE headquarters. The task force is to conclude its work by March 16th. She also has asked for the Academy staff to assist the task force, and we are happy to be able to provide that help.

ACQUISITION AND PROJECT MANAGEMENT

Much of my testimony in this area is derived from what we learned during the EM study. In assessing DOE's acquisition operations for the current study, the Academy is employing, to the extent possible, the principles contained in GAO's *Framework for Assessing the Acquisition Function at Federal Agencies,* which was issued in September of 2005. The framework contains an approach to assessing acquisition organizations by examining: (1) organizational alignment and leadership, (2) policies and processes, (3) human capital, and (4) knowledge and information management.

DOE's Business Clearance Process and Procurement Delays

A major issue the Academy examined during the EM study was the length of time it took to execute EM's major procurements. In a June 2006 report, GAO found in its review of 5 DOE contracts that "... delays in obtaining the required review and approval from DOE headquarters officials caused an average 5-month delay in contract award." The Academy traced a large part of the delays in EM procurements to DOE's business clearance process, where the DOE

headquarters procurement office, which is the Office of Procurement and Assistance Management (OPAM), the Office of General Counsel, and others review various documents generated throughout the contract award process for large procurements. Delays in the process were a constant frustration for EM program and contracting officials. Because many of EM's contracts are in the tens to hundreds of millions of dollars, the relatively low review threshold of $5 million, above which the business clearance requirements became applicable, compounded the problem for EM.

Although the business clearance process was not under EM's control, the Academy Panel made a series of recommendations to improve the process in an effort to improve EM's working relationship with OPAM and the Office of General Counsel. One of the most significant recommendations was to raise the review level threshold for EM procurements to $100 million. OPAM subsequently raised the review level to $50 million in partial recognition of the problems the Academy identified. The Academy also recommended that OPAM conduct a reengineering review of the business clearance process with the goal of reducing the time it took. OPAM completed such a review and issued revised procedures for the business clearance process in September 2008. They also have begun surveying participants in the process to determine the effectiveness of the revised procedures and identify other possibilities for improvement. We have not yet completed our assessment of how the reengineering effort has impacted the business clearance process. However, initial indications are that, while some improvements have been made, there have been no major reductions in procurement lead times.

In response to another Academy recommendation made during the EM study, OPAM has begun to implement a procurement management review program to improve acquisition oversight.

Organizational Issues

As I mentioned earlier in my testimony, DOE relies heavily on contractors and financial award recipients to accomplish its mission. In fiscal year 2008, DOE's procurement and financial assistance obligations exceeded $27 billion. Thus, the Panel for the current study found it odd that DOE's acquisition organization is not at the same organizational level as the other mission-

support offices, which report to the Deputy Secretary. The Chief Acquisition Officer (CAO), whose responsibility it is to advise and assist the Secretary and other Department officials on acquisition matters, reports to the Director of the Office of Management. The Panel was concerned that the CAO was not at a high enough level to ensure that the acquisition function had adequate access to departmental leadership and fully participate in departmental decision making.

When we started the current project, the Senior Procurement Executive, who heads OPAM, also reported to the Director of the Office of Management rather than to the CAO, as required by law. When the Academy staff brought this to DOE's attention, DOE acted to have the Director of OPAM report to the CAO.

I want to note that while the Panel had some concerns about the organizational location of the CAO, DOE is one of only a very few federal Departments where the CAO is dedicated solely to the acquisition function. In most agencies, the CAO duties are merely additional responsibilities for an official already tasked with a variety of other activities.

Panel Recommendations

To address its concerns about the organizational placement of the acquisition function, the Panel considered a recommendation to have the CAO report to the Deputy Secretary, like the CHCO and CFO. However, if the Department adopts the Panel's recommendation to establish either an Undersecretary for Management position or Business Council to fully integrate the acquisition function into the Department's decision-making apparatus, the Panel does not believe that it is necessary to realign DOE's acquisition organization. Implementation of the Undersecretary for Management or Business Council recommendation would ensure that the acquisition function has a "seat at the table" in this acquisition-dominated agency.

The Panel also recommended that the Director of OPAM be designated the Deputy CAO to ensure continuity of leadership when the CAO is absent or the position is vacant, and to recognize the role the Senior Procurement Executive plays in supporting the CAO. DOE has accepted and will be implementing this recommendation.

OPAM Policies and Guidance

OPAM's policy office has a strong staff of acquisition professionals, all of who have previous operational contracting experience. In general, DOE's operational acquisition offices believe that OPAM does a good job of coordinating the development of DOE acquisition policies with them, and that their views are considered and addressed in the final issuances. The operational acquisition offices consider OPAM staff to be accessible, responsive and helpful when contacted on individual acquisition issues.

Panel Recommendations

The Academy Panel has made some recommendations in the policy and guidance area that include the need for DOE to assess the currency of existing policy issuances, elevate the status of the acquisition career management function, improve performance standards for customer service, and develop a centralized intranet capacity. DOE has accepted and will be implementing all of these recommendations.

Project Management

During the EM study, Academy staff spent a considerable amount of time examining EM's project management activities. I already mentioned the most significant observation we made in the project management area, which was the major disconnect between the work that needed to be done and the federal staff available to do it. The Panel found:

- a workforce with insufficient numbers and training to effectively oversee contractor employees
- a lack of federal cost-estimating capability, and
- a federal workforce that lacked proficiency with the principles of earned value management and project tracking

This led to recommendations for EM to establish a rigorous staff requirements methodology and to integrate long-term staff estimates for its projects with long-term project costs. The Panel also gave EM several detailed recommendations to address other issues it found in the project management area that included:

- automated systems to track project performance that were not standardized across the organization and not tied to budget data
- operating and cleanup project risks that were not fully accounted for in the budget, and
- responsibility for quality assurance that was diffuse and undefined at the field sites

The Panel's findings are recommendations are fully detailed in the EM report, which we have made available to the Committee. We have been informed that most of the Panel's recommendations are being implemented. However, we have not conducted a formal follow up on these and other recommendations.

OFFICE OF THE CHIEF FINANCIAL OFFICER

Overall, we found that the CFO's office has developed a more strategic approach to guide its operations than the human resources and acquisition offices. And while I cannot report that all program offices were happy with the CFO's office, there were very few complaints about the services it provides the rest of the Department. Nonetheless, we found several issues that will be included in our report.

Budget Formulation

While many DOE programs have a multi-year dimension with significant long-term costs, DOE's budget formulation process lacks a long–term planning and programming component to ensure that these long-term program goals and costs are efficiently and effectively met. DOE does have a formal process, called the Critical Decision process, for developing, approving, and costing out major capital projects and EM's cleanup projects. But this process is independent of and not formally integrated into the annual budget process. In addition, some of the individual

components of DOE's budget formulation process, such as the timing and purpose of the field budget call and the fiscal guidance memorandum, are not well aligned with the rest of the Department's budget formulation process.

Panel Recommendations

The Academy Panel has recommended that the Department:

1. add a formal, long-term planning, programming, and evaluation components to its budget formulation process
2. initiate that process by providing formal program and fiscal guidance in February rather than April or May, which is the current practice, and
3. integrate the Critical Decision process into a new, long-term planning and programming process

The CFO has recognized the need for more effective long-term planning and evaluation within its budget formulation process and has begun to examine alternatives for implementing a formal planning, programming, budget, and evaluation process at DOE.

Budget Execution

The Allotment Process

Unlike virtually every other federal Department and Agency the Academy staff interviewed, DOE allots appropriated funds to field office managers and field CFO's and not to the Program Assistant Secretaries whom Congress, the Secretary of Energy, and the public hold accountable for achieving program results. Although CFO procedures allow Program Assistant Secretaries to provide direction to field offices on how funds should be used through a separate process known as the Approved Funding Program (AFP), the Program Assistant Secretaries do not have the ultimate legal responsibility for controlling funds. The Academy Panel believes this practice violates the basic management principle of aligning program responsibilities with funding accountability. In addition, the AFP process adds more paperwork to an already burdensome process for issuing funds.

Panel Recommendations

The Panel has recommended that DOE change its budget allotment process by allotting appropriated funds to the Program Assistant Secretaries and making them responsible for allocating their budgetary resources to the field. The CFO does not support this recommendation.

Complexity of the Budget Execution System

In addition to the allotment process, our current study has found that DOE's budget execution system is complex and labor intensive to maintain. DOE appears to use the AFP process I just mentioned as a control procedure. But the AFPs for the various offices include very detailed controls, both internal controls and congressional controls, which require DOE to make a huge number of formal changes to the AFPs monthly.

The Panel believes that many of the controls can be eliminated. Academy staff analyses revealed that DOE has identified a substantially greater number of congressional spending limits than Congress had actually established in its report on the annual DOE appropriation. In addition, DOE's treatment of its unobligated funds has created an excessive number of control points. Virtually all DOE appropriated funds are no-year monies. Consequently, DOE funds not obligated during the year they are initially appropriated are carried over as unobligated funds. A build up of unobligated balances in a specific program may signal a problem in managing that program. Therefore, DOE needs to track no-year funds by year of appropriation to ensure that these funds are used responsibly and timely. However, DOE, unlike any other Department the Academy staff interviewed, has chosen to allot these carry over balances by year of appropriation. This practice increases exponentially the number of detailed spending controls in the AFPs, which is the core of DOE's budget execution system, and consequently, the number of formal changes that must be made. In fiscal year 2007, DOE made almost 18,000 AFP changes.

Panel Recommendations

In an effort to reduce the number of control points, the Panel recommended that the CFO staff meet with appropriations staff to reconcile the differences in the number of congressional

controls they are tracking. The Academy Panel also believes that there are more effective and less burdensome alternatives for encouraging the accelerated use and elimination of aged balances and has recommended that the CFO eliminate spending controls by year of appropriation from its AFPs and other formal allotment documents in its budget execution system. DOE's accounting system could still monitor the age of carry-over balances without having to control each year's balances. The CFO has not yet acted on these recommendations.

Budget Reprogramming

As part of its examination of DOE's budget execution system, Academy staff also reviewed the process for preparing budget reprogramming requests. Academy staff had heard numerous complaints about the amount of time the process took. We found several problems with that process, but most startling was that the process is really not being managed. No one is in charge of the reprogramming process. There is no readily available information that identifies the amount of time needed to process and approve formal budget reprogramming requests. There are no deadlines for processing and approving or rejecting specific requests. There is no system for tracking the progress of individual reprogramming requests from initiation by a program office through departmental approval.

The Department has a system—EDOCS—for managing the preparation of congressional reports and correspondence, which could be used to help manage the budget reprogramming process. The Office of the Executive Secretariat manages EDOCS and has indicated that it has the capability and is willing to process budget reprogramming requests through EDOCS.

Panel Recommendations

The Panel has recommended that the CFO work with the Executive Secretariat to utilize EDOC to expedite and manage budget reprogramming requests.

Loan Guarantee Office

As a final observation on the CFO function, the Academy Panel has noted that the new Loan Guarantee Program is part of the CFO's office. While the Panel understands the reason for placing the Loan Guarantee Office under the CFO while DOE was trying to stand the office up,

the Panel does not believe that a program office should be part of a mission-support office. This is especially true in light of the increased demands being placed on the Loan Guarantee Program from the expanded stimulus funding, which could become a major distraction for the CFO leadership.

Panel Recommendation

The Panel has recommended that DOE reassign the Loan Guarantee Program from the CFO's office to the Undersecretary for Energy Programs.

CONCLUSION

Mr. Chairman, I want to reemphasize what I said at the beginning of my testimony—that these mission-support organizations are essential to carrying out the mission of the Department, and that to the extent they do not have a mission-oriented focus, the basic program activities of the Department are imperiled. Secretary Chu's action to develop a program aimed at curing some of the most critical ailments in the human resources area indicate his awareness of the critical role that the mission-support functions have in achieving DOE's mission. I am hopeful that he and the Department leadership will pay close attention to our other recommendations as well.

Mr. Chairman, this concludes my testimony. The Academy has enjoyed its association with this Committee and we look forward to be of continuing service. Thank you.

Mr. VISCLOSKY. We will hear from you, and the bells have rung. There is a 15-minute vote and three subsequent 5-minute votes. So I think what we will do is we will take your testimony, recess, and then to the extent Members can come back, that would just be just terrific, so we can then proceed.

TESTIMONY OF INGRID KOLB

Ms. KOLB. Thank you, Mr. Chairman. After hearing the testimony of the two gentlemen on my right, I am not sure even where to begin, so I will begin—first of all, it is a pleasure to be here with you this afternoon to talk about the steps the Department of Energy is taking in order to improve project management, as well as our efforts to be removed from the GAO high-risk list. And I will also address the issues that Jonathan Bruel talked about from the NAPA study, mainly in the areas of acquisition, human capital, as well as financial management.

Beginning with project management, first of all, Mr. Chairman and members of the subcommittee, Secretary Chu had asked me to convey to all of you his sincere and serious commitment to improving project management at the Department of Energy. It is something that he is passionate about. When he was the Director of the Lawrence Berkeley Laboratory in California, he successfully completed large major construction projects, and he knows what it takes to get that job done. He intends to use those same techniques to improve project management within the Office of Environmental Management as well as within the NNSA. So he wanted me to make sure that I conveyed his sincere commitment in that area.

Let me bring you up to date on where we are on project management at the Department. First of all, I think it is important to note that despite some of the visible failures we have had in project management, the fact is that most of our construction projects are completed on cost and on schedule. In the last 3 years, 76 percent of the projects that we completed, there were 50 projects, 76 percent of them were completed on cost and on schedule, and 75 percent of those were within NNSA, and 100 percent were within the Office of Environmental Management. So the glass is not as empty as it would appear.

I do agree with GAO that we need to make improvements, there are still too many large projects, and very visible projects, that have failed, and we need to minimize those failures. The track record in managing large projects, our poor performance has harmed the Department's credibility with Congress, with all of you, and it has also kept us on the GAO high-risk list since 1990, and I share your concern that we have been on the list since 1990 as well. It is unacceptable.

I am pleased to report that we are making progress, and I hesitate to say that, but we absolutely are, and I think just the fact that GAO changed our designation on the GAO high-risk list from the entire Department being covered by the high-risk to two of our organizations, and granted they are two of the largest organizations being covered, but it does show that we are making some progress and that we are on the right track.

We have developed at this committee's direction a corrective action plan. We did that last year. And in that corrective action plan,

we have eight very important measures that we believe, once implemented, are going to result in sustained measurable and significant performance improvement.

We think that we are on the right track, and one of the things that I believe is different this time—Mr. Chairman, that we were making progress, that we are taking corrective action. The thing that is different this time is we developed a root cause analysis ourselves at the prompting of GAO. They advised us to do this, and we took their advice, and we sat down and we determined what we need to do as a department in order to move ahead on project management, what are our deficiencies. We didn't have a contractor do it. We did it ourselves. We found it to be a very refreshing and important step in the right direction.

We took the outcome of that root cause analysis, and we developed this corrective action plan with the eight measures for success. In addition, we have set forth for ourselves in that corrective action plan some very rigorous performance measures, and we are using our performance against those measures to gauge our progress, and we are reporting our progress to GAO and to OMB on a quarterly basis. So they are monitoring our progress as well.

I just wanted to talk for a few moments about the 2009 GAO high-risk update. And Gene Aloise referred to that in his testimony. There were some things in that update that we thought were very positive and have signaled to us that we are heading in the right direction. First of all, GAO acknowledged that we have established a much more robust and much more disciplined approach to contract and project management. They had not said that in previous years.

Also, GAO has credited us with completing three of the criteria, three of the five criteria that it will take to be removed from the GAO high-risk list. The first one is to have strong committed leadership. We had that during, I would say, the last 4 years, and we are certainly going to have it under Secretary Chu. The second criteria is to demonstrate progress. GAO has said that we are instituting corrective actions properly and that we are making progress. They have given us credit for that. Third, they have credited us for coming up with a corrective action plan that is based on a root cause analysis.

The two criteria that remain that we have not succeeded in implementing are, first of all, having the capacity, meaning the people and the resources, in order to get the job done. And the fifth criteria is that we have not validated the results—we have not validated the results of our progress. So those are the two areas that we are going to be focused on over the coming years.

As Mr. Aloise also said, the Office of Science has made substantial improvements in its project performance, and we are very pleased about that. And moving forward, we are going to focus on NNSA, we are going to focus on EM, and we are going to use the best practices that the Office of Science has employed to make improvements in those two other organizations.

And Dr. Chu is very familiar with the work of the Office of Science, given that he was a laboratory director and was overseen by the Office of Science. He knows those strategies, he knows those techniques. He has already had several meetings with the person

who is in charge of project management at the Office of Science, and he has instructed that person to work with the Office of Environmental Management on some of the techniques he has used. EM is already starting to implement some of those techniques. So I think you are going to see a very aggressive movement forward to ensure that we are making improvements in both EM and NNSA.

Moving on to the NAPA study, Mr. Bruel has already covered the areas where NAPA reviewed our Department, but let me just share with you what our reaction is to his findings. First of all, in the area of mission support, we agree completely that the staff offices at the Department of Energy need to be much more focused on the mission. That is why we exist, to focus on the mission. At his very first senior staff meeting with Department of Energy senior staff, Secretary Chu made it clear that he knew this was an issue and that he was going to ensure that the staff offices were mission-focused. So I can assure you that the Secretary is going to be addressing that issue over the next few months.

In the area of human capital, we agree completely that the hiring process needs to be fixed, and Secretary Chu, about a week and a half ago, called me personally and asked for my assistance in developing an action plan to improve the hiring process. He said I could have 30 days to get the action plan completed, and it will be on his desk before March 16th. I have pulled together a team of people from across the Department who I think have very good ideas in this area, and NAPA has very generously loaned us two of their experts in human capital to assist us in this effort. So we will have an action plan ready by March 16th, and I can assure you that it will be quickly implemented and urgently implemented because we need to have people on board.

In the area of acquisition——

Mr. VISCLOSKY. Ms. Kolb, I hate to interrupt you, but we have about 30 more seconds——

Ms. KOLB. In the area of acquisition, Mr. Bruel covered the fact that NAPA had made several recommendations for improvement. We have either implemented all of those recommendations or are in the process of doing so.

And in financial management, again, NAPA has made several recommendations that are under consideration. We are very supportive of the idea of long-term planning and budgeting, which I think you would be most interested in.

So that concludes my testimony, and I am happy to take any questions after the break.

Mr. VISCLOSKY. I appreciate that.

[The statement of Ingrid Kolb follows:]

TESTIMONY OF INGRID KOLB

DIRECTOR, OFFICE OF MANAGEMENT

U.S. DEPARTMENT OF ENERGY

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

U.S. HOUSE OF REPRESENTATIVES

MARCH 4, 2009

Mr. Chairman and Members of the Subcommittee, my name is Ingrid Kolb. I serve as the Director, Office of Management at the U.S. Department of Energy. I am pleased to be here today to discuss with you the Department's efforts to improve project management, including our efforts to be removed from the Government Accountability Office's (GAO) High Risk List. I will also address our work with the National Academy of Public Administration (NAPA) to improve the Department's acquisition, human resources, and financial management functions.

In his address to the Joint Session of Congress, President Obama highlighted energy as one of three areas that is "absolutely critical to our economic future." The passage of the American Recovery and Reinvestment Act has begun a new challenge at the Department of Energy by providing the Department with new resources and responsibilities that will put Americans back to work and transform the way we use energy. The Department will

also provide leadership in developing technologies for a clean, efficient energy supply; reinvigorating the economy with science and technology; and safely managing and containing nuclear material. Secretary Chu has made it clear that the Department will carry out the economic recovery plan with the highest level of speed, transparency, and accountability.

Secretary Chu has a proven track record of management excellence. In announcing Dr. Chu's nomination for Secretary of Energy, President Obama credited him with blazing new trails throughout his career as a scientist and teacher, but also as an administrator. Most recently, as Director of the Lawrence Berkeley National Laboratory, he demonstrated his commitment to sound project management, where under his leadership the Laboratory received the 2007 Department of Energy Excellence Award in Project Management for constructing the $85 million LEED Gold certified Molecular Foundry Facility within cost and on schedule.

Department of Energy Project Management and GAO High Risk List

Currently, the Department of Energy is managing 54 active, on-going capital asset construction projects with a cost of nearly $28 billion, as well as about 60 environmental cleanup projects, valued at some $35 billion.

While most of the Department's capital asset construction and environmental clean-up projects are completed successfully, we do acknowledge that too many breach their

performance baselines, and that this has harmed the Department's credibility. The ongoing challenges the Department faces in its project management efforts have kept the Department's contract and project management functions on the GAO High Risk List since 1990.

I am pleased to note, however, that the Department continues to make steady progress in improving project management. At the direction of this Subcommittee, the Department has worked closely with GAO and the Office of Management and Budget to develop an action plan, with concrete steps and scheduled milestones, designed to result in the Department's removal from the GAO High Risk List. The focus of this action plan is to successfully address the root causes of the major challenges to planning and managing Department projects. The action plan identifies eight measures that, when completed, will result in significant, measurable, and sustainable improvements in the Department's contract and project management performance and culture. Primary actions include strengthening front-end planning, optimizing staffing, improving risk management, better alignment of funding profiles and cost baselines, strengthening cost estimating capability, improving acquisition strategies and plans, improving oversight, and stricter adherence to project management requirements.

Most notably, the plan includes aggressive metrics to drive improved performance and increased accountability. For example, by 2011, DOE's goal is to have 90 percent of the Department's capital asset line item projects completed within 10 percent of the original

approved cost baseline unless otherwise impacted by a directed change. The plan also includes 20 additional measures to gauge progress.

An Executive Steering Committee, which I chair, is managing implementation of this action plan; other members are senior-level representatives from the three Under Secretaries' Offices, the Office of Management, and the Office of the Chief Financial Officer. The Executive Steering Committee oversees the progress of teams established to implement the plan's corrective actions. The Steering Committee members also periodically brief OMB and GAO representatives on the status of all milestones and performance metrics.

As a result of the Department's efforts, GAO in its January 2009 High Risk Update recognized the Department's progress in establishing a more structured and disciplined approach to contract and project management and credited the Department as having substantially met three of the five criteria necessary for removal from its High Risk List. Specifically, GAO states that the Department has demonstrated strong commitment and leadership, demonstrated progress in implementing corrective measures, and developed a corrective action plan that identifies root causes, effective solutions and a near-term plan for implementing the solutions. Two criteria remain: having the capacity (qualified people and correctly allocated resources) to successfully manage projects; and monitoring and independently validating the effectiveness and sustainability of corrective actions. As part of the Department's corrective action plan, we are taking specific steps to address human capital and resource issues. These actions are based on best practices used by

other Federal agencies, including the Naval Facilities Command and the Army Corps of Engineers.

In its report, GAO also recognized recent work by the Department's Office of Science in demonstrating strong performance in meeting cost and schedule targets. As a result, GAO narrowed the scope of the Department's high-risk area to include only the two major program elements that continue to experience significant challenges—the National Nuclear Security Administration and the Office of Environmental Management. The Department's efforts will focus on these two major areas and programs that receive significant increases from Recovery Act funding as we move forward.

NAPA Review of DOE Mission Support Functions

The Department of Energy appreciates the ongoing support of this Subcommittee in making the expertise of the National Association of Public Administration (NAPA) available to the Department. Since 2003, NAPA has provided valuable analysis and recommendations to improve management of the Office of Energy Efficiency and Renewable Energy and the Office of Environmental Management. Most recently, NAPA has been conducting a review of the Department's acquisition, human resources, and financial management functions.

As the Department's lead for this review, I can attest to the broad knowledge and collaborative approach of the NAPA staff. The NAPA staff have shown a genuine

understanding of the challenges that the Department faces and have engaged with us in a constructive dialogue on options and recommendations as they are being developed. We also appreciate the time and collective expertise of the panelists for this NAPA review.

NAPA's report on acquisition, human resources and financial management is not scheduled for completion until April 2009, and work remains ongoing. We have, however, had discussions with NAPA reviewers and staff on their observations and potential recommendations, and agree that the Department's mission support organizations must be more mission-focused, more customer-driven, and better integrated. NAPA has presented alternative approaches to achieving these results, which will be carefully considered once their report is finalized and delivered to the Department.

Human Resources. In the area of human resources, we agree with NAPA's assessment that the Department faces serious challenges that must be addressed expeditiously. Upon arrival at the Department, Secretary Chu also quickly recognized the need and has already directed development of a transformational action plan to provide both near-term fixes and longer-term solutions for rebuilding the Department's hiring processes. A cross-cutting team of senior executives and NAPA experts is in the final stages of developing this plan, which is due to the Secretary by March 16. As the person with lead responsibility for developing this plan, I can share with you that it will provide a roadmap for dramatically changing the way people are recruited and hired at the Department of Energy.

Acquisition. The Department is the largest civilian contracting agency in the Federal Government. In FY 2008, DOE obligated approximately $27.4 billion to Federal contracts and financial assistance instruments. As part of its 2007 study of the Office of Environmental Management, NAPA made a series of recommendations to improve the process for executing major procurements. Most of these recommendations have been implemented or are in process. For example, a comprehensive reengineering study of the business clearance process used by the Headquarter's Procurement Office to review major acquisitions was completed in 2008, and the resulting recommendations are being aggressively implemented. Also at NAPA's suggestion, the Headquarters Procurement Office now conducts management reviews of field procurement offices. Since November 2008, three reviews have been performed, and several others are planned through the remainder of the calendar year. These reviews are expected to strengthen field procurement operations and reduce the need for Headquarters oversight. In addition, the threshold at which Headquarters Procurement Office reviews are required for major acquisitions was increased from as low as $5 million to $50 million. Finally, in response to NAPA's recommendation, the Procurement Office has recently begun to solicit customer feedback on the value and timeliness of the business clearance process. Collectively, these reforms are already resulting in improved service to program offices, increased customer satisfaction, and more efficient management.

Financial Management. NAPA has praised the strategic approach taken by the Office of the Chief Financial Officer to guide its operations and has made preliminary

recommendations to further improve the Department's financial management accountability. The Department supports several of these recommendations, especially the need for more effective long-term planning and evaluation within the budget formulation process. The CFO is examining alternatives for implementing a formal program planning, budget, and evaluation process. Other preliminary recommendations offered by NAPA are under active consideration by the Department's new management team and will be discussed further with the NAPA staff and panel before they issue their final report.

Conclusion

Secretary Chu is committed to an ambitious agenda for the Department of Energy – one that creates thousands of jobs together with a clean, secure, prosperous energy future for America. Accomplishing this ambitious agenda will require that the Department's Program Offices focus intently on their mission goals and execute with speed and efficiency. Please be assured, Mr. Chairman and Members of the Committee, that Secretary Chu shares your commitment to management excellence, and that he looks forward to working constructively with this Committee and others to secure America's energy future and, in the process, to shape a stronger, more streamlined Department of Energy.

Mr. Chairman, this concludes my testimony. I'm happy to answer any questions you may have. Thank you.

Mr. VISCLOSKY. And the good news is there are now only two subsequent votes, so our absence now should not be too great. But for the witnesses, there is also coffee up here, and we will be back as soon as possible.

[Recess.]

CONSTRUCTION PROJECTS

Mr. VISCLOSKY. The committee will come back to order, if we could. And Mr. Aloise—and again I thank all of the witnesses for your forbearance here.

The first question I have is that you estimate that 14 billion in more than 45 years has been added to the initial cost schedule estimates of 8 of 10 major NNSA and EM construction projects. It makes you wonder about the rest of DOE's projects that you did not review.

Could you tell us what your definition, what the GAO's definition of a major construction project is; and how many more, if you can tell the committee, exist outside the scope of work you performed, to give us a sense of scale as to how large this problem may actually be.

Mr. ALOISE. Yeah. Of course, we cannot look at all the projects, so we looked at the 10 largest construction projects, which DOE defines as projects over $750 million. So those are the ones we looked at for construction projects.

For cleanup projects, we looked at the 10 largest, which DOE defines as a billion dollars over 5 years. But you make a good point, Mr. Chairman. What we are talking about in my statement is only the projects we looked at in the last 3 years. For example, in 1997, we reported that DOE terminated, before they completed, 31 construction projects at a cost of $10 billion.

Mr. VISCLOSKY. Can you give me that again? They terminated——

Mr. ALOISE. They terminated, before they completed, 31 construction projects at a cost of $10 billion.

Mr. VISCLOSKY. Would you give me just one example, if you could, out of that? And with that example, what was happening at that site or facility?

Mr. ALOISE. One of the most famous ones is a facility—I mean, a building at Idaho, where they built a building—I believe it was a waste processing facility. And they developed a technology for the building after they built the building; and it would not fit inside the building, so they could not use it.

Mr. VISCLOSKY. And what year was that?

Mr. ALOISE. That was in the 1990s, or maybe before.

Mr. SIMPSON. Before I got in Congress.

Mr. FRELINGHUYSEN. I thought you were in on the project.

Mr. VISCLOSKY. You stole my line.

Mr. ALOISE. I can get you the details on that.

[The information follows:]

For more information, see GAO, *Department of Energy: Opportunity to Improve Management of Major System Acquisitions*, GAO/RCED–97–17 (Washington, D.C.: Nov. 26, 1996).

Mr. VISCLOSKY. Your testimony also indicates that 9 out of 10 major EM cleanup projects had experienced cost increases, and

that an additional $25 billion to $42 billion, a fairly wide range, will be required to complete these cleanup projects; and again a rather wide range, adding 68 to 111 years for completion.

How do cleanup projects differ from the construction projects, if I could ask?

Mr. ALOISE. Well, the cleanup projects, in some cases, rely on the construction projects. For example, if you look at Hanford, that tank waste farm cannot be cleaned up until the WTP is built, so they can process the high-level waste and the low-level waste.

So there are many—like Savannah, in Savannah River, the Salt Waste Processing Facility, the construction project has to be completed before the cleanup project can really get going on tank waste there.

So there is kind of an interdependence on each other.

Mr. VISCLOSKY. When you have a construction project at a cleanup site, would you potentially have evaluated that as a construction site?

Mr. ALOISE. For example, the Waste Treatment Plant at Hanford, we looked at that as a construction project.

Mr. VISCLOSKY. Okay.

Mr. ALOISE. But we are looking at the whole cleanup strategy there, too.

Mr. VISCLOSKY. Right. And I think I am getting old and you took my breath away when you mentioned the 31?

Mr. ALOISE. Thirty-one construction projects.

Mr. VISCLOSKY. Thirty-one projects that just were never completed?

Mr. ALOISE. Never completed, right.

Mr. VISCLOSKY. Are there a significant number of other construction projects out there that you did not evaluate from a numerical or dollar standpoint?

And if you answered that, I just missed it.

Mr. ALOISE. Well, in total, there are about 100 construction projects worth about $90 billion at DOE. There are about 97 nuclear cleanup projects worth about $230 billion. Our review where we looked at the 10 major construction, 10 major cleanup projects, in terms of money, we looked at about a third of the money for those, both cleanup and construction projects.

Mr. VISCLOSKY. It seems when it comes to EM and NNSA, Mr. Aloise, that one of the outcomes of consistently underestimating costs is that the outyear funding requirements get squeezed to pay for the increased costs.

I am also concerned that projects are portrayed as one cost, Congress makes a commitment, construction starts, and then we find out we are on the hook. Would you comment on this?

EM CLEANUP ACTIVITIES

And is progress on other EM cleanup activities being delayed because now we have got to accommodate the increased cost of these projects that were not anticipated in the original budget submissions?

Mr. ALOISE. EM's annual budget is relatively fixed, so if they have large cost overruns or budget delays, either the work has to be scoped down or you have to rob Peter to pay Paul to get money

from another project to continue. So it does—these cost increases and schedule delays, it is a good point, it is not just a matter of dollars and cents, it actually affects the mission of DOE.

So, yeah, it does tend to affect other projects.

Mr. VISCLOSKY. And how has your interchange with DOE been as far as cooperation and hearing you out on this?

Mr. ALOISE. Actually, it has been very good. We have a great working relationship with them. We do not always agree, but they have taken our recommendations. I know I mentioned a lot of them are still open, but they have implemented——

Mr. VISCLOSKY. Fifty-seven to be exact?

Mr. ALOISE. Yes, 57 of them.

Mr. VISCLOSKY. Out of 60?

Mr. ALOISE. Right. Exactly, 59—57 out of 59. I know we said 60.

Mr. VISCLOSKY. Okay.

Mr. ALOISE. But, for example, we recommended that they look at readiness levels, for technology readiness levels—a common practice at DOD and NASA is to see how mature your technology is before you go ahead and move forward with a design. And DOE is looking at that.

They have got a draft handbook. They are looking at some pilot projects. They have not fully implemented it yet, and that is why that recommendation is still open, but they have taken our suggestions.

Mr. VISCLOSKY. Have things improved the last year or two? Not so much as cooperation, and I do appreciate that—that that is going on—but the follow-up?

Mr. ALOISE. It has——

Mr. VISCLOSKY. On average.

Mr. ALOISE. We have seen improvement, as Ingrid mentioned, in terms of meeting some high-level goals to get off the High-Risk List, management commitment to this. I know the former Secretary was very committed to this. We met with the deputy secretaries several times to talk about how would they get off the High-Risk List. In fact, they told me that the Secretary was embarrassed by this situation at EM.

But the problem is, when you get down to the working level, we are still—as I sit here today, we are still—I know some of the same problems we have reported on years ago are still happening today with cost estimating, with project management. It is not through the entire agency yet, corrective actions.

Mr. VISCLOSKY. Let me ask one more question, and I will turn it over to Mr. Frelinghuysen.

According to your testimony again, Mr. Aloise, it seems that bad cost estimating is not the only factor in increased baseline costs. For example, the Salt Waste Processing Facility—and you cited that in your testimony—had cost increases and schedule delays due to inadequate communication between officials on-site and at DOE headquarters. If you could elaborate on this, why would it take 17 months for project managers to address concerns of the Defense Nuclear Facility Board? If I remember correctly, we had the same problem at Hanford. How can this kind of delay—I mean, 17 months——

Mr. ALOISE. Mr. Chairman, DOE did not learn a lesson from Hanford at Savannah River. From what we were told, the Savannah River folks, when they found out about the Safety Board's concern about seismic standards, were trying to get an answer from headquarters about what to do. Should they build to one set of standards or another set of standards? And they frankly were left on Call Waiting. It was 17 months later when they got the decision to go with the higher standards.

Well, they were already 50 percent into design by that time, so they had to go back and redesign. That cost several hundred million dollars and several years' delay.

It was the same situation at Hanford with the seismic standards. They debated for 2 years between the Safety Board and DOE before they eventually went to the higher standards.

Mr. VISCLOSKY. Mr. Frelinghuysen?

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman. What measures have you put in place to avoid this happening again?

Mr. ALOISE. Well, we are constantly looking at the different projects going on. For that particular project at Savannah River, DOE has developed a seismic panel. And they are now looking earlier in the project design at seismic concerns, which is a good thing.

Mr. FRELINGHUYSEN. I heard about that when I was down there.

Mr. ALOISE. Yeah.

Mr. FRELINGHUYSEN. That could have been avoided?

Mr. ALOISE. Yes. You know, if that was happening earlier in the project design——

Mr. FRELINGHUYSEN. Hell, every time we design a project, does not someone look at the whole issue of seismic, the seismic equation?

Mr. ALOISE. Yeah, but sometimes——

Mr. FRELINGHUYSEN. Should they not be?

Mr. ALOISE. They should be and they do, but sometimes they do not always listen or make a quick decision.

Mr. FRELINGHUYSEN. Mr. Aloise, in totality from your remarks earlier, the worst case scenarios for review of the 22 major construction and cleanup programs suggest that the Department may have underestimated targets—and I think these were your figures—by as much as $56 billion and 155 project years. I mean, that sounds like a high level of dysfunction here.

Mr. ALOISE. One hundred eleven years, yes.

Mr. FRELINGHUYSEN. One hundred eleven years, that is a lot. What can this committee do better to monitor this type of situation in the future, make sure it does not happen again?

Mr. Chairman.

Mr. VISCLOSKY. If the gentleman would just yield, could I add an addendum? What can we do to correct the problem?

I mean, in the end, the gentleman is right, we cannot ourselves do it. We are monitoring this. But is there something we can do to just——

Mr. ALOISE. Actually, this subcommittee has done a lot. One of the reasons we have seen the improvement we have seen at DOE is because of the pressure from this subcommittee on DOE, which focuses GAO's resources, limited though they are, on this process.

We have made progress getting leadership commitment. DOE was serious about getting off the High-Risk List.

Mr. FRELINGHUYSEN. So you will indeed endorse some of what Ms. Kolb has said in terms of what she called "making some considerable progress"?

Mr. ALOISE. Yes. But much, much more needs to be done because EM and NNSA are——

Mr. FRELINGHUYSEN. Do you also endorse—and I was unaware of this figure—that there are 50 projects, what was it, 76 percent completed on schedule? Is that an accurate—I am sure it is accurate, but would you confirm its accuracy?

Mr. ALOISE. We can not confirm its accuracy. What we would look at is how big those projects are. Usually, if the project is under $100 million we find less problems with those projects. It is the major projects that we find major problems with.

Mr. FRELINGHUYSEN. So you confirm those 50 projects. Are they small?

Ms. KOLB. I do not know how large all of them are. Some of them probably are smaller projects. And Mr. Aloise is right, we do a good job in managing smaller projects. It is the large, complex projects where we run into difficulty. And that is why one of the things that we want to do—and this is in our corrective action plan—is, instead of trying to take on these huge projects where we know it is going to be very difficult to be successful, to tackle these projects in chunks so that we can be much more successful.

Mr. FRELINGHUYSEN. You attack them in chunks, but in reality, once you make the commitment——

Ms. KOLB. Yes.

Mr. FRELINGHUYSEN [continuing]. I mean, you are making a substantial commitment.

Ms. KOLB. We are making a substantial commitment.

Mr. FRELINGHUYSEN. Financial commitment.

Ms. KOLB. However, one of the things that we have done at the Department of Energy is, sometimes we have taken a huge project, for example, the waste treatment plant. The waste treatment plant really consists of a number of small projects. And looking back on it, if we had it to do over again, we probably should have, instead of trying to build the whole WTP, focused on different facilities and broken them into smaller projects. That way we probably would have been more successful.

Mr. FRELINGHUYSEN. Would you agree with that?

Mr. ALOISE. Yeah. Well, taking smaller chunks probably would put us at less risk, yes. But some of the things we recommended in the past were before you build something like the WTP to do a demonstration project, and DOE did not initially do that. Now they are doing demonstrations of certain parts of it.

But it really starts at the beginning. When you have a project that massive, it might make sense to do a demonstration project first.

ORDER 413.3

Mr. FRELINGHUYSEN. Tell the committee about order 413.3. It was updated in July of 2006, which prescribes basic project man-

agement guidance for departmental and contractor activities. The order, by all accounts, is sound in its direction and policy.

Mr. Aloise, can you discuss with any degree of precision where or how the DOE has failed in adherence to this policy?

Mr. ALOISE. Yeah, we actually think that order is pretty good. It is industry standards. We would like to see it followed. The problem is, in many cases it is not being followed.

For example, at the waste treatment plant and at the bulk vit plant in Hanford, they followed a fast-track approach, which means you design, build and develop the technology all at the same time.

We think that was a failure, and if they had followed 413, they probably would not be in the position they are today.

Mr. FRELINGHUYSEN. Why did they not?

Mr. ALOISE. They wanted to get it done.

Mr. FRELINGHUYSEN. We cannot be in the business of micromanaging things which ought to be left, obviously, to professionals.

Mr. ALOISE. Right. We found in many cases they are not following their own orders, that order, and they should be. And if they were, they probably would not have as many problems as they do.

Mr. FRELINGHUYSEN. So to Ms. Kolb, what—internally, what can DOE do to make sure that these orders are met?

Ms. KOLB. Well, it comes down to leadership and ensuring that the staff follow the orders. I think the situation has gotten much better, because when Mr. Aloise was talking about the waste treatment plant and the fact that we did not follow 413, that was some years ago that we did not follow 413. And we should have; we definitely should have.

I think people have learned from those mistakes, and we are following it to a much greater degree. There are some circumstances where we have had to deviate. But if we make a conscious and thoughtful decision that everyone is aware where we have to have a deviation, those situations can be acceptable.

But Mr. Aloise is right, we have to follow it. And my office is charged with ensuring that program offices do follow the order. And I agree with Mr. Aloise that trying to fast track projects is a big mistake. We have done this in the past. It has not served us well. And we are not doing that in the future.

Mr. FRELINGHUYSEN. I will yield back my time. I know we have got other members here, Mr. Chairman. And we have lost a few people by attrition. So that is not—it makes it maybe easier.

Mr. VISCLOSKY. Thank you.

Mr. Berry.

Mr. BERRY. Thank you, Mr. Chairman. I do not think there is any doubt that we sure needed to have this hearing.

For however long I have been on the committee it seems like it is the same thing every year. I just, for the life of me I cannot understand why the Department of Energy cannot get their act together. And I have heard all these things before, that, you know, we have got a new manager or we have got a new management plan or we have got a new idea or we are going to do something one of these days that will be right.

And we keep paying these enormous bills, and it just does not happen; and we are back here next year to start the process, and we are hearing these same stories over and over and over again.

And I just do not understand why somebody over there cannot get—I think this is where the definition of "snafu" came from. I cannot imagine anything more messed up, dealing with a more critical issue, than what the Department of Energy, and especially the part that deals with nuclear waste and other nuclear issues.

I mean, I do not know who to direct that to. This makes my stomach hurt. I hate to come in here on this day when you guys are here. I do not know why it would not make any rational individual sick.

Does it bother you guys?

Mr. ALOISE. Very much.

Ms. KOLB. Of course.

Mr. BERRY. Why do you not do something about it?

Ms. KOLB. We are trying to do something about it.

Mr. BERRY. I have heard that one before. I am sorry.

Ms. KOLB. Yes.

Mr. BERRY. I am being unfair to you. It is probably one of the same three people last year. But that really is—that is just the way it looks to me. Everybody up here will tell you I am not a nuclear physicist. It is a widely known fact that I do not know anything about it. But I declare, I know adding and subtracting. And I just do not understand why we cannot get this straightened up and somebody over there get in charge, and let's make this thing work.

Ms. KOLB. I agree with——

Mr. BERRY. Maybe we need to call the North Koreans in to consult with us.

Ms. KOLB. Let's not do that.

Mr. BERRY. I do not think so. I am being silly now, but at the same time, damn, if you all ain't got a mess over there.

Ms. KOLB. Yes. And I believe Secretary Chu understands what the challenges are. He has made a commitment to undertake those challenges. He is someone who has been very successful in his career, and when he sees a problem he goes after it.

Now, you have mentioned that you have heard this before. And we cannot do anything about the past and what has happened in the past; all we can do is learn from that. And I will tell you, Secretary Chu has only been at the Department for about a month, and he already, as I mentioned earlier, has been meeting with the project management professionals in the Office of Science, where they have been successful, and he has been working with the Office of Environmental Management to make changes.

So I am very encouraged by this. He is somebody who is taking the bull by the horns, and I really believe you are going to see some changes. And some of the issues that Mr. Aloise has raised—for example, lack of up-front planning in our corrective action plan that I talked about in our opening statement, my opening statement; the first item that is addressed is lack of front-end planning—we have to do a better job on that. And we will. So that is the commitment of the Department of Energy.

And, Mr. Chairman, you asked the question, what can this committee do? I think what you are doing today. You can hold us accountable and ask us how we are doing. I think it is very effective.

Mr. BERRY. Thank you, Mr. Chairman.

EARNED VALUE MANAGEMENT

Mr. VISCLOSKY. Mr. Simpson.

Mr. SIMPSON. Thank you, Mr. Chairman.

I apologize for not being here for the testimony, but I did read over your testimony last night and—stayed up all night reading your testimony last night and writing down thoughts and so forth that came up.

Let me start off with this. Could you explain for me briefly—and if any of this has been asked already, or questions have already been asked and it is in the record, just say so and I will read the record. But could you tell me what projects' earned value management system is?

Mr. ALOISE. Yeah, that is an industry device used industry-wide to show if a project is on budget and on schedule. And it is a tool we are glad that DOE is using. And, in fact, we talk about that in my statement, that we looked at the EVMs at the MOX facility, and we found problems with it. So while progress is being made, right now we are looking at ongoing projects and we are seeing some of the same problems.

The EVM data is only as good as the schedule it is based on. And we looked at the schedule that that EVM data was based on for the MOX facility, which is a nearly $5 billion facility, and found out that it was, in our view, unreliable because they have not done a risk analysis, they have not performed the statistical analysis that needs to be done to give them the confidence to say their schedule is reliable.

Yet, you know, DOE comes out with its statement that says we are on budget, we are on schedule. Well, it is our view right now that they do not know, not until they do a better job with their schedule which supports the EVM analysis.

So we are working with them. They are well aware of our concerns, and we are working with them. And they plan to do a risk analysis of that schedule.

Mr. SIMPSON. Let me get into something else, if I could, because I read your statements last night. And anybody would be stunned, as Mr. Berry is sickened, when you look at the major cleanup projects, the board you have got over here, the 24.7 billion to 42 billion in life cycle cost increases and the 68 to 111 years in delays.

We have a tendency to think that if we had had proper contract management, project management, none of that would exist. But that is really not accurate, is it? I mean, there are reasons that you have increased costs and schedule delays that are beyond our control: The seismic activities at the waste treatment plant, there are legal issues that are being negotiated with States. Idaho and DOE have spent years trying to define all, and have come to an agreement recently.

There are new technologies that are developed along the way, things that were unanticipated when we put together the original cost estimate of what it would take to, as an example, clean up this site. And there are costs that are added because of improper contract management. The other one is the example where I think you said here, that Mr. Frelinghuysen mentioned of the seismic activity at the waste treatment plant there at—was this at Savannah River?

Mr. ALOISE. Savannah River, yes.

Mr. SIMPSON [continuing]. At Savannah River, that they knew 5 months—the Defense Nuclear Facilities Board expressed concerns 5 months after the preliminary studies were started, and it took 17 months. They worked for 17 months on the existing project, which obviously costs some money. That is mismanagement, as far as I am concerned.

So some of this is unanticipated costs because of things that we were dealing with, some things we do not know a lot about, and we are learning as we go. Others are because of contract mismanagement.

Could you tell me, have you tried to break those out into what are legitimate cost increases that you might expect when you are dealing in an area that is new to us? I mean, if you go to the Army Corps of Engineers, you tell them to build a dam, they can go out and test the soil, they know what to build the dam out of, and they can pretty much estimate what the cost is going to be. And a lot of this stuff we are dealing with, like this waste treatment plant and stuff, is technology that we have not really used in the past.

So I guess the question is, are some of these cost increases more a reflection of a realistic view of what it cost rather than the initial assumption of what it was going to cost? And how much of it is because of inadequate contract management, if you understand what I am trying to say?

Mr. ALOISE. I do. And let me try to answer that.

And this is based on our years, many years of experience looking at these projects. First of all, many of these projects are one-of-a-kind, unique nuclear projects, never built before in the world. They do have a high degree of difficulty. We understand that.

We are not looking for perfection here. We understand there are going to be schedule delays. We understand there are going to be cost increases; but cost increases of 200 percent, 150 percent, no, there should not be. Schedule delays of up to 111 years, no, there should not be.

So when you go into the project——

Mr. SIMPSON. But there is not a schedule delay of 111 years on any given project.

Mr. ALOISE. Total. It is a total. But there are schedule delays of decades.

Mr. SIMPSON. Yeah, that is true.

Mr. ALOISE. When you claw through these projects, as we do literally and figuratively, number one, we look at the basic, how did you come up with your original cost estimate and schedule? And, for example, we are looking at that right now.

We have asked the contractor in Savannah River, the one at the Salt Waste Processing Facility, "How did you develop your schedule?"

"Well, it is based on our expertise."

"Well, how many nuclear facilities have you built?"

"We have not built any nuclear facilities."

"Okay, what guidance has DOE given us?"

"Well, they really have not given us any guidance." Their guidance is 8 years old. They have a draft cost estimating policy now.

And so right there you know you are looking at a problem in the making. When they are doing their EVM analysis and the schedule is wrong——

Mr. SIMPSON. Let me follow up on what you just said.

I mean, we build a waste treatment plant—and I am not trying to make light of this; I understand that there are significant problems here. If you ask anybody that built a waste treatment plant, as they are trying to do at Hanford, how many of these waste treatment plants have you built, the answer would be zero because nobody has built one.

Mr. ALOISE. Right.

Mr. SIMPSON. That creates some problems. But I understand—I guess I am concerned also about how inaccurate the original cost estimates are.

Mr. ALOISE. True. These are one-of-a-kind, unique facilities.

But if you have a company like you do with Bechtel, who is versed in building nuclear facilities—they have expertise—what we are finding is that their estimates do not start with very good technical baselines. That goes down to the engineering, that goes down to the program development, you know, what do you want to build? How fast do you want to treat this waste? How long do you think it is going to take? All those kinds of issues. It goes all the way down to that.

And we have a job for this subcommittee, looking right now, looking at how DOE develops its cost estimates. And we are going to look at that against best practices, so we will be able to report more on that later.

RELATION OF STAFFING LEVELS TO CONTRACTOR OVERSIGHT

Mr. BREUL. Mr. Simpson, if I may?

Mr. SIMPSON. Sure.

Mr. BREUL. I think there is a question of the workforce that might be relevant here as well, because we are talking about work that may not be done in terms of cost estimating or execution of earned value management supervision and so forth.

When we looked at the EM program, we were startled to find that the staffing levels of that organization were significantly less than they had been a few years before. In 2001, they had close to 2,500 people working in the EM program. In August of 2007, they were down to 1,370. There are about 276 employees at headquarters, and just over 1,000 in the field; that is a reduction of over 50 percent.

So there are far fewer people performing this kind of analysis, doing contractor oversight, and doing the kinds of things that are

necessary to supervise these projects in a way that keeps them on schedule and on performance.

Mr. SIMPSON. So you are saying that the 14,000 DOE employees compared to the 95,000 contract employees, that that ratio needs to change, that we need more oversight employees?

Mr. BREUL. The last count we had were, there are about 34,000 employees, contract employees, working for the EM program; and I think it is down to 1,300–1,400 EM employees who are overseeing that.

But they are the ones who develop the statements of work, the cost estimates, and so forth; and again, if some of that is inadequate, you are dealing with both a question of numbers of employees as well as the talent, skills, and experience that they are applying to that challenge. So they seem to be a little under what is needed. Our recommendation was that they needed to immediately begin at least the hiring of 200 people to give them the strength they need to do some of these functions.

Mr. FRELINGHUYSEN. If the gentleman would yield, so these are the sort of choke points in the DOE headquarters——

Mr. BREUL. Correct.

Mr. FRELINGHUYSEN [continuing]. That you were referring to?

Mr. BREUL. Correct.

Mr. FRELINGHUYSEN. Basically lack of institutional memory and——

Mr. BREUL. Well, they are subject to head count limitations, and then the difficulty of hiring and so forth.

Mr. FRELINGHUYSEN. Thank you.

DEPARTMENT OF ENERGY SPENDING PLAN

Mr. SIMPSON. Given that in the stimulus package EM was given $6 billion, I have got to tell you, in all honesty, I have some serious concerns about throwing $6 billion into this system; and I am concerned that we are going to be having oversight hearings from now until the cows come home about how that was spent.

Do you know, can Department of Energy use any of those funds to address these critical needs that you talk about?

Mr. BREUL. I am not familiar with the provisions and what authority they have.

Ms. KOLB. Yes, the Department can. Yes.

Mr. SIMPSON. I would suggest you do that.

Ms. KOLB. We are.

Mr. SIMPSON. Do we have a spending plan on that $6 billion yet?

Ms. KOLB. It is not finalized. It is close to being finalized.

Mr. SIMPSON. Is GAO concerned with throwing $6 billion into a system?

Mr. ALOISE. Yes, and we are developing our plans to look at it as well. But a lot of the increases you see on those cleanup projects were a result of, in the mid-1990s, their accelerated cleanup program, where DOE said, if you give us—Congress, if you give us more money, we will clean these up faster and quicker, and we will save $50 billion.

That was, to quote a DOE official, a dismal failure. And so that gives us pause about this $6 billion and the accelerated use of it.

So we have to be looking at that. We will be looking at that. I mean, there are definitely things that can be done with that money in terms of reducing the footprint on some of these sites. But we have to look at it closely.

Mr. SIMPSON. I have heard people say that this will accelerate the cleanup and, consequently, lower the overall costs back to—the Jessie Roberson theory of cleanup. That then went by the wayside. But you know, I look at some of this, you look in Idaho and you have got a trash compactor out there smashing drums that go to whip. I mean, if it is operating at full capacity, putting another billion dollars into it is not going to make it operate any quicker.

Mr. ALOISE. Right.

Mr. SIMPSON. So there are some limitations that are not money. And in fact I was, I guess, taken aback throughout the testimony. I think there is only one comment in there about funding.

Are some of these contract problems due to funding issues?

Mr. ALOISE. I cannot say specifically. We have never really had that come up as a major problem. Maybe you could address——

Mr. SIMPSON. Unless it might be losing employees in EM that need to oversee these things?

Ms. KOLB. Well, losing employees in EM, there was a conscious decision—this was during Assistant Secretary Jessie Roberson's time—to reduce the number of contracting officers and project management officials. That decision was carried out.

I do not think, personally, it was a good decision. And EM is still recovering from that. But that was the approach that Ms. Roberson thought was the best at the time.

Mr. SIMPSON. Well, these management controls are important, what we do here. And I think your reports are incredibly important. You say on page 9 of the GAO report that you concluded that property control weaknesses we identified, coupled with a lack of DOE oversight, created an environment in which property could be lost or stolen.

Have we actually had any lost or stolen equipment, do you know, or is this just a situation——

Mr. ALOISE. We cannot tell because there is no oversight over their internal controls. This is at Hanford. This was—we looked at the internal controls in Hanford, where they are spending many tens of millions of dollars a month, and it is up to the contractor to look at the invoices and check on the invoices: Is the equipment being bought? Is it being tracked properly?

And DOE is basically doing very little there. So we cannot tell what is going on because we do not have the information, and neither does DOE.

MEASURING CONTRACTOR PERFORMANCE

Mr. SIMPSON. One quick one: On page 3 of your report you say that the reports identified issues, including inadequate systems for measuring contract performances. Are there bonus pay and pay for performance for contractors still within the system? I mean, we did some of that for a while. I do not know if we still do or not.

Ms. KOLB. I believe so.

Mr. SIMPSON. If we cannot adequately measure contractor performance, how do we base pay?

Ms. KOLB. We can measure contractor performance.

Mr. SIMPSON. Well, apparently there are inadequate systems for measuring contractor performance, according to the GAO.

Mr. ALOISE. In many projects, yeah.

Mr. SIMPSON. Thank you.

Mr. VISCLOSKY. Mr. Davis.

Mr. DAVIS. Mr. Chairman, thank you. I am fortunate enough to represent the rural section of Tennessee that has on the east the Oak Ridge National Lab, where K–25 and, currently, Y–12 is a part of that facility, as well as the SNS, the Spallation Neutron Source, and a huge computer that is located there.

But I also represent a district that has, in the southern part, a lot of employees that work at NASA, at the Redstone Arsenal Military Base; and then I have a considerable amount of folks that work at an Air Force base, at Arnold Air Force Base Research and Development. So the district that I represent will have—as my friend Mr. Berry from Arkansas said, it will actually have rocket scientists and mathematicians and physicians and farmers like me.

What the President said—he basically looked at three different areas of this Nation that we have to address. Department of Energy obviously will be a major player in either carrying out, helping formulate, or bringing to the table an energy policy for this Nation of ours. As I look at some of the reports here, it makes me wonder if you are up to the task. And certainly I hope that you are.

I know this much. In the late 1930s, early 1940s, when the Manhattan Project became a reality and Tennessee was chosen as one of those sites and workers came there and met the challenge to defend this Nation, they were up to the task as individuals. It is my hope that you are up to the task.

A couple things I want to ask you about, and my friend from Idaho mentioned one of those. The $6 million: You apparently asked for about $6.4 billion, so you apparently had prioritized those dollars where you thought you could spend those, where there was a need for those, and where they could be actually—over the next couple of years where you could help clean up perhaps some of the sites.

But apparently you must have other expenditures as well. Could you kind of define for me what all of those different expenditures were that you basically told our administration when we put this $6-point-something billion into the budget?

Either? Anyone?

Ms. KOLB. I am not sure what additional expenditures you are referring to, sir.

Mr. DAVIS. This extra $6 billion in the stimulus recovery package were dollars that were not budgeted this year, and so you have an extra $6 billion. You obviously identified this as an area where it was shovel ready, or would be within a short period of time.

Ms. KOLB. We are in the process of identifying the projects where we will be providing that funding. And we have not finalized our plan yet. Very close.

Mr. DAVIS. Then the formula you used for the $6.4 billion request, you used that same formula for the 6 billion, or will you start reauthorizing or reallocating those dollars? Will you use the formula that you initially used?

Ms. KOLB. I am not sure, sir.

Mr. SIMPSON. Would the gentleman yield?

Mr. DAVIS. Yes.

Mr. SIMPSON. I do not believe that was put in at the request of the Department of Energy. That was put in by the Senate.

Ms. KOLB. That clarifies that.

Mr. DAVIS. Thank the Senate.

Mr. VISCLOSKY. Thank you, Mr. Simpson.

Mr. DAVIS. That is a lot of money.

Ms. KOLB. It is.

Mr. DAVIS. K–25 will be able to handle a lot of that money in case that you do not find a place to spend it.

Ms. KOLB. So noted.

PENSIONS

Mr. DAVIS. I also represent a large constituency, close to 10,000 retirees from the Oak Ridge National Lab; and this is, I guess, more a local issue that probably—perhaps I should not ask here. But I must do this.

Each year I have had a delegation from Oak Ridge, some of the retired employees at the Department of Energy; and their retirement continually shrinks, and retirement in other locales within the same Department of Energy either increases or maintains the level. We have brought this to your attention time and time and time and time and time again.

It is my hope that as we engage over the next months, next year or two, that you will go back and visit this and explain to some of the workers in the district that I represent why there is such disparity.

Ms. KOLB. I have met with representatives from CORRE on many occasions. As a matter of fact, I have this year——

Mr. DAVIS. So have I.

Ms. KOLB. I had the pleasure of talking with about 600 of the representatives from CORRE about the pension issue.

Right now, as you can well imagine, our focus on pensions is to make sure that all the pension plans are fully funded in accordance with the Pension Protection Act. That is our first and foremost priority.

We are more than happy to discuss this issue with your constituents at any time. You can feel free to give them my name and telephone number, and I will follow up with them.

Mr. DAVIS. We have done that, and it is my hope that as we revisit this—this is probably not the proper place to do it, and Mr. Chairman, if it is not, you can slap my hand.

But I do hope that we revisit this and look at it from the standpoint of equity at every other lab in the country.

Ms. KOLB. Okay.

Mr. DAVIS. Mr. Chairman, thanks, and I yield back my time.

Mr. VISCLOSKY. Mr. Davis, thank you very much.

And Mr. Fattah has been very patient, and I thank the panel for their forbearance. I want to thank all the members for coming back very much.

But if the gentleman would just hold for 30 seconds, given Mr. Simpson's clarification on the $6 billion, and whether it is the EM

or others, I would look at it a different way and ask you this question.

If you, the Department, cannot in a reasoned fashion, or believe in a reasoned fashion you can spend that much money, is there some sense at the Department you just say, Listen, we are human beings, we cannot spend $6 billion tomorrow morning wisely; we can only spend—give me a figure less than that—and not come to the conclusion that everybody here is going to yell at you for—and not you, but the Department for saying, No, we want to be honest with you. Congress voted for the money, the President signed it into law, but you know what, honestly, we just cannot use every last penny of it wisely.

Is there some thought, when you are figuring out how to spend the $6 billion, maybe we cannot spend every last penny wisely?

Ms. KOLB. We believe that we can spend it wisely. And I am glad that you went back to this issue, because Secretary Chu has talked with the entire senior staff about the Recovery Act and the Department's role in implementing the Recovery Act. He has made it very clear that this is an opportunity for the Department of Energy.

We know that in the past we have not had the best reputation because of some of the issues that Mr. Aloise has raised. And Secretary Chu feels very strongly that this is our opportunity to show the American people that we can perform. And he said, We are going to do it. He has made that clear for us. We have no choice; we are going to do it.

Mr. VISCLOSKY. Okay. And I would simply emphasize my appreciation for people having defined benefit plans relative to the issue of pensions.

So, Mr. Fattah, you have been very patient.

Mr. FATTAH. Mr. Chairman, I will be glad to yield any more time you need.

NAPA RECOMMENDATION ON LOAN GUARANTEE PROGRAM

But I did want to ask a question, Mr. Breul. You in your testimony said that one of the concerns of the Academy was the loan guarantee program officer being in the chief financial office versus over on the program side. This is the loan guarantee officer responsible for moving loan guarantees related to renewable energy and nuclear; is that accurate?

Mr. BREUL. No, this is the automobile program, I believe.

Mr. FATTAH. This is the automobile program?

Mr. BREUL. Correct.

Mr. FATTAH. Okay. And your view was that this person or this function should be where? Over in EM?

Mr. BREUL. Well, first of all, our sense, is that the function of the chief financial officer is an important one. It has a large set of responsibilities that deal with financial management, accounting, and budget. As I mentioned earlier, it needs some further strength in terms of long-term planning.

But the loan program is essentially an operating kind of program; and seating that in a function and area that is primarily an oversight function for the Department as a whole could be a distraction, could be a misplacement, and that it might belong better in another location under an operating——

Mr. FATTAH. Where are the other loan guarantee programs housed?

Mr. BREUL. I am not sure. There is only one office so far.

Mr. FATTAH. There is a loan guarantee program for renewable energy we authorized in 2005.

VOICE. They are both in the same office.

Ms. KOLB. It is in the CFO's office.

Mr. BREUL. In the CFO's office.

Mr. FATTAH. Okay. Is there functionally one person or one group of people?

Mr. BREUL. There are 15 or 17 people, I think.

Ms. KOLB. There are about 20 people who work in the loan guarantee office. And the number of people who are in that organization is going to be expanding dramatically.

And then there is a smaller team that is focusing on the auto loans.

Mr. FATTAH. Okay. Well, my question is really related to—the Department has had a challenge in getting production on this side. And so I was just wondering whether you felt that was a function of where it was placed, you know.

Mr. BREUL. I think it is understandable it might have started there because you have got staff with financial management acumen, and loans are financial in their nature. But our sense was the Under Secretary for Energy might be a more appropriate place for it and get it out from that CFO.

Mr. FATTAH. For instance, we authorized in 2005 a loan guarantee program to be run by the Department in terms of renewable energy. We appropriated dollars in 2006 and throughout the next couple of years. No loans have gone out the door.

This question of renewable energy is obviously an important one, and Secretary Chu—that I have a great deal of faith in—has said that it is critical. The projection of this administration, new administration, is to, you know, double our capacity in terms of the generation of renewable energy.

On the nuclear loan guarantee program, I raised a number of questions at our last hearing last year about the dearth of progress there. So I was just trying to figure out whether your judgment was that, in part, the challenge is, it is just improperly placed in the Department in terms of an impetus to move forward or whether there are other reasons why we are appropriating money and authorizing programs, but there is no action.

Mr. BREUL. The reason we encountered that question is that we were asked to look at the function of the CFO and the CFO organization. And this seemed a bit of an anomalous function in the midst of a CFO office. That is an uncommon kind of arrangement, and that was the reason that led us to suggest it might go elsewhere. We do not have that as one of the most serious problems that we have identified. It was a suggestion, though. We thought there would be a more appropriate location.

Mr. FATTAH. Any other views on why these loan guarantee programs are having such a difficult process of getting going?

Ms. KOLB. I think part of it is because, during the previous administration, there was some concern about making sure that the

loan guarantee program was structured properly, that it was stood up properly.

There was a very methodical approach that was taken because there was an instance, I believe some time ago, where the Department of Energy, there was a loan guarantee program established—this is almost decades ago—and people still remember that it did not go well; and it was because it was fast tracked, so it did not go well.

Mr. FATTAH. This is definitely not on a fast track.

Ms. KOLB. Yes. Yes.

Mr. FATTAH. This committee has taken this very seriously. The chairman last year budgeted the full amount to cover the actuarial cost on the loans. We really wanted to see some action.

Ms. KOLB. Well, I should say that now it is on a fast track because Secretary Chu has put it on a fast track. And I believe his plan is to begin offering loan guarantees as early as early summer. So it is much faster than it would have been done previously.

Mr. FATTAH. Well, you know, over in Agriculture, you know, it takes about 5 months. It has been the practice to get loans out the door. So it just seems to be an issue.

Ms. KOLB. Yes. Secretary Chu personally followed up with individuals at the Department of Agriculture and other agencies with loan guarantee programs to find out how they processed the loan guarantees. And that is where he developed ideas on how we should be doing it, as well, which he is having implemented.

And I do not think the organizational placement really has anything to do with the performance of that office. It was the approach the previous administration was taking.

Mr. FATTAH. Well, Mr. Chairman, let me thank you for the time.

And if I could just ask that whatever the plans are on these loan guarantee programs, if the committee could be provided some update about how the Department plans to proceed. And we are talking about billions of dollars that would be available in our economy to help move important projects along in terms of our energy needs.

I can concur that perhaps the last administration had a lot of passivity as it might relate to moving these, but we would like to know what the future plans are. We can't do anything about the past; and if the committee could be made abreast, we would appreciate it.

Ms. KOLB. We will follow up with you.

[The information follows:]

PLANS FOR LOAN GUARANTEES

On February 19, 2009, Secretary Chu announced a sweeping reorganization of the Department of Energy's dispersal of direct loans, loan guarantees and funding contained in the new Recovery Act legislation. The goal of the restructuring is to expedite disbursement of money to begin investments in a new energy economy that will put Americans back to work and create millions of new jobs. These changes include streamlining the application and documentation process, and providing additional resources to process applications and working with industry to attract viable projects while helping them navigate the process. And, in fact, the Department offered its first loan guarantee on March 20, 2009 to Solyndra, Inc., a California company which will construct a commercial-scale manufacturing plant for its proprietary cylindrical solar photovoltaic panels.

Mr. FATTAH. Thank you.

Thank you, Mr. Chairman.

Mr. VISCLOSKY. I thank the gentleman, and appreciate his frustration. He has long been an advocate as far as renewable energy, and he has talked to me more than once about this program.

In fairness to the Department, I would simply observe that the committee was adamant with DOE; given the nature of the hearing we are having today, that because this is a new program, there is not specifically an expertise that has resided historically in the Department—do this exactly right.

Ms. KOLB. Yes.

Mr. VISCLOSKY. And so I would certainly publicly acknowledge that there was pressure from this side to make sure every "I" was dotted and every "T" crossed.

But I share the gentleman's concern that we have an energy crisis, and we ought to be about our business.

POSSIBLE PLACEMENT OF HR FUNCTIONS IN EM

Getting back to the $6 billion as far as EM, Mr. Breul, one of the questions I would have is, given the circumstances at EM, would it make more sense, given the additional infusion of money, let alone the annual appropriation, for them to have their own hiring and personnel function?

Mr. BREUL. I think the short answer on that is, No, I do not think that is necessary. There is authority already in EM for hiring staff at the grade 15 level and below. They have that in some of the field offices. The EM office in Richland and the consolidated business office in Ohio both provide comprehensive HR support that includes hiring.

So our sense is that those things are not only present, but the feedback we are getting is that they actually work well, that the office is being supported where those kinds of authorities are actually working reasonably well and are getting good feedback.

Where I think the problem is more severe is with the headquarters, in the headquarters human resources office. There is where there is more of a choke point. And, in fact, it might be sensible to move some of those activities into some of the field locations outside of Washington, DC, where they could get employees, retain the HR specialists more easily than you can in posting someone in the Forrestal Building or in the Washington area.

Ms. KOLB. That is a suggestion that we are actively considering in the development of our action plan on hiring.

Mr. VISCLOSKY. On contractor performance—and I forget the exact interchange on the questions, and there was a question about how bonuses are determined and things—am I correct that the manager at the Hanford waste site got a significant bonus?

Ms. KOLB. I don't have that information, sir.

Mr. VISCLOSKY. If you could report back to us on that.

Ms. KOLB. Yes.

[The information follows:]

DETERMINATION OF BONUSES

Senior Executive Service employee bonuses are determined based on performance. Specifically, the yearly performance closeout assesses Department of Energy executives in two critical elements: (1) Key Programmatic Accomplishment and (2) Key Leadership Attributes. Based on these ratings, each Secretarial officer is authorized to nominate his/her exemplary performers for a performance bonus and/or pay ad-

justment based on their respective rating following Departmental policy on pay increases. For the Department of Energy, the bonus pool for Fiscal Year 2008 was set at 9% of the total pay for all career SESs in each organization. An executive that merits an "outstanding" rating merits a mandatory bonus of 12–20% of pay. A "Meets expectations" rating merits a discretionary bonus of 5–9% of pay.

Once ratings and award recommendations are made by DOE offices, DOE convenes the Performance Review Board (PRB) to review all recommendations to ensure consistency. Once this process is completed the final recommendations are sent to the Senior Review Board (consisting of the Deputy Secretary, the Under Secretaries, the General Counsel, the Chief Human Capital Officer and the Director of Management) that reviews the PRB results and makes a final determination.

The manager of the Hanford Waste Site received performance awards over a three-year period. In 2005, the manager received $13,000; in 2004 he received $20,000; and, 2003 he received $18,000.

Mr. VISCLOSKY. Because with an increase of $6 billion in cost, it sounds like a bank to me. I mean, really.

Mr. SIMPSON. I am with you.

Mr. VISCLOSKY. With $6 billion more cost, we will give you a bonus.

Mr. ALOISE. Mr. Chairman, I can answer that. If you are talking about when we testified last time on the Hanford waste treatment plant, we addressed this, and the manager at the Office of River Protection at that time, who has since gone, from 2002 to 2004 got about $51,000 in bonuses. And this was the time period when we saw the large increases in the cost of the waste treatment plant.

Mr. VISCLOSKY. On contractor performance, my understanding is the Commerce Department maintains a list of nonperforming contractors. How does DOE institutionalize its knowledge of nonperforming contractors, and does it still apply for EM, Office of Science, what have you, or is it departmentwide so that at the outset here people have a red flag about individual firms or contractors?

Ms. KOLB. It is departmentwide; however there is a governmentwide system that is used to provide information on poor performing contractors. Does the system work as well as it should? No, it doesn't. And that is one of the issues that we need to look at is how to better identify poor-performing contractors to ensure that—before we make decisions on hiring contractors, that we are aware of all the information about them.

Mr. VISCLOSKY. Who runs that for the government if it is governmentwide?

Ms. KOLB. I believe it is HHS. I believe it is.

Mr. VISCLOSKY. What could the Department individually do, then, if it is governmentwide? Would you set up your own, or would you have an addendum or supplement to it?

Ms. KOLB. I think setting up our own would be a good step forward.

NAPA RECOMMENDATION OF ALLOTMENTS

Mr. VISCLOSKY. Mr. Breul, DOE program assistant secretaries, I think to an extent we have touched on some of this, do not have the ultimate legal responsibility for controlling funds. Are there other Federal agencies that also follow that particular practice?

Mr. BREUL. Mr. Chairman, we have had both the panel and its experts, as well as the staff, scout around as thoroughly as we could. There is, with only one exception, no other Department or

agency that we can think of or find where this is the pattern. The one exception is the National Science Foundation. It is a smaller research kind of organization, and it actually distributes money within the various research divisions and headquarters out to the CFO, people throughout the organization, and then the CFO further distributes it. But aside from NSF, we are not aware that any other organization has operated this way, and it seems rather anomalous to us. It violates the basic principles of associating responsibility and resources.

Mr. VISCLOSKY. And accountability.

So one of your recommendations, if I am recalling, is that practice should be changed?

Mr. BREUL. Yes, sir.

Mr. VISCLOSKY. So that somebody is accountable and somebody is——

Mr. BREUL. And the accountable official, the one the—Congress and the Secretary looks to for program delivery actually is—has the resources as well and is held accountable for both the results and the resources.

Mr. VISCLOSKY. Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. When I visited Savannah, just on the issue of contractors, we had our oil and gas—somebody with oil and gas expertise involved in a facility. Was it the MOX facility?

Mr. ALOISE. The Salt Waste project.

Mr. FRELINGHUYSEN. The salt waste project.

How did that come to pass?

Mr. ALOISE. I am not quite sure. The way we found out about this is we were looking at their cost-estimating procedures. We had our experts at the table, they had their experts at the table, and we are trying to get down to the basics of how are they developing their cost estimates at that plant.

Mr. FRELINGHUYSEN. I am not forgetting what Mr. Simpson said that, you know, these are obviously complex projects. It seemed to me as a layperson that if you had, you know, a small circle of people who have this sort of core competency, you probably wouldn't look towards a company that hadn't had previous experience with such a project.

Mr. ALOISE. Or at a minimum you would provide the guidance they need to do competent, credible cost estimating. That is not happening right now with DOE at that plant. So we have concerns about that. But we are just getting into that cost estimating review right now.

Mr. FRELINGHUYSEN. You are?

Mr. ALOISE. Yeah.

BENCHMARKING EM STAFFING

Mr. FRELINGHUYSEN. For Mr. Breul, and I know I say this on behalf of the Chairman, we want to thank you and the Academy for all the work you have done——

Mr. BREUL. I appreciate it.

Mr. FRELINGHUYSEN [continuing]. For, I guess, many years relative to DOE. As you noted in your testimony, and correct me if I am wrong, about 14,200 DOE civil servants rely on approximately 90,000 contractor employees to execute their programs. In the EM

study, the Academy benchmarked workload planning across the NRC, Nuclear Regulatory Commission, the Naval Facilities Engineering Command and the Army Corps of Engineers. Can you provide us with some detail how the EM stacked up in the Federal oversight—in Federal oversight over contractors with these three agencies?

Mr. BREUL. I think I can give you a pretty close answer. The details of what we did are laid out in our report. The effort involved using a notional $25 million contract as a way of comparing among the organizations, and we looked at their workload-forecasting techniques and how they would produce staffing levels. And we found, after converting to EM project sizes, that there were anywhere from two to six times the number of EM staff needed to be on the ground at any one time to be equivalent to what those other organizations were putting in place for similar kinds of projects.

The difficulty with your question, I think, is that you were talking about supervision of contractors, which is one element of what the EM staff would do. But we believe it is reasonable to assume that there is still a significant difference in the staffing level that EM was applying in a particular case to what these other organizations. And again, orders of magnitude of two to six times as many are a significant deficiency, and we thought that was a serious problem.

Mr. FRELINGHUYSEN. So run that by me again.

Mr. BREUL. In the same kind of situation, those other organizations, which were the Nuclear Regulatory Commission and NAVFAC, and the Army Corps, they would have produced staffing levels from two to six times the number that EM actually had on the ground at the same time.

Mr. FRELINGHUYSEN. So EM was under——

Mr. BREUL. Undermanned.

Mr. FRELINGHUYSEN. Undermanned, understaffed?

Mr. BREUL. Yes.

NEED FOR AN UNDERSECRETARY FOR MANAGEMENT

Mr. FRELINGHUYSEN. And we have discussed this. Your prepared testimony proposed significant changes in the Department's management structure to provide greater—what you have called greater mission-oriented focus.

Mr. BREUL. Yes, sir.

Mr. FRELINGHUYSEN. I like the terminology. For the benefit of those on this committee who have not yet seen your preliminary findings, can you further discuss those proposals?

Mr. BREUL. We have a number of recommendations.

Mr. FRELINGHUYSEN. One was the whole issue of having an under secretary for——

Mr. BREUL. That is one organizational change. Then you would have a single official——

Mr. FRELINGHUYSEN. What level of receptivity has there been—

Mr. BREUL. We are not there yet with the final recommendation. It would entail another organizational position, and that might not suit the Department. We have another organizational possibility, which is a business counsel which would, in effect, allow the major players to work collaboratively and together in a formal organiza-

tion to provide that coordination. We also have a recommendation for an operations management council to allow for input from the program organizations to the headquarters function so that there would actually be an ongoing conversation, an interaction. In other words, there are both organizational changes as well as operating changes that could achieve this end. But we would prefer the under secretary, but we understand the reorganizations are often a costly and sometimes distracting matter to an organization. There may be other ways to achieve the same end.

PROCUREMENTS

Mr. FRELINGHUYSEN. The work of the Academy has already resulted in some useful changes in DOE's operation; for instance, increasing—and we talked about this a few minutes ago—increasing the contractor approval level for EM from 5 million to 50 million.

Mr. BREUL. Correct.

Mr. FRELINGHUYSEN. That is correct?

Mr. BREUL. Yes, sir.

Mr. FRELINGHUYSEN. The EM program, again, with resources of over $6 billion, had to seek approval from headquarters Procurement Office contracts for over 5 million; is that right?

Mr. BREUL. Well, it is a little more nuanced than that. The threshold required EM to actually submit the projected actions to headquarters, and from those the Procurement Office chose which they wanted to subject to this business review. So there is a bit of selectivity in there. But the threshold was down to $5 million, correct.

Mr. FRELINGHUYSEN. What was the result of that? Is there some sort of sense of paralysis, or what happened?

Mr. BREUL. We didn't see paralysis. It obviously was a delay and slowed things down, because in some cases there were sequential reviews with counsel and the Procurement Office and others jumping in. And, of course, there is the uncertainty. And frankly, there is a shift in responsibility and accountability. The EM and the field offices don't have the full sense that they are fully in charge and accountable if they are subject to a review and chop on it by someone else elsewhere. So there are a number of consequences of that.

We asked at the same time when they looked at that $50 million threshold to do a reengineering of the process and try to streamline it and simplify it. We have not completed a review of that yet. We are in the midst of that.

Mr. FRELINGHUYSEN. What would hold the Department back from doing something on their own?

Mr. BREUL. Well, they have. Our review to see how effective that is isn't complete, but a preliminary review and information is that it is only making a very modest set of changes, maybe some reductions in a few days in terms of the processing. We were looking for a reduction in terms of months, that the process would have been significantly speeded up. So we are not sure whether——

Mr. FRELINGHUYSEN. Is there a broker in the process?

Mr. BREUL. No, sir. That is one of the recommendations, in fact, for all of this, that there be somebody to kind of talk through these kind of changes. But to be fair, the Procurement Office is very serious and intent on this. We have had long and serious discussions

with them about it. It is not clear yet that that change is going to bring about the significant improvement that we had hoped for.

Mr. FRELINGHUYSEN. Mr. Aloise, do you have any comment on that?

Mr. ALOISE. No, only to say that as I am listening, I could see the interrelation between our work here with contract management problems and——

Mr. BREUL. And significantly their $100 million threshold is again the level we were suggesting would be a convenient and a useful one to keep the smaller projects, which are historically much more successful, out of this churn and focus the Department's attention when it does a review on the larger ones. We had some other recommendations to not even do the reviews, to do system reviews and to strengthen the field support so it could do a better job in the first place, and to focus the review on a systematic review as opposed to a transactional review. Those are yet to come.

Mr. FRELINGHUYSEN. I may be mixing apples and oranges, but you have been working with the Department for a number of years, and we credit you for that. Have you looked over their recommendations?

Mr. ALOISE. Their recommendations? Yes.

Mr. FRELINGHUYSEN. Very closely?

Mr. ALOISE. Yes.

Mr. FRELINGHUYSEN. So they are somewhat woven into your——

Mr. ALOISE. I think they complement.

Mr. BREUL. I think, sir, we have had a good working relationship with GAO. It has been productive on both sides, I believe.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. VISCLOSKY. Mr. Simpson.

Mr. SIMPSON. Let me suggest one other organizational management change that I have heard surprisingly, and I am not suggesting this, but some have suggested that maybe it is time for EM to go over to the Army Corps of Engineers. Something to look at.

I want you to know, Ms. Kolb, I am very comforted by the fact that you are going to spend this $6 billion efficiently. When we are just talking about $6 billion, the fact is that the Department of Energy is getting $38½ billion that they are going to be dealing with. Their annual budget is $26 billion. This is more than their annual budget.

Ms. KOLB. Yes.

Mr. SIMPSON. You are currently putting together a spending plan.

Ms. KOLB. Yes.

Mr. SIMPSON. Man, I wish I had that problem.

Ms. KOLB. It has its challenges, however.

Mr. SIMPSON. When will that spending plan be available, and will this committee or this staff of this committee have any input into that spending plan?

Ms. KOLB. The spending plan will be available very soon. I can't say exactly when. And on your question about whether or not the committee would have input, I would need to get back to you on that.

[The information follows:]

RECOVERY ACT SPEND PLAN

EM can meet with the Committee to discuss the $6 billion in additional funding received as a result of the Recovery Act. In order to meet the objectives of the Recovery Act, EM has selected projects from its existing portfolio that are "shovel ready," will create jobs quickly, are compatible with existing projects at the cleanup sites and utilize existing contracts, with proven technologies that have an established regulatory framework already in place.

Mr. SIMPSON. I would suggest there is some expertise, maybe not as much among the Members, but among the staff here that have been dealing with the Department of Energy for quite some time, and I would recommend that you take advantage of their expertise in this area, and it might ease the hearings that come in the future. I don't know of another way to say that.

We talked about loan guarantees for renewables. The Department has about 2 billion available for loan guarantees in nuclear energy. If there are competing interests for that loan guarantee, how is the Department going to award those loan guarantees?

Ms. KOLB. I can't answer that question, sir. I will get that information for you.

[The information follows:]

LOAN GUARANTEES FOR NUCLEAR ENERGY

In 2008, the Department issued two loan guarantee solicitations for nuclear energy technologies, including up to $18.5 billion for nuclear power facilities and up to $2 billion for nuclear facilities for the "front-end" of the nuclear fuel cycle. During the application review process and subsequent due diligence process, DOE staff perform detailed financial, legal and technical analysis to determine which project or projects best accomplish the objectives of the Title XVII legislation while protecting the interests of the American taxpayer.

Mr. SIMPSON. I would hope it would be on the merit of the recommended projects.

Ms. KOLB. Absolutely.

Mr. SIMPSON. That is good. I would hold you to that. That is what I would hope for anyway, and politics kind of stays out of the picture.

Ms. KOLB. Absolutely, sir.

Mr. SIMPSON. Of the 59 recommendations that DOE generally agrees with that have been made by GAO, if we held a hearing in 6 months, 57 of them are still open. Field hearing in 6 months, how many would still be open then; and in a year, how many would still be open? What can I look forward to at the next hearing so I can measure the performance of the Department is what I am saying?

Ms. KOLB. What I would recommend that you hold us accountable for is implementation of our corrective action plan and the performance metrics that are included in it. The corrective action plan includes many of the issues that Mr. Aloise has touched upon, for example, the technology readiness review, the fact that we need to perform those; some of the issues that Jonathan Breul talked about, the staffing issues. One of the items in our plan is to develop a staffing model based on the model that is used by the Naval Facilities Command as well as by the Army Corps of Engineers to ensure that we have appropriate staffing. Those are the kind of issues that I think you ought to be holding us accountable for.

And just one of the things, not to take us down a side path, but on the issue of staffing, if you look at the Office of Science, and you

talk with the project management leaders in that organization, they will tell you you don't need a lot of people; what you need are a few good people who know what they are doing.

Mr. SIMPSON. How difficult is that to find in today's environment, a few good people?

Ms. KOLB. Very, hard. Very hard. Because a lot of the items that are in our corrective action plan, they are really just good management. Doing upfront designs and completing designs to a point where you can start with construction with confidence, that you are not going to have to completely change the design, those are just good management techniques.

So these are the kinds of things that I think you ought to be holding us accountable for. I know that the committee staff has a copy of our corrective action plan. We will make sure we have copies of it for all of you so that you can see the kind of things we are implementing and the timetable we are using.

Mr. SIMPSON. We have been concerned as a committee for quite some time that we are losing our expertise, in particular the nuclear area, because we haven't built a reactor for how many ever years, all that kind of stuff. High school kids aren't going into nuclear engineering, et cetera, et cetera, et cetera, that we are going to lose that core capability. Is that affecting your ability to hire people to oversee these programs?

Ms. KOLB. That is definitely a challenge, definitely a challenge.

Mr. SIMPSON. Let me say I know we sounded critical and, you know, that is our job to be critical, quite frankly, but I appreciate the work that the Department does. I know it is a tough job, and you are dealing, as I said earlier in the very first comments, sometimes in areas that we have never dealt with before. And I know there are good people trying to do a good job, and I hope that the oversight hearings—and I am sure this Chairman and our former Chairman will continue—are used by the Department not as a view that we are trying to beat the crap out of you, but that we want to help you be successful. So I appreciate you all being here today, and I appreciate the work that all of you have done on this.

Mr. VISCLOSKY. I have a couple more questions, but I just would follow up on Mr. Simpson's last point. When I did meet with the Secretary, I told him I am an appropriator, and I deeply care about policy, but on some level the overarching energy policy of this country is going to be felt by somebody else. But I did suggest that if the management problems—if the Secretary doesn't get control of the Department and make it run as efficiently as possible, you could have the best policy in the world, and we will not succeed. And we want to succeed. We have got a problem we have got to solve here, and over and above energy we have got problems to solve.

MOX FACILITY

Mr. Hobson has retired, but MOX goes on. Mr. Aloise, MOX in many ways is unique, but there are other MOX facilities worldwide; am I correct?

Mr. ALOISE. Uh-huh.

Mr. VISCLOSKY. What have you found regarding the management of the MOX facility and its construction?

Mr. ALOISE. Well, as I mentioned earlier, our initial work has found that the underlying basis of their EVM data, the schedule is not reliable, in our view, and they need to—DOE needs to fix that as soon as possible, because here we are starting again where we have identified problems, you know, somewhat early on that could lead to cost overruns and budget increases and schedule delays in the future. So we are working with DOE to fix that schedule.

Mr. VISCLOSKY. And I think the word "chunks" was mentioned earlier during the hearing, and in many ways MOX is a chunk project because there is really not a facility, there are three major facilities. The estimate for the fuel fabrication plant is 4.8 billion, if I understand that. Do you know what the estimates are for the other two facilities for waste solidification and pit disassembly?

Mr. ALOISE. Waste solidification, I believe, is $340 million, and pit disassembly is over $3 billion.

Mr. VISCLOSKY. And on the waste solidification facility and this is a gross oversimplification, would be the back end, you know, in a fashion of speaking. Construction is anticipated to start this year, as I understand it. Are there any outstanding issues with the design?

Mr. ALOISE. I believe it started in December 2008 on the waste—

Mr. VISCLOSKY. It has started? Okay. Okay.

Mr. ALOISE. We are looking at that overall strategy. But there is a question whether the pit disassembly facility will actually be built at Savannah River is still under review. So until they have the requirements, we are looking at how does DOE know how to size that building, because if the pit disassembly facility is not built there, then they are going to have different requirements. So that is something we need to look at.

Mr. VISCLOSKY. But they have started construction?

Mr. ALOISE. Yeah.

Mr. VISCLOSKY. Despite the fact there is not a final determination on pit disassembly?

Mr. ALOISE. That is correct.

Mr. VISCLOSKY. Ms. Kolb or any—do you know when a decision is going to be made, so we don't do too much construction?

Ms. KOLB. I will have to get back to you on that, sir.

[The information follows:]

PIT DISASSEMBLY AND CONVERSION FACILITY

Over 25 metric tons of the surplus weapon-grade plutonium that will be processed at the MOX facility is in the form of nuclear weapon pits. Before the plutonium can be processed at the MOX facility, the pits must be disassembled and the plutonium metal must be converted to an oxide. In a January 2000 record of decision, the Department decided to construct the Pit Disassembly and Conversion Facility (PDCF) in which to disassemble the pits and convert the plutonium into an oxide at the Savannah River Site (SRS). However, DOE/NNSA is currently evaluating whether any efficiencies would result from combining the planned PDCF with other plutonium-related projects under construction by the Environmental Management (EM) office to be located within the K Area Material Storage facility at SRS. DOE/EM and the NNSA expect to complete detailed analyses of combining these projects and provide a preferred option by summer 2009. Related to the provision of feedstock for the MOX facility is the fact that some portion of the feedstock will need to come from the Advanced Recovery and Integrated Extraction System (ARIES) line at Los Alamos National Laboratory due to the gap in time between when the MOX facility is scheduled to become operational and when the PDCF project comes online in South Carolina.

Mr. ALOISE. It is an integrated strategy.

Mr. VISCLOSKY. Is it premature to start construction of the waste solidification until you know exactly what you are going to do with step one?

Mr. ALOISE. Let me say intuitively you would say yes. I will give DOE the benefit of the doubt until we look at their strategy and see what exactly it is they are doing, because that other—it is a very large facility at the pit disassembly. It is a key thing. Waste is going to go into the Waste Solidification Building from there and from the MOX facility, so they have to know how to size it correctly.

Mr. VISCLOSKY. If there is a need to take waste from the fuel fabrication plant, because it will be done in the near future, as I understand; not near future like in a couple of months, but——

Mr. ALOISE. Twenty-six——

Mr. VISCLOSKY [continuing]. But sooner than the waste solidification facility. Can the waste be accommodated elsewhere on the site?

Mr. ALOISE. We will have to take a look at that. It is possible, I suppose. There is a possibility for some waste to be on the site. But we will have to take a look at that when we look at the total strategy.

Mr. VISCLOSKY. You mentioned your intuition. What is your take on the systems planning for these three facilities in the order of their construction and the fact that you are doing waste before you have a final determination on it?

Mr. ALOISE. We looked at it, and our reaction was—well, we were actually mandated to look at it, But had we not been mandated to look at it, it raised enough questions in our mind based on our experience with all of the work that we have laid out here that we need to take a look at that strategy and see if that makes sense. As you know, Mr. Chairman, once you break ground for these projects, it is hard to stop the money.

Mr. VISCLOSKY. It is over. Although there are 31 projects you have mentioned that have——

Mr. ALOISE. Before completion at the cost of $10 billion. That is what we are hoping to avoid.

Mr. VISCLOSKY. Right, right.

MOX FACILITY

Still talking about MOX, you have an EM program, but you have NNSA involved here. How are the two working together?

Mr. ALOISE. Well, again, we will be taking a look at the strategy of—one of the interesting things to us when we take a look at this is that you have different regulators. You have three facilities, but you have NRC regulating the MOX facility. The DOE will be regulating the two other facilities. So we need to look at that to see what kind of overlaps or duplications, or is something falling through the cracks there. Is one facility going to be regulated to a higher level than other facilities given that they are different facilities? But that makes that unique.

Mr. FRELINGHUYSEN. You are asking those questions?

Mr. ALOISE. Yes.

Mr. FRELINGHUYSEN. But what sort of responses——

Mr. ALOISE. We will be asking those questions.

Mr. FRELINGHUYSEN. Those are questions that are out there. But what about the Department? What is your take?

Ms. KOLB. Well, first of all, on the MOX project, we do believe the project is on cost and on schedule, and we are aware of GAO's concerns about the EVMS data. We feel that the EVMS data is sound and reliable, and we are in ongoing discussions with GAO on the changes that they believe that we need to make in order to verify that they—the information is reliable.

We are looking at the issue of the disassembly plant. I am not prepared to date to discuss that in any great detail, but we will provide information back to the committee on——

Mr. FRELINGHUYSEN. The sequencing issue is pretty damn important.

Ms. KOLB. It is, sir.

Mr. FRELINGHUYSEN. Even with my tour, I am not sure I fully understand it. But as a layperson, it seems to me there seems to be some confusion down there as to how they are going to proceed. Mr. Breul, specific choke points that relate to headquarters that might contribute delays in EM cleanup programs, can you talk about that issue?

Mr. BREUL. Well, certainly the business process review on contracts qualifies. We would really like to see that move along more quickly and are still of the mind that a $100 million threshold would be an important move to do that; also changing the way procurement operates to help strengthen the capability in the EM operations to prepare good statements of work and sound procurements, to shift towards more of a systems review.

Mr. FRELINGHUYSEN. How about the Office of General Counsel, is that one of those?

Mr. BREUL. They are part of that business process review. They have been the subject of some complaints that we have been hearing. We have not looked at them directly because that wasn't part of our charge.

Mr. FRELINGHUYSEN. You have heard those?

Mr. BREUL. We have heard those.

Mr. FRELINGHUYSEN. Has GAO heard some of that?

Mr. ALOISE. We have heard that, yes, as well.

Mr. FRELINGHUYSEN. But you haven't substantiated it?

Mr. ALOISE. No.

Thank you, Mr. Chairman.

Mr. WAMP. I want to thank the Chairman and apologize to the witnesses. I have a bill that I had to speak on the floor about from the time we voted until now, and I will try not to extend this, but I wanted to get back as quick as I could. First I thank the Chairman for this focus because I think it is incredibly important.

Mr. Frelinghuysen and I have been here together, this is our 15th year on the Appropriations Committee, for a long period of time. I was thinking as you all came today, and I heard you comment on Secretary Chu's commitment to procurement and efficient management and kind of a new shift in paradigm and his experience coming from a lab, about the half a dozen secretaries that I have seen in 2 administrations come and go, and then a couple of acting secretaries and so many other witnesses, and frankly how

this is a bipartisan, shared problem that neither party has much to brag about. Even though the Department of Energy has done a lot of things right, I don't want to focus on the negative any more than a hearing like this is designed to focus on the negative.

And I wanted to kind of direct my line of questioning at Ms. Kolb, because, for instance, Spallation Neutron Source, when you mentioned earlier that certain projects that DOE has actually carried out, and I want to be parochial, it happens to be in Oak Ridge, but it was a multilab consortium. Basically every lab that had a dog in the hunt or a piece of the action to offer was a partner. It happened to be sited in one location, but literally every lab in that arena contributed mightily to it, and it was done on time and on budget, and it was a $1.4 billion project. And that almost defied logic across the country that we could keep a 7-year construction project at DOE.

So the first thing I would throw out there is what kind of lessons do you learn from one that goes like that? There are not many $1.4 billion projects that the Federal Government has carried out by any of the agencies that is on time and on budget. It certainly doesn't happen on anything in this city. It has to be out there somewhere. And you have to scrub it down.

I can remember Chairman Sensenbrenner driving us crazy as the Chairman of the Science Committee basically trying to hold the whole process accountable, exerting some oversight, and there is not enough oversight. Congress is guilty—that is why this hearing is so important. It may seem monotonous, but I want to point that out as I get more into the weapons piece, because that is one concern I have about the new administration.

There are a host of things that happen at the Forrestal Building that I could complain about over the last 15 years. I represent Oak Ridge. It is a multipurpose site, for anyone here that doesn't know. So I get all of the missions basically, the weapons piece, the science piece, the EM piece, all the efficiencies and inefficiencies, and see the big picture of the reforms that are necessary. But the Forrestal Building is basically the source of most of the problems. I hate to say that. I mean, your field people do a really good job, and the more you can get the decisionmaking out into the field, the better off we are going to be.

Talking about a bureaucracy, that is the problem with DOE, from my 15 years, as Mr. Frelinghuysen says, layman perspective, is that everything that goes wrong happens up here. It doesn't necessarily happen in the field, but the decisions are here. But I am most worried about weapons right now because of the new paradigm of this administration. And I want to know what are the efficient projects in the weapons system, and what are the inefficient projects, because I think some of the very important investments that are on the horizon are jeopardized by the inefficiencies of others. We saw it in our initial hearing on the Corps of Engineers last week on the water side of this subcommittee where a couple of projects that have gone amok really threaten the ones that are on time and on budget because all the money goes there.

We talked about Hanford earlier in this hearing before I left. Hanford is like Pacman; it is gobbling up all the rest of the players on the board. We know. And look at the board over there, and you

see that Hanford is the one with the delays longer than I will be alive.

So what about weapons? Because that is to me the most threatened aspect of DOE's portfolio until certain changes are made. I know there is some talk of DOD instead of DOE. But at present, on these major investments, what is out of bounds, or what is out of control, and which ones are in good shape?

Ms. KOLB. Sir, on weapons systems, I cannot address those. Those are not covered by 413, the order that my office is responsible for administering. So what I can do is go back to the Department and have officials from NNSA provide you with that information.

Mr. WAMP. Okay.

[The information follows:]

NUCLEAR COMPLEX EFFICIENCY

There is no comparable industry to gauge the efficiency of the Nuclear Security Enterprise. Thus it is difficult to define precisely what efficiency means in this context. However, we agree that cost and efficiency challenges exist, in many cases driven by the highly technical nature of the endeavors, the "first of a kind" equipment and facilities in which this work is performed, and the unique and highly stringent security environment.

One measure of efficiency could be programs and projects that have executed successfully ahead of schedule. The Facilities and Infrastructure Recapitalization Program met it goal to eliminate 3,000,000 gross square feet of excess facilities one year early, in 2008. We have also completed some construction projects ahead of schedule and under budget, including the Microsystems and Engineering Sciences Applications facility at Sandia National Laboratories.

Because of the complexity of many of our construction projects, there are also examples of inefficient project execution, and as such we have undertaken a major effort to improve our project management practices in view of this reality.

Ms. KOLB. I apologize.

Mr. WAMP. No problem.

That is all I have, Mr. Chairman.

Mr. SIMPSON. I have said too much.

Mr. VISCLOSKY. I ask that comment be stricken from the record.

I would just follow up because my thought, if you would, is a difference in perception, and that is, Ms. Kolb, you have indicated as far as MOX—and I am talking about MOX now—that the Department feels they are on schedule.

With the report we have from the GAO when—and I am just looking at one of a number of items on a number of pages—assigning resources to key activity are—is the agency, GAO, satisfied, and the statement is partially. The schedule reflects $25.9 million in resource costs out of a total project cost of 4.8 billion. As a result, the schedule does not reflect the vast majority of resources needed to perform construction activities. And I, for one, am happy that we have engaged these agencies with DOE early in the process so that to the extent we have an honest disagreement here, we can get to the root of it and make sure that schedule is as sound as possible.

Ms. KOLB. Yes. Absolutely. We are working with GAO on the ground, and there have been numerous discussions about the schedule and what needs to be done to make sure that GAO is satisfied that this is a valid schedule. There is a risk management assessment that needs to be conducted. We have committed to conducting that review this summer, and I know that is one of the

sources of concern for GAO. So we will follow up. We need to do that.

Mr. FRELINGHUYSEN. I do have one additional question. You said, Ms. Kolb, that you are working on fixing—the hiring process needs to be fixed and will be fixed in 30 days.

Ms. KOLB. I said that we will have an action plan——

Mr. FRELINGHUYSEN. Action plan ready for——

Ms. KOLB. Yes. It is due March 16th.

Mr. FRELINGHUYSEN. Yeah. And when people are hired at the Department of Energy, do you use a contractor to hire them, or do you have personnel to do the interviews?

Ms. KOLB. Federal personnel conduct interviews. We primarily use—I am talking about headquarters. We primarily use Federal employees. We do use——

Mr. FRELINGHUYSEN. It is interesting, because with all the song and dance about contractors, and obviously you have—the Department has a lot of contractors, contract employees, it is amazing that the Department of Defense uses outside contractors in any case to hire up civilian—qualified civilian personnel. I just wonder whether you use a similar system.

Ms. KOLB. We do not use a similar system. We do have a few individuals who are contractors who will perform tasks, like classifying position descriptions. But we do not employ a company, for example, to conduct our hiring.

Mr. FRELINGHUYSEN. Okay. But it is true that there—I would assume a relatively small pool of people?

Ms. KOLB. It is.

Mr. FRELINGHUYSEN. But you are going to have to gear up, as the Washington Post—you know, many hires needed for budget goals. You are going to need to set up a pretty sophisticated system here.

Ms. KOLB. Yes. We are going to need to hire quite a few individuals, and our strategy there—first of all, this is something else that I am working on in my spare time—is we have identified individuals that need to be brought on immediately, and we have triaged those positions. We have identified those that are fairly common positions; for example, budget analysts, program analysts, where not a lot of work needs to be done up front in order to recruit. So we have standard packages. We are using everything as a standard process, standard packages, standard vacancy announcements, so that we can then start to recruit people very quickly. We have already posted a number of jobs, and you are going to see even more postings over the next several days and weeks.

Mr. FRELINGHUYSEN. You are going to be hiring basically a lot of people who are going to be grants managers, as opposed to the wake-up call is when you take over the leadership of the Department and find out that the focus is—90 percent of it is for nuclear stockpile, and then you find—now we are having green energy and renewables. You are going to have to set up a pretty vigorous system here.

HIRING DONE IN THE FIELD

Ms. KOLB. Yes. And a lot of the hiring is being done in the field.

Mr. FRELINGHUYSEN. What does that mean?

Ms. KOLB. It means there are different hiring organizations that are processing the vacancy announcements. For example, Golden, Colorado, EERE, that is where they are doing a lot of hiring, and they have a more efficient organization at Golden, Colorado, to do hiring. Headquarters—I think when Mr. Breul was talking——

Mr. FRELINGHUYSEN. Mr. Breul has been in here. Do you want to put your oar in the water here?

Mr. BREUL. I think that is exactly right. There are processing centers in Golden, Colorado and in Cincinnati.

Mr. FRELINGHUYSEN. What is your knowledge of the existing centers?

Mr. BREUL. They are performing well. They have capacity, and they are willing to take on more work to see that it gets done.

Ms. KOLB. And they will get that additional work. I think where Mr. Breul was saying that there were concerns is at headquarters hiring.

Mr. FRELINGHUYSEN. That is a whole other bag of worms.

Ms. KOLB. Yes, it is.

Mr. FRELINGHUYSEN. All right. Thank you, Mr. Chairman.

Mr. WAMP. Sorry. The GAO didn't volunteer to answer my question, so I am just going to have to ask you if you can comment on the question about weapons.

But I want to say first, I don't know, if we think DOE has problems now, what is going to happen when you are trying to administer the stimulus and weatherization in some of these programs that is just like—how in the world do you ramp up by a factor of 31 times what we normally spend on weatherization? We are all for it, but, I mean, that is like asking the impossible, and we did it. So we have asked it. So I am sure you are going to be drug back in here and asked why you didn't do that in an efficient way, but the Congress is actually giving you a task that I don't know that it is humanly possible when you ramp up a program 31 times when you formally spend on it.

Back to weapons. Can you answer my question, please?

Mr. ALOISE. Let me just say this: One of the major concerns we have is the transformation of the weapons complex and will DOE have the things in place that we need, they need, to do that effectively, which is, you know, committed leadership, the right people involved? And so we are looking at that. That is going to be tens of billions of dollars to reduce the footprint and make the right decisions on which facilities to build and which facilities not to build. We are already looking at the facilities in Los Alamos they are talking about building. They are talking about the UPF facility at Y–12. So we are looking at that.

I also wanted to comment on your statement about people in the field know what they are doing, and headquarters. We basically have found that in our work. I mean, when we need answers to the questions we are asking, we have to go to the field, and we have to drill down to the site offices or—because we can't get those answers in headquarters. Now, I realize they may not know all the detail, but they should know the basics of what is going on, and a lot of times that is lacking here at headquarters. So I agree with you on that point.

And yesterday we issued a report on the Life Extension Program, and we found the same kinds of problems in that program, and we made recommendations for improvement in that program at NNSA. We found, you know, some inadequate information being exchanged between the players. We found baseline changes that were incorrect. We found poor communication. So we found the same kind of things on the Life Extension Program. I don't know if that answers your question.

Mr. WAMP. Mr. Chairman, I was on the Homeland Security Appropriations Subcommittee a few years ago, and Chairman Rogers at that time couldn't get the DHS leadership in their headquarters to cooperate. So he just held back all their administrative funds until which time he got the answers. That might be one way to get the Forrestal Building to clean up their bureaucracy real fast so that people in the field can do their job, and we can become more efficient.

Not to make that as a recommendation, but just tell you that that actually worked when we created DHS, although other things didn't work too well at DHS. But you can't tell me where the cannibals are in the weapons complex and where the—like the Hanford of EM—the problems that might cause the rest of the complex to feel a squeeze on some of these investments based on Mr. D'Agostino's stated commitments to some of these things on transformation. You can't just snap your fingers and have it all go away even if you are against—I mean, nonproliferation rightfully takes center stage here, but even if you are against transformation or these investments, you can't just make this stuff disappear.

We have this incredibly important deterrent, and the stewardship of this stockpile and the maintenance of this legacy asset here is real critical. And the States all have a dog in this hunt because you can't start moving stuff around. They really carefully protect it, the States do. And that is another one of these push-pulls with the Federal Government making these investments in these areas. But are there any noticeable cannibals in the weapons complex?

Mr. ALOISE. Our work so far as been limited to looking at some of the main projects they are talking about building for the weapons transformation, and we have raised questions about some of the estimates that have ranged from $2- to $3 billion. So we are only looking at certain projects at certain locations. That is all I can respond to on that.

Mr. WAMP. We will follow up when we have the hearings, because I know our hearings our going to be limited because we have got to move a bill. We are late in the year. But I do think this is one of the big questions here as Secretary Chu comes over is what happens to the NNSA piece, and what are DOE's big plans here, because that is the most noticeable adaptation in 2010 budget request. And, Mr. Chairman, I appreciate your leadership.

Mr. Frelinghuysen, I yield back.

Mr. VISCLOSKY. If there is no other questions, gentlemen, I would again thank you and your colleagues for all of your work and for your appearance; and, Ms. Kolb, yourself, as far as your service with the government and for your attendance and work to be prepared today. And I think the message is clear, so I don't have to belabor the point, but I just truly believe this is an incredible op-

portunity, as you have mentioned at least on one occasion, to put the best foot forward and to prove in tangible, measurable, visual form that things are fundamentally changing, not that there is an action plan, not that we are thinking about it, that something has changed. So I certainly would ask that you take that back. But also, again, thank you for being here today, and we are adjourned.

TUESDAY, MARCH 17, 2009.

NUCLEAR WEAPONS COMPLEX

WITNESSES

THOMAS D'AGOSTINO, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

A.G. EGGENBERGER, CHAIRMAN, DEFENSE NUCLEAR FACILITIES SAFETY BOARD

PHILIP COYLE, FORMER ASSOCIATE DIRECTOR, LAWRENCE LIVERMORE LABORATORY

EVERET BECKNER, FORMER DEPUTY ADMINISTRATOR, DEFENSE PROGRAMS, NATIONAL NUCLEAR SECURITY ADMINISTRATION

RICHARD GARWIN, IBM LABS, FORMER CHAIRMAN, STATE DEPARTMENT ARMS CONTROL AND NONPROLIFERATION ADVISORY BOARD DNM

Mr. VISCLOSKY. Good afternoon. Today we are going to examine how best to maximize the efficiency and minimize the cost of the nuclear weapons complex. We have a panel of distinguished witnesses representing a wide spectrum of views. First of all, Tom D'Agostino is Administrator of the National Nuclear Security Administration. Mr. D'Agostino's prior positions include Deputy Administrator for Defense Programs at NNSA. He was a captain in the Naval Reserve and served for 8 years as a submarine officer.

And, Tom, I just would say that I have dealt with a number of Administrators at NNSA, and all have served very ably and have been very competent people. You are the best. I appreciate all of your service.

Mr. D'AGOSTINO. Thank you.

Mr. VISCLOSKY. Our next witness is Everet Beckner. Dr. Beckner has served as Deputy Administrator for Defense Programs of NNSA and is vice president and deputy managing director of the United Kingdom's Atomic Weapons Establishment.

Richard Garwin has an extensive background with IBM Labs, the Council on Foreign Relations, although today he will be here to present his personal views. Dr. Garwin is a nuclear physicist who has published numerous books and articles on scientific and national security subjects.

Philip Coyle is a laboratory associate director emeritus of the University of California, although, like Dr. Garwin, today he will present his personal views. He has served as Director of Operational Test and Evaluation in the Department of Defense and as Principal Deputy Assistant Secretary for Defense Programs in the Department of Energy.

Our final witness is A.J. Eggenberger, Chairman of the Defense Nuclear Facilities Safety Board. Dr. Eggenberger is an expert in nuclear safety and earthquake engineering, and previously served as program director and leader of the Earthquake Hazard Mitiga-

tion Program at the National Science Foundation. Dr. Eggenberger will discuss the Board's view of safety issues within the complex.

Each year the American taxpayers are asked to pay in excess of $6 billion for the nuclear weapons complex. This does not include the expenses of the Navy and the Air Force to operate, transport and store the active weapons. How much of this funding is essential? Stockpile Stewardship now gives us without nuclear testing a better understanding of the nuclear warhead phenomenon than we ever got from testing—nuclear testing.

Spending to keep our nuclear weapons safe and secure is also essential; nevertheless we need to continually reevaluate our costs. Our consideration of this question today is circumscribed by the fact that the administration is in transition. We can say with confidence that President Obama's stockpile plan will be different from that which we see today.

Additionally it appears probable that technical changes as well as international arms control agreement will be among the factors that drive this evolution. Therefore, we are not here today to hear advocacy for or against a given weapon or stockpile. Instead we ask the witness for his thoughts on how to improve the cost-effectiveness of the complex, at whatever stockpile numbers and qualitative compositions he finds worthy of consideration.

The relationship between the size of the stockpile and the complex needs further study. On the one hand the one school of thought holds that the cost of the complex is fixed. Another school of thought holds that the cost of the complex is highly variable. In most cases the answer to a question like this lies at a point in between, a question we would ask today.

Additionally there are qualitative factors, including pit reuse and other technologies that could reduce costs. We look forward to the witnesses' views on these and related issues.

[The information follows:]

OPENING STATEMENT

The Honorable Peter Visclosky
Chairman, Energy and Water Development Subcommittee
House Committee on Appropriations

Hearing on the Nuclear Weapons Complex
March 17, 2009

Good afternoon. Today we are going to examine how best to maximize the efficiency and minimize the cost of the Nuclear Weapons Complex.

We have a panel of distinguished witnesses representing a wide spectrum of views.

Thomas D'Agostino is Administrator of the National Nuclear Security Agency. Mr. D'Agostino's prior positions include Deputy Administrator for Defense Programs at NNSA. He is a Captain in the Naval Reserve and served for eight years as a submarine officer.

Our next witness is Everet Beckner. Dr. Beckner has served as Deputy Administrator for Defense Programs of NNSA, and as Vice President and Deputy Managing Director of the United Kingdom's Atomic Weapons Establishment.

Richard Garwin has an extensive background with IBM Labs, JASONS, and the Council on Foreign Relations although today he will be here to present his personal views. Dr. Garwin, a nuclear physicist, has published numerous books and articles on scientific and national security subjects.

Philip Coyle is a Laboratory Associate Director Emeritus of the University of California although, like Dr. Garwin, today he will present his personal views . He has served as Director of Operational Test and Evaluation in the Department of Defense, and as Principal Deputy Assistant Secretary for Defense Programs in the Department of Energy.

Our final witness is A.J Eggenberger, Chairman of the Defense Nuclear Facilities Safety Board. Dr. Eggenberger is an expert in nuclear safety and earthquake engineering, and previously served as Program Director and Leader of the Earthquake Hazard Mitigation Program at the National Science Foundation. Dr. Eggenberger will discuss the Board's view of safety issues within the complex.

Each year the American taxpayers are asked to pay in excess of $6 billion for the nuclear weapons complex. This does not include the expenses of the Navy and the Air Force to operate, transport, and store the active weapons.

Much of this funding is essential. Stockpile Stewardship now gives us, without nuclear testing, a better understanding of the nuclear warhead phenomena than we ever got from nuclear testing. And spending to keep our nuclear weapons safe and secure is also essential.

Nevertheless, we need to continually re-evaluate our costs. We need to ensure we are spending at the right level on the right things, and to find ways to cut cost where possible.

Our consideration of this question today is circumscribed by the fact that the Administration is in transition.

We can say with confidence that the Obama stockpile plan will be different from that which we see today. But how different, and in what ways? It's too early to say.

Additionally, it appears probable that technological changes, as well as international arms control agreements, will be among the factors that drive this evolution.

Therefore, we are not here today to hear advocacy for or against a given weapon or stockpile. Instead, we ask each witness to offer his thoughts on how to improve the cost-effectiveness of the complex at whatever stockpile numbers and qualitative compositions he finds worthy of consideration.

The relationship between the size of the stockpile and the cost of the complex needs further study. On the one hand, one school of thought holds that the cost of a complex is fixed. That is, the same complex is needed to maintain one warhead as to maintain 5,000 warheads. Another school of thought holds that the cost of the complex is highly variable. This school cites the example of France, which operates a much smaller force than ours with a much smaller and cheaper complex, and their warhead quality is reported to be comparable to ours. The relationship between stockpile size and complex cost is one question we would like the witnesses to address. In most cases, the answer to a question like this tends to lie at a point between the two extremes; one question for today is the location of that point.

Additionally, there are qualitative factors, including pit re-use and other technologies that could reduce cost. We look forward to the witnesses' views on these and related issues.

In order to enable the discussion to cover a large number of issues in the limited time we have today, each question will be addressed to a specific witness, or at most to two witnesses. But in order for all views to be aired, all members of today's panel are invited to submit for the record any comments they may have on any of the questions. They are also invited to respond in writing to the responses of the other witnesses.

I now yield to our ranking member, Mr. Frelinghuysen, for his opening comments.

Mr. VISCLOSKY. With that, I would now yield to our Ranking Member Mr. Frelinghuysen for his opening comments.

Mr. FRELINGHUYSEN. I thank you, Mr. Chairman.

I would like to welcome Administrator D'Agostino and other distinguished witnesses. Thank you for being here today.

The issue before us, the nuclear weapons complex, it is usually complicated, and I can only hope that we will have an opportunity to examine its many components.

We are all aware of the overall mission of the Department of Energy to advance our national economic and energy security. Today climate change, renewable energy, and green technologies and jobs are hot topics at the forefront of our national discussion and rightly so, but we should not let these issues overshadow the DOE's nuclear weapons mission and responsibility. This is the core mandate of the Department. We must ensure that our nuclear stockpile remains safe, reliable, secure and reliable, and, yes, smaller.

This year the subcommittee will take into account the Congressional Commission on the Strategic Nuclear Posture, of the United States; the new administration's Nuclear Posture Review; and other information in order to assess our options and understand the risks and trade-offs associated with different approaches. Any policy decisions will be sure to spur a national conversation on our nuclear posture, and that is important to our country.

The Administrator, who I greatly respect, signed a Record of Decision last December that laid out some very significant decisions regarding the future of the complex. I am looking forward to hearing the status of these decisions under the new administration. But decisions we make over the next few years may well reverberate for decades. We must be planning for our national security, that which protects us over a longer time horizon.

We must have a complex, while smaller, that is responsive to today's threats and adaptable to meet tomorrow's. A complex which meets only one of these two objectives, that is today's threats instead of tomorrow's, cannot, in my mind, responsibly protect our national security and the American people.

With that said, we can't wait forever. Our stockpile is not getting any younger, and neither is the workforce dedicated to our national security that manages it. Today's DOE scientists are some of the best and brightest in the world. We must continue our support for these talented men and women, while ensuring that a younger generation is willing to follow them.

We have a broad panel today, and each of you bring a different perspective to the nuclear complex. I am coming into this hearing with an open mind and ready to learn.

Thank you, Mr. Chairman, for holding this hearing, and I would like to thank all the panelists for their service they have made and are making to our country, and I am looking forward to hearing their testimony. Thank you very much.

Mr. VISCLOSKY. Thank you.

Gentlemen, if we could proceed in order of introduction, and all of your statements will be entered in their entirety into the record. Thank you.

Mr. D'AGOSTINO. Chairman Visclosky, Ranking Member Frelinghuysen, members of the subcommittee, thank you for the oppor-

tunity to discuss today U.S. nuclear weapons policies and programs. I am pleased to appear before you today to address our vision for a smaller, safer, more secure and less expensive enterprise that leverages our scientific capabilities of our workforce to meet our national security needs. I appreciate the interest by the subcommittee in efforts to transform, and I am pleased to be before you today, particularly before this distinguished group of witnesses.

By way of background, I have served as the Director of the Program Integration Office in Defense Programs as the Deputy Administrator for Defense Programs, and for the last few years as the Administrator for the National Nuclear Security Administration. Based on my background, I feel that I am qualified, and potentially uniquely to do so, to fully grasp and carry out what needs to be done to ensure that we bring the required number of facilities and capabilities in line with our reduced stockpile and as well as with our increasing, in my view—our increasing national security needs. However, in order to be successful, we need your support Mr. Chairman and members of the subcommittee.

The vision of a smaller, safer, but modern nuclear security enterprise is well thought out and is first and foremost based on our Nation's nuclear security needs and requirements. Secondly, it is based on our need to retain the human capital that is unique and world-class in performing their mission. And finally, there is an urgent need to act now to sustain key capabilities necessary to maintain essential national nuclear security requirements not just now, but well into the future.

As you know, we have made tremendous progress over the past few years in reducing the size of our nuclear weapons stockpile. U.S. Stockpile will be less than one-quarter of what it was at the end of the Cold War, the smallest stockpile in 50 years. The size of the U.S. Stockpile sends the right message to the rest of the world that the United States continues to lead in its commitment on the article 6 of the Nuclear Nonproliferation Treaty and will, I believe, help create positive momentum heading into the 2010 Nonproliferation Treaty review conference.

I look forward to the final results of the upcoming and ongoing nuclear strategy reviews, the bipartisan Congressional Commission on the U.S. Nuclear Posture, as well as the larger administration's Nuclear Posture Review, knowing they will help inform Congress and the administration on a path forward that clearly defines our future direction.

The work of the Commission will likely have a large impact on the subsequent Nuclear Posture Review that will provide an important opportunity to establish consensus between the administration and Congress on U.S. nuclear security policy and then the programs that support that policy.

Over the past 3 years, we have been aggressive in our efforts to analyze, describe, perform environmental studies associated with the type of nuclear-securing enterprise needed for our Nation. As you can see by the stacks of paper here in front of me on the table, this is not an approach we have taken lightly. And we have considered every possible option and considered all reasonable approaches to that effort, and we recognize, of course, that those ap-

proaches may change as the Nuclear Posture Review changes. So we have designed flexibility into our decisionmaking.

To inform decisions on changing the face of the enterprise, we completed a public hearing process to help us reevaluate structuring of the enterprise, and this process ultimately included the development of the Programmatic Environmental Impact Statement and thousands of pages of business case analyses openly shared with the public to move this forward.

In the development of this path forward, one of our primary objectives was to restructure the facilities containing large amounts of special nuclear material that are very costly to secure. Restructuring of the major R&D facilities was also an objective in order to eliminate unnecessary and costly redundancies across the enterprise. Over 2,000 people participated in more than 84 hours of public hearings, thousands of pages of analysis, independent assessments. All came together to form this Record of Decision that was mentioned earlier.

Regarding the physical transformation of our essential plutonium and highly enriched uranium capabilities, we need to make decisions and investments to most effectively sustain our nuclear security enterprise for the future. Key projects, such as the uranium processing facility at Y–12 and the chemistry metallurgy and research replacement project at Los Alamos, are critical uranium and plutonium capabilities necessary not just to support our Nation's stockpile—of course they do that—but more importantly, in my view, lay the path forward on nuclear security broadly that the Nation, I think, will need out into the future. In many cases it will support any stockpile configuration, certainly the one we have now on down, and any most likely potential future scenarios.

So with respect to the relationship between new facilities and the size of the stockpile, our investments in these projects are both sound and based on analysis. It is extremely important to recognize and take into account that neither our workforce numbers nor the square footage of our facilities scale linearly with the size of the stockpile. Establishing a minimum capability to support a greatly reduced stockpile enables by its very existence in a modern facility a sufficient minimum capacity to support the likely range of future stockpile scenarios.

I would like to focus on plutonium just for a moment. The ability to perform research and development, surveillance and production with plutonium is essential to being able to perform the nuclear security work our Nation needs. Our research, surveillance, and manufacturing capabilities currently are carried out in facilities that are 50 to 60 years old and well beyond their economic lifetime.

What will happen if we just maintain the status quo? The short answer is we will reach a point where we will be unable to perform our nonproliferation, nuclear counterterrorism, nuclear forensics, nuclear incident response and nuclear deterrent missions. I encapsulate those together as nuclear security more broadly.

Every year the cost to maintain, operate and secure this physical infrastructure, this Cold War physical infrastructure, continues to rise. An independent group of scientists that advises the Federal Government, the JASONs, and the Defense Nuclear Facility Safety Board have all issued reports or findings over the past several

years highlighting the need for NNSA infrastructure improvements and modernization.

As Administrator, I am responsible for sustaining our nuclear capabilities to support the Nation's needs. I took a long, hard look at the enterprise and where we need to be. The need for change is urgent. We must act now to adapt for the future and stop pouring money into an old Cold War weapons complex that is too big and expensive.

While much of the focus is on our physical infrastructure, I want to emphasize that people are our most important resource. I would like to urge that we direct significant attention to the need to retain those with nuclear security experience and the need to develop the next generation of scientists, engineers and technicians needed to perform this essential nuclear security work.

We currently have 21 individuals within our workforce that have nuclear weapons design and underground testing experience. Our dedicated workforce is the key to our future and success. Their expertise constitutes a key element of our Nation's security, and we must work to provide them the tools and facilities to perform their mission.

Our people support many more U.S. National security requirements than just the direct needs for the nuclear weapons program. For example, they provide critical support to nuclear counterterrorism and incident response activities. NSA is continually tasked with an increasing number of requests both nationally and internationally; nationally from the Departments of Homeland Security, the FBI, and other Federal, State law enforcement agencies. So I believe, enabled by our core weapons-related programs, these same individuals can and are using their skills in other broad areas of national security importance. Simply put, it is the understanding of nuclear weapons, nuclear effects, special nuclear material and the related properties that allow us to support this other work.

Mr. Chairman and members of the subcommittee, in the end it all comes down to people and their unsurpassed technical capabilities and their ability to get the job done for our country. I sincerely appreciate the opportunity to discuss these important issues with you and look forward to your questions. Thank you.

[The information follows:]

Statement of Thomas P. D'Agostino

Under Secretary for Nuclear Security and Administrator

National Nuclear Security Administration

U.S. Department of Energy

On

Reducing the Cost of the U.S. Nuclear Weapons Complex

Before the

House Appropriations Committee
Subcommittee on Energy and Water Development

March 17, 2009

Thank you for the opportunity to discuss our vision for *a smaller, safer, more secure and less expensive enterprise that leverages the scientific and technical capabilities of our workforce to meet all our national security requirements.* My remarks today focus on our efforts to transform from a 20th century Cold War nuclear weapons complex into a 21st century nuclear security enterprise. While reducing costs is an objective we strive for, assuring the safety, security and reliability of the U.S. nuclear weapons stockpile without underground nuclear testing remains paramount while changing the infrastructure that supports it.

Before I begin, I want to summarize the tremendous progress made over the past few years in reducing the size of our nuclear weapons stockpile. As you may recall, in 2002, the Moscow Treaty was signed with the objective to reduce the number of our operationally-deployed strategic nuclear warheads to between 1,700 and 2,200 by 2012. In 2004, a Presidential Directive was issued to cut the entire U.S. nuclear stockpile—both deployed and reserve warheads—in half by 2012. This goal was later accelerated and, with the help of Congress, achieved 5 years ahead of schedule in 2007. As of the end of 2007, the total stockpile was almost 50 percent below what it was at the start of this millennium. On December 18, 2007, a decision was announced to further reduce the nuclear weapons stockpile by another fifteen percent by 2012. This means the U.S. nuclear stockpile will be less than one-quarter of its size at the end of the Cold War—the smallest stockpile in more than 50 years. This sends the right message to the rest of the world that the United States continues to lead in its commitment to Article VI of the Nuclear Non-Proliferation Treaty (NPT) and will help create positive momentum heading into the 2010 NPT Review Conference.

I look forward to the upcoming nuclear strategy reviews, knowing that they will help inform Congress and the Administration on a path forward that clearly defines our future direction. As you are aware, the Bipartisan Congressional Commission on the U.S.

Strategic Posture was established by Congress to identify the basic principles for reestablishing a national consensus on strategic policy. The Commission, carrying out its work since last summer with its final report due out in early April 2009, is examining the role of deterrence in the 21st century, assessing the role of nuclear weapons in U.S. national security strategy, and making recommendations as to the most appropriate strategic posture for the U.S. The work of the Commission will likely have a large impact on the subsequent Nuclear Posture Review (NPR).

The Department of Defense (DoD) is expected to begin its NPR shortly. This effort is scheduled to culminate in a report to Congress in early 2010. The NPR will provide an important opportunity to establish a consensus between the Administration and Congress on U.S. nuclear weapons policy and programs. In particular, the NPR will highlight how nuclear forces fit into a broader national security framework, taking into account U.S. military strategy, planning, and programming, as well as providing a basis for arms control objectives and negotiating positions.

A significant part of my job will be to participate in that national debate and to lay out a vision for our nation's nuclear security and non-proliferation goals. This vision is based on the reality that the nuclear debate is not just about warheads and the size of the stockpile. The vision emphasizes that we must increase our focus on nuclear security, or, within the NNSA, of evolving into a national security enterprise.

Where we are Today

I am very proud of the accomplishments of people who, over the preceding decades, enabled us to fulfill our vital stockpile mission. Today, our nuclear security laboratories and production plants ensure that American nuclear weapons are safe, secure and reliable, without the use of underground nuclear testing. The Stockpile Stewardship Program that allows us to maintain a nuclear weapons stockpile continues to evolve and improve with experience that we have gained over the past decade. To date, problems identified in the stockpile are being resolved utilizing Stockpile Stewardship Program scientific tools and design solutions have been incorporated into warhead Life Extension Programs (LEPs). This would not have been achieved without the high-caliber staff with access to world-leading science, technology, and engineering facilities. Continued assessment and certification without underground nuclear testing continues to be a grand challenge. With the end of the Cold War and the dawn of the 21st Century, our national security investments in support of strategic deterrence must now advance to address an unpredictable international environment, persistent proliferation dangers, and emerging nuclear capabilities in other areas of the world that could threaten vital American and allied interests and international peace and security.

Today, one of our biggest challenges is the absence of a national consensus on the current and future role of our nuclear deterrent or on the implications of our nuclear posture for U.S. nonproliferation obligations/objectives. We must ensure our evolving strategic posture places the stewardship of our nuclear arsenal, nonproliferation programs, missile defenses, and the international arms control objectives into one comprehensive strategy that protects the American people and our allies.

The core capabilities and expertise in our nuclear security enterprise, developed over six decades, will contribute even more to this comprehensive strategy in the future. To date, our stockpile stewards and stewardship tools have:

- Enabled critical global nuclear threat reduction efforts,
- Supported nonproliferation, arms control, and nuclear counterterrorism advancements, and
- Contributed to a broad array of national security goals well beyond nuclear weapons.

To fulfill our responsibilities, we must actively exercise certain capabilities requisite to the retention of skills critical to our nuclear deterrent. These include the capabilities to design and certify nuclear warheads at facilities that apply leading-edge computational, experimental, and other science-based competencies; to manufacture essential weapon parts, such as plutonium and uranium components, in safe, responsive and less-costly production plants; and to safely and securely assemble, disassemble, and transport warheads and their components as needed to support our surveillance, life-extension, and dismantlement objectives.

These capabilities support many more U.S. national security requirements than the direct needs of the nuclear weapons stockpile. For example, these capabilities provide critical support to nuclear counter-terrorism and incident response activities. NNSA gets an increasing number of requests for support both nationally – from the Department of Homeland Security (DHS), Federal Bureau of Investigation (FBI) and other federal, state and local law enforcement and emergency response agencies – and internationally. To meet the increasing demand for nuclear and radiological experts, NNSA relies on staff who are resident at nuclear security enterprise sites, particularly the nuclear security laboratories. These personnel provide the core expertise for emergency response and nuclear counter terrorism programs. Moreover, the expertise that is resident in the laboratories is a key element in the development of new equipment and operational techniques that counter-terrorism experts depend on for maintaining their state-of-the-art response capabilities.

However, the nuclear security enterprise remains at a crossroads. While we are meeting safety, security, and basic Department of Defense (DoD) requirements today, the present enterprise is too inefficient, too old, and too costly to sustain without changes. Special nuclear materials (SNM) are present at more sites than we believe necessary, and while we are already taking steps to consolidate these materials, more remains to be done. After September 11th, security has been enhanced and SNM has become more and more expensive to secure. Some facilities, sized to support a large Cold War-era stockpile, are no longer necessary or affordable. Without transformation, ever-increasing funds will be required to secure a greater perimeter than needed, maintain more square footage than is efficient, and sustain facilities well beyond their economic lifetimes. We need to dispose of hundreds of out-dated buildings. We need to accelerate the fundamental

transformation of our nuclear security enterprise over the next 10 years to sustain essential capabilities and to assure a safe, secure and reliable nuclear deterrent -- one that does not require underground nuclear testing; that resolves current stockpile and production challenges; and preserves our deterrent with fewer weapons.

Shaping the Future

NNSA has proposed a planning scenario for the future nuclear security enterprise. Our vision for the future remains a *smaller, safer, more secure and less expensive enterprise that leverages the scientific and technical capabilities of our workforce to meet all our national security requirements,* and to actualize this vision our objective is to transform as rapidly as practical, with many actions being completed over the next 10 years. These efforts will lead to the creation of an enterprise providing benefit to all entities that have a role in protecting America's security interests.

Our future deterrent will be based upon the *capability* and *flexibility* to respond to varying national security situations. Given the smaller stockpile expected in the future, the nuclear security enterprise of tomorrow will be more defined by the capabilities that must be sustained rather than by specific throughput capacities that must be achieved. Our vision of the enterprise is critical not only to accomplish our nuclear weapons mission, but also to perform our work in the areas of non-proliferation, nuclear incident response, nuclear forensics, and support to the intelligence community. Our approach to achieve this vision rests on four pillars:

- Transform the nuclear stockpile through the Stockpile Stewardship Program in partnership with the Department of Defense,
- Transform to a modernized, cost-effective nuclear security enterprise to support needed capabilities in our physical infrastructure,
- Create an integrated, interdependent enterprise that employs best business practices to maximize efficiency and minimize costs, and
- Advance the science and technology base that is the cornerstone of our nuclear deterrence and remains essential for long-term national security.

Changes have been underway for some time. Past transformational activities include closing the Pinellas, Florida plant and consolidating non-nuclear operations at our Kansas City Plant; closing our pit production facility at Rocky Flats, Colorado; closing operations at Mound, Ohio; and, ending special nuclear material production at Hanford, WA, Oak Ridge, TN, and Savannah River, SC. Also with support from Congress, we initiated development of major new research and development (R&D) facilities, such as the National Ignition Facility, required to support our Stockpile Stewardship Program without the use of underground testing. These earlier actions started the process of changing the face of our nuclear security enterprise.

One recent example of continuing progress in changing the face of the nuclear security enterprise is completion of the process to help us evaluate the restructuring of our SNM

and R&D facilities. This process was informed by a *Complex Transformation Supplemental Programmatic Environmental Impact Statement,* or "SPEIS," and thousands of pages of business case analyses openly shared with the public. One of our primary objectives was to restructure facilities containing large quantities of SNM that are costly to secure. Restructuring of major R&D facilities was also an objective in order to eliminate unnecessary and costly redundancy across the enterprise. More than two thousand people participated in the more than 84 hours of public meetings held last year as part of this environmental assessment process. We received more than 100,000 comment documents on our proposed plans. As selected through the process, production "centers of excellence" for plutonium, uranium, tritium, and assembly/disassembly of weapons will be created to support the nuclear security mission.

To preserve intellectual competition and robust, rigorous peer review, two independent design/certification "centers of excellence" will be maintained for nuclear development and assessment. The process confirmed the need to reduce the amount of space protected by high-security perimeters, the acreage of testing sites, and square footage of buildings in today's enterprise. Also, the process affirmed that the facilities providing our future warhead stewardship and production capabilities need to be modern, safe, and secure. Finally, the enterprise of the future will be integrated and interdependent to apply leading-edge science and technology to maintain the nuclear security capabilities that are essential to our nation.

In addition to the fundamental technical challenges of maintaining a nuclear deterrent, the costs simply to maintain the *current* physical infrastructure continue to rise; we cannot afford the status quo. Our challenge is to *move from a nuclear complex designed for the Cold War to a 21st century enterprise that is at the forefront of science and technology and responsive to our current and future nuclear security requirements.* Several of the specific challenges we face are:

- Our uranium facilities date back to the Manhattan Project of the 1940s. Securing these facilities against terrorist threats, as well as addressing safety basis deficiencies, is increasingly difficult and costly. Future nuclear security mission work will require a uranium capability. For example, uranium facilities in Oak Ridge, TN, where our warhead dismantlement work is accomplished, are vital to support the Naval Nuclear Propulsion mission. The sooner that the existing, antiquated facilities are replaced, the sooner we will be able to realize the full security, safety and cost benefits of consolidating uranium activities into a smaller security and facility footprint.
- Our newest plutonium facility is thirty years old and one Los Alamos research building (Chemistry and Metallurgy Research) dates from the early 1950s and has served well beyond its economic lifetime. A plutonium capability is a core competency that must be retained. Independent of the quantity of pits needed in the future, we need the Chemistry and Metallurgy Research Replacement – Nuclear Facility to consolidate our plutonium capabilities as we (1) remove Category I/II quantities of plutonium from Lawrence Livermore National Laboratory's "Superblock," (2) close the existing Chemistry and Metallurgy

Research (CMR) facility, and (3) consolidate plutonium operations within Los Alamos. Sustaining this capability is both complex and technologically challenging. In addition, maintaining a capability means maintaining the skills of the people who understand plutonium, including both plutonium research and component manufacturing. In the end, we are best served by exercising the capability to conduct advanced plutonium research and to manufacture plutonium components in facilities designed to meet 21st Century security, safety and health requirements.

- Security, both physical and cyber, will continue to require substantial resources unless we move away from maintaining a Cold War infrastructure. The current enterprise, including some Manhattan Project facilities, is not optimized to provide both a robust and cost-effective security posture.
- Similarly, assuring the nuclear safety of our enterprise will become increasingly challenging and more costly until we replace aging facilities with new ones built to modern standards with more engineered safety features. Thus, replacing Cold War-era uranium and plutonium facilities is a key element of our long-term strategy to enhance nuclear safety and security at a sustainable cost.

Our Most Important Resource - People

Our actions to achieve our vision must include much more than our physical infrastructure. We must also address our most important resource--our people. We are able to solve complex problems and improve on our national security capabilities because we have scientific and technical talent beyond comparison. The people at our nuclear security laboratories and production plants are truly world leaders in the science and technology that sustain our nuclear deterrent that helps keep America safe from hostile threats. Enabled by our core weapons-related programs, these same individuals are able to apply their skills and experience in other areas of national security importance, such as maintaining state-of-the-art emergency response capabilities, nonproliferation research and development, nuclear forensics, threat reduction technology, and analytical nuclear counterterrorism support to the intelligence community.

Maintaining the science and technology base provided by personnel at our nuclear security laboratories and plants is essential. For more than a decade, a comprehensive science-based approach – the Stockpile Stewardship Program – has been the foundation for the continued viability of the stockpile. While focusing on this core weapons mission, people at our labs and plants have also provided many technological solutions to broader national security challenges. These solutions were derived from the capabilities developed as part of our weapons mission. The scientific capabilities resident in our highly-skilled workforce and infrastructure are a unique and very valuable national resource.

For example, our Defense Nuclear Nonproliferation program also uses the specialized technical experts and capabilities of the nuclear security enterprise to support its international nuclear nonproliferation mission. Specific examples include:

- Utilizing technical expertise and assessments to support NNSA's statutory export control obligations through technical export license reviews,
- Employing material attractiveness studies; security measures, practices, and assessments; equipment-testing capabilities; and technical and practical know-how in support of nuclear and radiological security programs,
- Leveraging weapons program-facilitated resources to advance our understanding of technical issues and impacts associated with potential future arms control monitoring and verification activities, and
- Incorporating lab-based technical assessments and nuclear weapons expertise into efforts to mitigate programs of concern such as Iran's and North Korea's.

As we look to updating and reducing the cost of maintaining our nuclear security infrastructure, we need to be vigilant in order to prevent any unintended weakening of our scientific foundation. However, we believe that the greatest potential for long-term damage to our scientific capabilities arises from taking no action. Simply stated, the overhead costs of maintaining our existing infrastructure are just too large, and are growing. Over time, this reduces the funds available for staffing levels required for direct mission work including our science base. We must selectively fund some near-term capital investments to solve this problem for the long-term.

Over the past two years we have increased our science and engineering planning to ensure that we protect essential scientific capabilities during consolidation and change. We recently announced a "Laboratory Vision for the Future" to address some of these concerns. I appointed a senior science advisor, who reports directly to me, to focus on sustaining our science base and the people that are the foundation of it. We are actively seeking strategic partnerships with other Department of Energy entities and federal agencies to better leverage and sustain critical competencies at our laboratories.

Why Transform Now – Why Not Wait?

Maintaining required nuclear security capabilities has a greater impact on the minimum size of our facilities and workforce than throughput capacity. Neither our workforce numbers nor facility square footage scale linearly with the size of the stockpile. In today's era of small stockpiles, the required square footage in an up-to-date facility for a minimum, essential capability frequently provides sufficient capacity to meet our future requirements. For example, the Uranium Processing Facility (UPF) is being designed to provide minimum essential capabilities that by their very existence in a modern facility are able to support the likely range of future stockpile projections. This basic facility is also instrumental in consolidating the current uranium missions for Naval Reactors fuel production, Defense Nuclear Nonproliferation's highly-enriched uranium blend-down, and work for others, including medical isotope production. Because our focus is on sustaining and modernizing a set of efficient production capabilities and not on establishing a specified production rate, we are confident that many changes in the infrastructure can proceed while a more precise size and composition of our stockpile is defined in the coming years.

Reducing Costs While Going Forward

Realigning our capital and business infrastructure takes time and some initial investments must be made in replacement facilities or business processes before significant savings are realized. In the long-term, this realignment will reduce staffing and overall costs with much less impact on capabilities by eliminating maintenance on buildings no longer needed, security on unnecessary fence lines, or inefficient business practices. Based on extensive business evaluations that have been shared with the public, our proposed transformation path offers the lowest overall cost and risk going forward. That is why we are planning to move forward with preparations for infrastructure changes where costs are not dependent on the size or composition of our future stockpile. As the reports of the Bipartisan Congressional Commission on the U.S. Strategic Posture and subsequent Nuclear Posture Review are completed this year, we will continue to look for opportunities to further reduce costs.

We propose to implement transformation within our budget projections, assuming, of course, that savings from early transformation actions (e.g., supply chain management improvements, SNM consolidation, and non-nuclear production transformation) are available to be reinvested. We propose to pay for transformation through a combination of the following:

- Infrastructure savings through footprint reductions, replacement of buildings that are long past their economic lifetimes, and updated cost-sharing models for work-for-others customers,
- Reduced overhead costs through contract reforms, improved risk management strategies, greater business practice uniformity, improvements in product assurance processes, and commodity purchase savings through a supply chain management center,
- Review by DoD and Department of Energy of alternative stockpile weapons mixes,
- Reductions in staff supporting weapons activities through attrition and reassignment to other national security missions, and
- Optimization of federal staffing enabled by contract reform and improved line oversight of contractor assurance systems.

In short, these changes require us to reform our current business practices and consolidate the nuclear security enterprise while we ensure that our most important resource – our people – are energized and challenged.

What if We Don't Transform?

What will happen if we do not transform and just maintain the status quo? The short answer is *we will reach the point where NNSA will be unable to perform America's nuclear security mission, including maintaining the nuclear deterrent.* Every year the costs to maintain, operate and secure our physical infrastructure continue to rise. The

JASONs, an independent group of scientists that advises the government, the Defense Nuclear Facilities Safety Board (DNSFB), the Defense Science Board and the Secretary of Energy Advisory Board have all issued reports or findings over the past several years highlighting the need for changes in NNSA and the nuclear security enterprise. Delay in beginning this phase of transformation will only increase the costs and risks of maintaining the nuclear deterrent.

We cannot continue to do 21st Century national security business with a 50-year-old Cold War infrastructure. The need for sustaining future plutonium and uranium capabilities is without question. One common thread among all these experts is the agreement that we will need these capabilities to maintain our nuclear deterrent. Take the 50-year-old Chemistry and Metallurgy Research (CMR) Facility at Los Alamos, for example. The DNSFB has clearly stated that the CMR has significant safety issues which cannot be addressed in the existing structure. Similar issues exist at Y-12 with regards to Building 9212, which currently houses many of our legacy uranium processing operations. The country can not afford to wait any longer.

Conclusion

As Administrator, I am responsible for sustaining our capabilities that support the Nation's commitment to maintain the lowest number of nuclear weapons consistent with U.S. national security requirements. Since my first day as acting Deputy Administrator for Defense Programs, I have taken a long hard look at the nuclear security enterprise, and where we need to be. I am convinced that what I have outlined here is the best path. And I also feel that the need for change is urgent. We must stop pouring money into an old, Cold War complex that is too big and too expensive.

This will not be easy, but the key to successfully meeting our mission is to ensure that we become a *smaller, safer, more secure, and less expensive enterprise that leverages the scientific and technical capabilities of our workforce to meet all our national security requirements.* We need buildings, methods and materials that are safer for our workers than those used during the Cold War.

Our dedicated workforce is the key to transformation and its success. They will be the agents of transformation and their insights, experience and proven dedication will be needed to carry it out. Their expertise constitutes a key element of our nation's national security. In the end it all comes down to people and unsurpassed technical capabilities. It comes down to maintaining and attracting the best people in this country, doing incredibly challenging and important work for our Nation's security. And it comes down to good stewardship, retiring large Cold War-era facilities and modernizing the infrastructure that our people rely on for "Getting the Job Done."

Thank you, I'll be happy to take your questions.

Mr. VISCLOSKY. Dr. Beckner.

Mr. BECKNER. Thank you, Mr. Chairman. I am Everet Beckner. I have been a part of NNSA, I have been part of the Department of Energy, I have been part of the U.K. Nuclear weapons program. These days I am a private citizen and happy to be here this afternoon.

I am going to take a somewhat different approach in my testimony. I provided the written testimony, which has details of most of what I will talk about this afternoon, but I was asked to think about ways that came to my mind on the basis of 30-plus years' experience in the business that might be approachable in terms of better ways to operate the complex, provide the national security that is required with less money, because it seems to be a trend in play right now which is very hard to deny, and that is the budget is getting smaller and has been getting smaller for about the last 5 years.

There is every indication that we don't yet know what size the nuclear weapon stockpile is going to be in the future, so it is hard to argue that there is a place where you simply have to stop and put a floor under this budget, but for the time being, let us look—or at least what I have tried to do is to look for areas where it might be possible to make some changes. And in particular, I think you have to start with some changes in the way you think about the complex.

Historically we have felt that the nuclear weapon complex had to be able to respond to any contingency that could come upon the scene. And so we funded it, and we expected that to be there with all the capabilities that might be required for whoever the enemy might be. For many years it was clear who the enemy was. These years it is not nearly so clear.

So I think it has become obvious to all of us that the complex is too large for the world that we live in today, but the question is what can you do to protect the country so that you can assure the President that you have a nuclear weapons capability second to none and that can be responsive; that is safe, secure and reliable? And yet you say you want do it with less money or with a smaller budget.

I believe where you have to look is to the question of full capability to confront any situation that might arise, because you can't have it both ways. You can't have capability that covers all contingencies and at the same time argue that the budget must continue to go down. So I don't think this has to be cataclysmic; I think it is something you have to think through carefully and say, can we get by with a little bit of this, a little bit less of this, or a little bit less of this and still provide a safe, secure, reliable stockpile that meets the President's requirements? That is really the confrontation we are having here.

So let me give you a few ideas. Clearly you are going to have to find ways to reduce the complex. The committee has indicated it doesn't want to buy into all of the transformational ideas until it knows more about the Nuclear Posture Review, and that then would lead to the size of the stockpile. Well, those answers aren't going to be in hand for another 6 months or so. So you are here today having to make decisions about a stockpile that is going to

be different, I think, in 6 to 12 months, or at least the stockpile requirement that is likely to be different in 6 to 12 months.

I am left then with the proposition that you examine the major facilities that are presently contemplated at all of the sites and look for ways to take out what I would call excessive contingency planning, because I think NNSA really has scrubbed their projects to get them as small as they reasonably can be to cover all of the things that seem to be in front of the Nation, but you can't have it both ways. You cannot continue to shrink the complex and expect everything to be the way it was when you were spending an additional billion dollars about the time I left, 4 years ago.

To be a little more specific, you have three major projects, major nuclear projects, on the books right now, PDCF, the Plutonium Disposition and Conversion Facility; you have UPF at the Y–12 facility, which is a uranium facility; and you have the plutonium facility at Los Alamos, major facilities that will cost 2 billion and up each. Those, I think, have to be scrutinized further to see if there is any way to take additional money out of them, because the budget cannot swallow those three projects as presently aligned.

You go beyond that to all of the production requirements, you are going to have to look ahead to the stockpile that will be in hand a few years from now and ask can you get by with less total capability in the production complex? That then will lead you to the question of do you have more tritium capability than required? Because a smaller stockpile doesn't require as much tritium. So you can twist this many ways, but you are going to have to recognize all along that you are giving up something when you do that.

Now let's talk about two or three things that are not so obvious in these discussions. I will bring up one that I am sure I will be challenged upon, and that is the security requirements. I believe they, too, need to be looked at again, because in the past 8 years the security budget in NNSA has tripled. It has gone from $300 million to $900 million since 9/11. I think everybody believes, well, you can't have too much security. But pretty soon you can't afford all of this. So I would argue that you go back and look at it again, and at the very least compare it with the way that DOD does security. They have nuclear weapons in their custody. NNSA has nuclear weapons in their custody. We should make those two requirement sets, if not the same, pretty close to it, and at present I think NNSA is spending a lot more money than the DOD is.

Other possibilities. I see two areas where I think NNSA could get some help with its programs, meaning some other ways of paying for work that it is presently paying for out of its own budget. In particular the President has brought forward the proposition that the DOE needs to conduct a more vigorous fusion research program. Well, it just so happens that NNSA is about to bring into operation the world's biggest and, I think, finest inertial confinement fusion facility at Lawrence Livermore. It would seem to me that this new fusion initiative in DOE should be in a position to pay part of the bill, because the fusion activities at NIF are going to be very relevant to fusion questions the world over. So maybe that program, the civilian side, could pick up part of the bill of the Inertial Confinement Fusion Program.

Similarly, but a little different, it turns out the Naval Reactor Program and the Nuclear Nonproliferation Programs both get work done at the Y–12 plant, which is funded by NNSA defense programs. So in the spirit of, you know, paying the bill, the person paying the bill who gets the benefit, I think that would perhaps save you a little money as well.

I think I have to raise the question of whether the whole concept upon which NNSA was founded, namely semiautonomy, needs to be reopened. I think it was a compromise at the time. I think you have ended up with too much duplication and capability between DOE and NNSA, and it is costing money. You have two general counsel's offices. You have got a lot of administrative functions that are duplicative. You have got a lot of oversight that is duplicative between DOE and NNSA. I would argue it is time it look at what NNSA was intended to be able to do and what, in fact, it is now organized to do.

Finally, I think I would echo some of what Administrator D'Agostino said about the transformation program. The committee has been reluctant to move vigorously on this. NNSA has worked very hard to find a way to bring forward a plan to shrink the complex. It takes money up front to save money later, and I think if you merely look at those front-running programs that could be brought forward which would pay back the expenditure, I would argue, in the next 5 to 10 years, that is money well spent. And I would just urge that you take a hard look at what has been brought forward in that program and see if you can't find a way to fund it so that you can get on with changing the complex.

That covers most of what I had to say today. The remainder is in my written testimony, and, of course, I am available for questions.

Mr. VISCLOSKY. I appreciate it very much.

[The information follows:]

Testimony presented to the House Energy and Water Development Appropriations Subcommittee

BY: Dr. Everet H. Beckner

Chairman Visclosky, it is a privilege to appear before this Subcommittee today to provide my views on the important topic of this hearing: Reducing the cost of the US nuclear weapons complex.

As some of you know, I held the position of NNSA Deputy Administrator of Defense Programs, from early in 2002 until my retirement from NNSA at the end of March, 2005. Prior to that period of government service, I was Deputy Managing Director of the UK Atomic Weapons Laboratory from early in 2000 till the end of 2001. I also served as the DOE Principal Deputy Assistant Secretary for Defense Programs from 1991 until the end of 1995. Earlier, I was employed by Sandia National Laboratories for 30 years, with my final position being that of Vice President for Weapons Programs. Although retired from full-time employment for the past four years, I have been active in several advisory capacities to various government programs such that I am reasonably informed of the details of the present NNSA programs and the DoD requirements for the nation's nuclear weapons stockpile.

INTRODUCTION:

I was requested by the staff of your committee to testify today on the subject of how, within the financial limitations that appear to be upon NNSA, it may be possible to reduce costs and still execute the programs required to assure the President that the nuclear weapon program is strong and durable, and that the stockpile is safe, secure and reliable.

Before going into the details of my answer, let me first say that the foundation of NNSA's capability to deliver on its commitments now and in the future resides in the technical staff in the program. Nothing is more important for the long term health of the program than to retain the outstanding people presently in the program, especially the contractor workforce but also in federal employment, and to be able to recruit their replacements when the time comes. I will have much to say later about several key NNSA facilities and the funds required to maintain them. However, in the constrained NNSA budget environment which this committee is contemplating, it may be necessary at this time to postpone or re-plan desirable facility acquisitions or improvements in order to be certain not to sacrifice brains for buildings.

It is equally important to recognize that these people must have challenging work to do if they are to be capable of performing the job the country requires. It cannot just be busy work, or routine meter-reading work. We are talking here about the foundational capability to assure the President that the nation's nuclear weapons capability is sound, and that the weapons are safe, secure and reliable. That is a very hard job, which requires the nation's best people working on hard problems to retain their technical excellence. However, you cannot expect the

keep good people on a job, no matter how important, unless they have challenging work to do.

PROBLEMS TO CONSIDER:

I will not elaborate on the many things that come to mind when attempting to answer the question posed. Rather, I will focus on 10 major problems which I believe provide the opportunity, although not without making sacrifices, to reduce NNSA operating costs by many hundred million dollars per year, without requiring any of its core activities to be terminated or even greatly reduced, and which would also allow NNSA to deliver on its commitments to maintain a strong nuclear weapon program and to assure stockpile safety, security and reliability.

I have listed here 10 problems, the solutions of which I believe have the potential to yield substantial savings for NNSA, if implemented soon. They are ordered such that the largest potential savings are presented first, with smaller potential savings coming later.

1. **Due to unacceptably high projected construction and operating costs, NNSA should re-plan and re-site PDCF at SRP**. PDCF is the Plutonium Disposition and Conversion Facility presently in design and planned for construction at the Savannah River Plant (SRP). It is intended to receive surplus plutonium pits following the dismantlement of weapons at Pantex, and to process them to yield plutonium oxide for feedstock at the mixed-oxide (MOX) fuel fabrication facility. Responsibility for the PDCF was shifted to NNSA/Defense Programs last year by congress, after being in design for several years in NNSA/NN. It is presently thought to be well over its intended budget, by perhaps a billion dollars, or more.

   The Solution: This project is being planned to accommodate destruction of all the various pit types in storage at Pantex or presently in the stockpile, including those which, in fact, are quite complex and difficult to disassemble and convert to Pu-oxide of an acceptable form for feedstock to the MOX facility. The project should be re-planned such that it has equipment and processes to accommodate only the high-population, easy-to-process pits, leaving the difficult pits to be processed at LANL, where both equipment and skilled personnel are available for this highly specialized job. In fact, this still sends the majority of the pits to PDCF to be processed, but only the ones which can be processed with the least difficulty and at the lowest cost Also, the present siting for PDCF is a green-field site, which requires a new PIDAS security structure and system, as well as a new, large CAT I/II building, whereas a smaller, less complex PDCF could probably be sited within an existing PIDAS and CAT I/II facility at the K-Area Reactor building.

2. **Due to unacceptably high projected construction and operating costs, NNSA should defer construction, down-size the planned operating spaces, reduce contingency space and re-assess security savings of UPF at Y12 Plant, based on the new NPR (Nuclear Posture Review).** The UPF (Uranium Processing Facility) project is a large, enriched uranium processing facility at the Y12 plant, intended to replace existing facilities (bldg 9212, among others) which are very old and were originally designed with standards that are unacceptable today in both safety and security features. However, the design was started several years ago when the work load appeared to be considerably larger than now appears to be the case.

   The solution: It appears the UPF design can be down-sized to accommodate the future workload and work scope, resulting in substantial cost savings. It appears that the present UPF design is at least 25% too big in its planned work spaces, contains too much contingency space, and is too complex, including a massive commitment to glove box operations beyond the present operational concepts at Y12. Also, since UPF cannot be completed until the most significant manufacturing requirement for UPF will have been completed (namely, the W76-1 Live Extension program), re-scoping and delaying the UPF project will not significantly delay NNSA deliverables to the stockpile. It does appear that the re-sized UPF should be constructed at Y12, rather than moved to Pantex or another nuclear operations site, since the recent construction costs of the new storage facility (HEUMF) were high, and that storage facility would also have to be replicated at whatever site is chosen for UPF.

3. **Due to extremely high security costs at all its sites, NNSA should re-visit the strategies and analysis tools which have been used by DOE and NNSA to specify requirements which have, either directly or indirectly, resulted in massive security upgrades of facilities and force levels**. Following the attack on the Twin Towers in NYC on 9/11/01, the security standards required by DOE and NNSA were substantially upgraded – not once, but twice. In response, there have been many facility upgrades to improve security, as well as much more rigorous standards required of facility operations involving SNM (special nuclear materials). The result has been an increase in the NNSA security budget from approximately $300 million to approximately $900 million per year.

   The solution: NNSA should team with those elements of the DOD responsible for nuclear weapon security (both the Navy and the Air Force) to develop a set of facility and operational standards which apply to both agencies, with due allowance taken for the nature of the nuclear material being secured and the differences between military and civilian security force operations.

4. **To reduce its budget requirements, and in response to the smaller stockpile anticipated with the new NPR, NNSA should re-plan the production requirements for**

the plants and the lab support (this should specifically include CMRR/NF and UPF). The operational requirements and the major facilities requirements presently being planned by NNSA and its contractors (both nuclear and non-nuclear facilities) have probably not been reduced in size and scope to fully reflect the NPR presently being developed by the Administration.

The solution: In addition to the potential down-sizing of several proposed NNSA facilities, this proposed re-planning will further reduce manpower requirements, material purchases and plant requirements, especially at the Kansas City Plant and the Y12 Plant, as well as the tritium requirements from the Savannah River Plant and neutron generator requirements from Sandia. It will not impact the Pantex Plant as much since the new NPR will probably also increase the dismantlement workload. This increased dismantlement workload can be accommodated at the Y12 plant by putting more secondaries into storage in the new HEUMF storage facility and dismantling them when time and space permits. Also, the reduced workload at the Kansas City Plant will bring into question the need for the proposed 3rd-party financed manufacturing facility at that site.

5. **NNSA should re-examine and reduce the fee-structure for its Management and Operating (M&O) contracts, while simultaneously reducing the federal oversight.** Early in this decade, at the urging of the congress (especially the House of Representatives), the NNSA raised its fee-structure for M&O contracts, ostensibly to encourage greater responsibility for operational results being assigned to the M&O contractors, and suggested that there could thereby be less oversight and management control from NNSA. The results have not been as anticipated, largely because the DOE and NNSA management and the congress have continued to insist upon endless inspections and oversight activities by the federal government. The only obvious change is that some award fees for these contractors now exceed $50 million/year for a given contractor, where in the past they may have been between 1 and 10 million dollars.

   The solution: Two things need to be changed: the award fees need to be reduced by at least a factor of two; and, DOE and NNSA and the congress need to coordinate and reduce their oversight and inspections in such a way that these highly intrusive and expensive activities are reduced by at least a factor of four. The present arrangement encourages the contractors to focus on award fee criteria and on earning award fees, rather than focusing on providing service in the national interest.

6. **The move within the Obama Administration and the DOE to re-emphasize fusion research makes it obvious that NNSA should not be the only funder of the ICF program,** especially now that the LLNL NIF facility has come on line as an operating facility and the realities of its large operating costs must be confronted.

The solution: A substantial portion of the multi-hundred-million dollar/year operational expense at NIF should be picked up by the DOE Office of Science, since the work now underway has the potential for significant positive impact to the civilian fusion energy program objectives. (Obviously, the Office of Science would also manage the work that it funds). Much of the work at NIF will continue to be primarily focused on weapons physics and that work should continue to be funded by NNSA. However, perhaps as much as half of the ICF program expenses should now be borne by DOE/Office of Science, due to the large potential impact of work in the NNSA ICF program on the future of civilian fusion power.

7. **In a similar manner of insisting that the benefitting customer pay the appropriate bill for operations, the NR program within NNSA should pay for its operations at the Y12 Plant and the NN program within NNSA should pay for its operations at the Y12 Plant**. At present, most of these program costs at Y12 are being paid from the weapons budget.

   The solution: NNSA should determine the program costs for these two programs currently paid from the Defense Programs budget and instruct the respective NR and NN programs to transfer funds to DP this year to cover those costs. In subsequent years, the Y12 plant should bill the correct offices within NNSA for these program costs.

8. **During FY2007 and 2008, NNSA conducted an extensive NEPA study, under the Office of Transformation, to determine the major facility additions, modifications and/or improvements required by the weapons program in order to be agile, capable and cost effective in meeting its program obligations over the next 30-60 years. This activity culminated in a Record of Decision being issued late in CY2008. However, the Congress has indicated that it will be unwilling to consider any of those Decisions until the new NPR is issued and NNSA has aligned its programs to be consistent with that NPR. This leaves NNSA with a complex which is too large and too expensive to operate**.

   The solution: In order to move expeditiously toward the proper configuration and capacity for the weapons complex, Congress should study the full set of actions contained within the ROD and fund those that are obviously required by the smaller stockpile anticipated to be in the new NPR, so long as the pay-back period for each project so funded is less than 10 years. Several examples may be: the project to consolidate Major Environmental Test Facilities at the three labs, by reducing to one lab; and the footprint reduction project at the Tonopah Test Range, among others. Large projects which have longer pay-back periods could wait for funding until Congress is satisfied that they are consistent with the new NPR.

9. **The present semi-autonomous relationship (within DOE) directed by the Congress when NNSA was formed has created more problems than it has solved.** For instance, both entities (NNSA and DOE) have general counsel offices, as well as many redundancies within the administrative functions. There is great overlap as to who has responsibility for oversight at field operations. And it goes on and on. As a result, among other problems, the NNSA field offices are much larger than originally planned, and the M&O contractors are forced to staff their organizations to respond to all of this redundant oversight.

   The solution: Congress should instruct DOE and NNSA to vigorously and expeditiously study the re-organization of the NNSA to achieve full autonomy of the NNSA, reporting to the President either directly or through the DOE. Another alternative might be the recent recommendation from the Stimson task force to form an independent agency for National Security Applications. Or, if those are not the right answers, then NNSA should be re-absorbed back into the DOE.

10. **Due to reductions in the nuclear weapon stockpile, including those anticipated from the next NPR, NNSA has adequate quantities of tritium for many years to come and should not plan to operate the newly-constructed Tritium Recovery Facility at the Savannah River Plant for many years.**

    The solution: In spite of having only recently initiated hot operations at the plant, NNSA should put the newly-constructed Tritium Recovery Facility into cold standby, with the expectation to restart it when it becomes necessary to generate new tritium, in perhaps 10 years. Also, NNSA should downsize all operations at that plant, consistent with the NPR and with downsizing of other NNSA operations.

As I stated at the beginning of this testimony, this list of topics for consideration in seeking to reduce NNSA's near-term budget shortfall is by no means all-inclusive. It does contain the biggest potential budget impacting projects that I could identify. Also, some actions may already be underway within NNSA, of which I am not aware, to address some of these problems.

FINAL CONDITIONAL STATEMENT:

The overriding considerations upon which I have made these suggestions are the following: if the Congress and the Administration can agree that this is not a time to require NNSA to maintain capability and capacity to accommodate the normal broad range of contingencies, but rather to respond to troubling world events when they occur (with emergency appropriations, for instance, when necessary), it appears to me that all of these topics and the proposed solutions are deserving of serious consideration.

Mr. VISCLOSKY. Dr. Garwin.

Mr. GARWIN. Thank you, Mr. Chairman, Mr. Ranking Member. I welcome the opportunity to present my views on reducing the cost of the nuclear weapons complex. I submitted my written testimony for the record and draw on that for the spoken remarks.

First we need most for an effective, affordable nuclear weapons complex policy decisions on the size and nature of our nuclear weapons stockpile. This is an urgent responsibility of the National Security Council and has far-reaching impact not only on the weapon delivery systems of the Department of Defense and military forces, but on the National Nuclear Security Administration activities and facilities in creating, maintaining and disposing of those nuclear warheads and bombs.

The Security Council decision should take into account the report of the Congressional Commission on U.S. Strategic Posture expected April 1st, and should guide and also draw on the Nuclear Posture Review to be conducted by the Department of Defense.

As indicated in my written testimony, not only is the burden of maintenance reduced with much diminished numbers of nuclear weapons in the stockpile, but the nature of the stockpile depends on such decisions. For instance, if major modifications were to be made to the existing nuclear stockpile involving a new plutonium-containing nuclear pit, a production rate of 50 per year at the Los Alamos TA–55 plutonium facility would require 50 years of operation to modify half of a nuclear weapon force of 5,000 nuclear weapons.

It is essential to maintain surety of the nuclear weapons and the nuclear weapon materials against theft and misuse, but even if such modifications provided perfect surety for the modified or replaced nuclear weapons, they would have very little impact on the security of the Nation and the world because terrorists or thieves would concentrate on the weapons not yet modified or replaced. In contrast, if the total stockpile were 500 warheads and bombs, a production rate of 50 per year would replace the entire stockpile in 10 years.

And a third example. If the existing weapons could well be maintained and fully modernized by thoroughly tested modifications outside the nuclear explosive package, retaining the existing plutonium pits with only test production of new pits, so in warm standby mode that would permit the elimination of entire portions of the projected nuclear weapons complex.

My second point is that we must maintain and invest in people for the future, even if the nuclear stockpile is diminished in numbers. It is only by the contributions of vigorous, responsible scientists and engineers in the nuclear weapon laboratories that we can plan on keeping our nuclear weapons safe, secure and reliable.

These nuclear weapons experts will be doing a job of critical importance, and while they don't need luxury, they do need supporting tools of simulation and of experimental facilities both large and small. The ability to conduct nuclear explosion testing of our nuclear weapons would add little to our confidence in safety, security and reliability. So, as we have heard, we should not sacrifice brains for buildings, and I add we should not sacrifice brains for fee.

My third point is one of disagreement with the oft-heard statement that inevitably, with the passage of time since the last nuclear explosion test in 1992, our confidence in the safety and reliability of existing nuclear weapons is bound to decrease. Quite the contrary. In my opinion, our confidence is likely to increase with time because of the increased knowledge obtained from our advanced tools of simulation that experiment and the deeper understanding that the tools provide to our experts. This modernization of our understanding is accompanied by modernization of the existing weapons by replacement and enhancement of the non-nuclear components outside the nuclear explosive package. That includes the primary and the secondary of the nuclear weapon.

One example is the announcement by NNSA in late 2006—I got it wrong in my testimony, I said 2007—that the nuclear weapon laboratories had established that the plutonium pit at the heart of each of our nuclear weapons would last at least 85 years as contrasted with the number previously believed to be about 45 years. Likewise, the science-based Stockpile Stewardship Program has enabled the production at Los Alamos of new nuclear pits for the W88 missile warhead.

Fourth, as I indicated in the previous discussion of overall nuclear weapons surety as contrasted with the surety of individual weapons, the consideration of the replacement warhead program lacks a quantitative assessment of the benefit, the risk and the cost streams as new warheads are assumed to enter the force. There is lacking also a comparison with the overall impact of improved performance surety, for instance, that could be obtained sooner with existing weapons by improving the transport containers that protect the weapons during their most vulnerable time. Such bounding analyses can be carried out without detailed knowledge of possible replacement warheads.

Fifth, smaller nuclear weapons stockpiles will reduce the cost of the nuclear weapon complex only if that is a major goal of the NNSA and the Congress. Cost reductions can be achieved by increased collocation of production and design activities and by modular approaches to the task so that capabilities could be expanded by replication of bays, tools and staff, rather than by oversized new facilities for large-scale operations.

In the absence of guidance as to nuclear weapon numbers and types that I expect from the National Security Council, there is little rationale for an efficient program to modernize the nuclear weapons complex, and as a result we see competent officials and their support contractors recommending routine replacement and upgrading the facilities.

Large up-front expenditures that could accommodate massive programs that are unlikely to be realized are not in the national interest. More generally, the overall advance of U.S. national security and the U.S. National economy depends upon our countering the forces of industrial and local political support for expenditures in contrast with the normally diffuse, but more important interest in saving on each individual program.

Responsible and imaginative frugality is important both to our security and to our economy. In this regard I note that the recent withdrawal of Duke Energy in a February 27th, 2009, Securities

and Exchange Commission filing, from the program to fuel commercial power reactors with mixed oxide fuels, MOX, derived from excess weapon plutonium. I judge that all such work within DOE should cease. Considerations of plutonium fuel should be limited to its possible use in future breeder reactors if and when such can become competitive with existing light-water reactors in cost and safety. Security aspects of plutonium materials should be addressed primarily by consolidation rather than by disposition, either by use as MOX or by vitrification, and a commitment to a mined geological repository such as Yucca Mountain.

Thank you for your attention. Obviously I would be glad to answer questions and hear comments.

Mr. VISCLOSKY. Thank you for the information on Duke Power.

[The information follows:]

Testimony to the
HOUSE ENERGY AND WATER DEVELOPMENT APPROPRIATIONS SUBCOMMITTEE
Hearing on
REDUCING THE COST OF THE U.S. NUCLEAR WEAPONS COMPLEX
Room 2362B Rayburn

by Richard L. Garwin
www.fas.org/RLG/
March 17, 2009

Thank you for the opportunity to present my views on the relationship of nuclear weapon stockpile levels to the nature and cost of the infrastructure.

BACKGROUND

I am Richard L. Garwin. Since 1950 I have worked with the U.S. government on nuclear weapon technology. I have been involved also with radar and defenses against aircraft and missiles, and also with conventional forces, navigation, and arms control and nonproliferation. I chaired the State Department's Arms Control and Nonproliferation Advisory Board from 1993 to 2001, and I continue to work with the JASON group on its studies for NNSA. Most recently I was a member of The National Academies' Committee on nuclear weapons QMU (Quantification of Margins and Uncertainties); our report was published November 11, 2008[1]. My biography is appended to this testimony.

NUCLEAR WEAPONS ARE THE PURPOSE OF THE COMPLEX

The nuclear weapons complex (NWC) exists to support U.S. nuclear weapons. So long as nuclear weapons exist, the U.S. will (and should) have them, and must ensure that they are safe, secure, and reliable. The NWC must store and transport warheads that are no longer needed, dismantle them safely and in an environmentally acceptable fashion, and store valuable and hazardous materials until they are transferred to non-weapon use as we further reduce the number of our nuclear weapons.

The metal "pit" of each nuclear weapon primary contains kilograms of plutonium (Pu), and the secondary in general contains uranium enriched to varying degrees—some of it highly enriched uranium--HEU. Excess enriched uranium has intrinsic value for use in nuclear power plants, and both U.S. and Russian weapon uranium is used currently to fuel half of the nuclear power in the United States. Excess U.S. weapon Pu is stored initially in the form of pits at the PANTEX plant in Amarillo, TX, and will ultimately be disposed of either in the form of mixed-oxide fuel (MOX) for common power reactors, or will be immobilized by mixing with highly radioactive material and disposed of in a mined geologic repository, perhaps to be mined later for use in breeder reactors.

[1] http://books.nap.edu/catalog.php?record_id=12531

An essential requirement for Pu or HEU is secure storage—that it should be extremely well protected against theft by stealth or by force, theft that could make it available for use in improvised nuclear explosives that could well have yields like the bombs that destroyed Hiroshima and Nagasaki in 1945 and that could kill hundreds of thousands of people if detonated in a U.S. city. A comprehensive discussion of needs and means is to be found in the annual report, "Securing the Bomb 2008."[2] The nuclear weapons themselves must be protected to the utmost, and the experience of 2007 in which we lost track of 6 nuclear-armed advanced cruise missiles for 36 hours shows how necessary are the reforms ordered by Secretary Robert Gates. We need to ensure that U.S. nuclear weapons are not used against us.

THE FUTURE OF US NUCLEAR WEAPONS

The number of nuclear weapons in the stockpile strongly influences the required infrastructure, as does their nature. For instance in the single year 1959, 5646 nuclear bombs or missile warheads were added to the US stockpile[3]. Plutonium or highly enriched uranium (HEU), or both, need to be formed into metal of precise shape. Many intricate components are required to make a military nuclear bomb or warhead. Secure transport vehicles are needed to move the warheads; and guns, gates, and guards as well as the best available technologies to keep them secure. It is urgent to set the levels of nuclear weapons in the future in order to define the size and structure of the nuclear-weapon complex. Clearly it is not a function of NNSA or DOE to set the numbers of weapons, nor of the Defense Department. This needs to be done at the level of the National Security Council, which I hope will take into account the Nuclear Posture Review to be done by DOD and also the report of the Commission on Strategic Posture.

The heart of the Complex is not so much the land and the buildings, but the functions it carries out and the people necessary for those tasks.

THE SCIENCE-BASED STOCKPILE STEWARDSHIP PROGRAM

The Science-Based Stockpile Stewardship Program (SSP) was initiated about 1992 as the moratorium on nuclear testing began. SSP has been a tremendous success. New experimental capabilities, both bench scale and large facilities such as DARHT (the Dual-Axis Radiographic HydroTest facility at LANL) have combined with the million-fold increase in computer speed and advanced analytical and mathematical tools to enable far more sophisticated 3-D simulation of nuclear explosive phenomena. DARHT is not yet fully operational and the National Ignition Facility—NIF—has begun its campaign to reach ignition of tiny amounts of thermonuclear fuel. We are close to routine "button-to-boom" simulations, which, of course, to make any sense must be validated against experiment. The experimental base includes the more than 1000 underground nuclear explosions of the past, plus ongoing activities that include surrogate materials and so-

[2] www.nti.org/securingthebomb
[3] http://www.nrdc.org/nuclear/nudb/datab9.asp

called "sub-critical" experiments that may use segments of actual nuclear weapon primaries, for instance. Much work has gone into preserving and making available to the weapons experts at Los Alamos and Livermore the database of nuclear explosion testing and to archive the knowledge and wisdom of weapons experts.

More than buildings, more than facilities, it is the expert personnel who must be preserved and replaced in order to provide the judgment essential to maintaining a force of nuclear weapons that is safe, secure, and effective. This question is treated very well in a contribution by Marvin L. Adams and Sidney D. Drell, prepared for a joint study last year.[4] Such scientists and engineers, primarily at LANL and LLNL are essential to the informed judgment as to the legitimacy of small material substitutions, the adequacy of numerical simulation and the correlation with experiment, and the annual assessment that nuclear weapons are safe and reliable. These are the people who must play an increasing role in the determination of solutions to problems analyzed in the SFI (Significant Finding Investigations) and who must help to enforce "change control" over individuals and organizations who quite naturally want to ensure that the most modern technology is incorporated in these important nuclear weapon systems. In the past it has often been weapon designers who have played very important roles in dealing with the production facilities and in helping to solve problems that arise there. This has permitted modernization of the nuclear weapons stockpile, especially as regards elements outside the "nuclear package," and their involvement is essential for modifications or proposed repairs inside.

The experts have done much good and even inspired work, but they must be asked now to build an edifice of nuclear-weapon physics and understanding by more rigorous publications, sometimes in forms that respect the secrecy required in portions of a weapons program. The discipline of publication and the accessibility of published material to new members of this important cadre of nuclear weapons scientists and engineers are important to ensure that modifications and modernization contribute safety, surety, and reliability of our nuclear weapons.

One of the fruits of the SSP program is the announcement in late 2007 by NNSA that the weapon laboratories have established that the plutonium pit at the core of each of the U.S. nuclear weapons will survive more than 85 years. An ongoing result is the ability of the Directors of the weapon laboratories to assess each year that the weapons under the SSP remain safe and reliable. And we now have at LANL the proven capability to manufacture certifiable W88 replacement pits. The striking agreement of boost-cavity shape predicted by the simulation with that observed in radiography now and in PINEX tests before 1992 exemplifies the increase in understanding that makes it possible for some to imagine putting a new-design weapon into the stockpile without verification by nuclear explosion testing, provided that it is sufficiently "close" to designs that have had nuclear-explosion tests. Key to the ability to perform the annual assessment of stockpile weapons and to determine the performance of warheads yet to be built is the process of

[4] "Technical Issues in Keeping the Nuclear Stockpile Safe, Secure, and Reliable," by M.L. Adams and S.D. Drell. (http://cstsp.aaas.org/files/DrellAdamsBrief.pdf). The full report, "Nuclear Weapons in 21st Century U.S. National Security" is to be found at http://cstsp.aaas.org/content.html?contentid=1792.

"peer review" between the two U.S. nuclear-weapon-design labs—Los Alamos and Livermore. The peer-review team in one lab is tasked with analyzing the performance of a specific design or modification proposed by the other lab. Despite its essential role, peer review has not been formally funded, as it should be. When the peer review team is not actually engaged in the process, it should be building its skills and tools and might be used to evaluate some of the work of its own laboratory.

Of course problems are discovered in the SSP, and the so-called significant findings ("SF") are promptly investigated and resolved. Almost all of the significant findings have to do with elements outside the nuclear package, and these can be re-engineered, tested without nuclear yield as they always have been, and modified, with great care that they do not impact the performance of the nuclear package itself.

REPLACEMENT WARHEADS

With the knowledge gained from the SSP, NNSA undertook the design of the Reliable Replacement Warhead-- RRW-- with the constraint that it not require a nuclear explosion test. As I indicated in my December 2008 Arms Control Today article[5], I think the RRW design effort has energized the nuclear laboratories and is something that should be encouraged and repeated every five years or so. That does not mean that I believe that a replacement weapon could now be certified without a nuclear test, a question that depends on the detailed design and probably on the acquisition of more expertise under the SSP. Quite independent of the feasibility of introducing a new nuclear warhead without nuclear explosion testing, though, is the determination of benefits and costs of doing so. An improvement in an individual nuclear weapon does not automatically extend to the entire fleet of nuclear weapons, and this is particularly true of surety improvements against nuclear theft and misuse. We will discuss this later.

Replacement warheads are likely to be motivated by and to include capabilities such as those in a January 2008 description by Bruce T. Goodwin at LLNL:

> *"The goal of the RRW approach is to replace aging warheads with ones manufactured from materials that are more readily available and more environmentally benign than those used in current designs. RRWs can include advanced safety and security technologies, and they are designed to provide large performance margins for all key potential failure modes. Large margins enhance weapons reliability and help to ensure that underground nuclear testing will not be required for design certification."*

REPLACEMENT WEAPONS AS AN OPTION, NOT A NECESSITY

I see replacement weapons as an option and not a necessity. The apparent disagreement with a statement by Defense Secretary Robert Gates,

> *"there is absolutely no way we can maintain a credible deterrent and reduce the number of weapons in our stockpile without either resorting to testing our stockpile or pursuing a modernization program."*

[5] http://www.armscontrol.org/act/2008_12/Garwin

may be due to the interpretation of "modernization." We have, of course, long been modernizing our weapons, but every "improvement" or fix to a nuclear weapon must be thoroughly reviewed. It is costly and potentially hazardous to open a nuclear weapon and then to reseal it, so that modifications that will extend the life of the weapon or improve the performance, even though they deal with elements outside the nuclear package but within the outer skin of the warhead or the bomb, must be evaluated and often are done in batch mode, rather than individual modifications.

Assuming the U.S. continues to have nuclear weapons, it is unrealistic to expect that every plastic part, insulated wire, or lubricated mechanism will work perfectly 20 or more years from now. Indeed, there has been from the earliest days an ongoing stockpile surveillance program that guided modifications of weapons or motivated replacement by a new weapon development if it was not worthwhile to remanufacture or replace parts; in the days of nuclear explosion testing, the replacement warhead was tested in development and eventually after manufacture, a production verification test would be conducted on a weapon headed for the stockpile.

Without nuclear testing, replacement parts outside the "nuclear package" that contains the weapon primary and secondary can be replaced by identical, qualified parts; or a major non-nuclear system or subsystem might be replaced by a new-development system that could be thoroughly tested without a nuclear explosion, as was always the case. The choice between replacement and substitution should be based on cost of new development and of fabrication, and the forecast benefits of longer life and reduced surveillance costs, all the while ensuring that current standards of safety, security and effectiveness are maintained – and, if possible, improved. These overall benefits are clearly less with a smaller stockpile, which makes it more difficult to amortize the up-front development and first-item manufacturing costs across a smaller stockpile, in comparison with a strategy of replacement with identical components. Such modifications are usually packaged in a Life Extension Program—LEP—for a particular weapon type. Modern simulation using the NNSA massive computing capability should then be done to determine the behavior (nuclear yield) of the warheads as built—including any accumulated changes to the warhead.

Thus modernization of the many parts of the warhead outside the nuclear package is neither inhibited by the absence of nuclear tests, nor would it be helped by nuclear testing. Batteries, fuzing systems, radars, can all be modernized, and because the replacements are usually smaller and lighter, they may be accompanied by dead weight to maintain warhead weight and balance. Within the nuclear package I have long favored replication—remanufacture to original specifications and dimensions, with a strong discipline of "change control." With declining stockpiles there is the possibility of reuse of parts that would otherwise need to be remanufactured.

In short, I believe that the existing weapons can remain closer to their test pedigree than a replacement weapon will be to any specific nuclear test, and that responsible choice of modifications to the existing weapons would result in *increased* confidence in their performance with time, rather than the *erosion* of confidence. It has long been advocated

to increase the margins against failure for the existing weapons, primarily by a substitution of a different type of reservoir for the deuterium-tritium "boost gas," and this is now happening. Although the *margins* for a replacement warhead can be larger than in some existing weapons, the *uncertainties* are also larger because the exact configuration has not had a nuclear test.

It will always be to someone's bureaucratic interest to claim that a new device or system is better and more reliable than the existing system, and that the existing system cannot be responsibly maintained. This was the case in the 1960s when I chaired the Military Aircraft Panel of the President's Science Advisory Committee under Presidents Kennedy and Johnson, when the Air Force argued that the B-52 could not be flown beyond about 1970 because of metal fatigue. B-52s are still a mainstay of the U.S. bomber force. It was the case with the MX missile, which have now come and gone and the Minuteman is still our sole ICBM.

BENEFITS AND COSTS OF REPLACEMENT WEAPONS NEED TO BE ASSESSED

Some believe enhanced surety against theft and misuse dominates all other considerations and that the replacement weapons are absolutely necessary because a new development permits improved surety that cannot be achieved in most of the existing weapons. Even if this priority were to be accepted, what counts in this regard is the overall vulnerability of the United States to nuclear attack from our own weapons, and that depends not on the characteristics of the individual weapons but on the characteristics of the entire force. Thus, if we were to maintain a 5000-weapon force, and if replacement weapons were built at the rate of 50 per year, it would take 50 years for them to replace half of the existing force. And it is likely that this would not improve the surety of the force one bit, since miscreants could concentrate on the older portion of the force.

Of course, if the United States were maintaining a force totaling 500 weapons, a 50/yr production rate for replacement weapons could replace the entire force in ten years.

Evidently, if replacement designs are deemed essential, an ongoing stream of newly built warheads would be required. First, to satisfy those who believe that the introduction of weapons of new design (even if they don't provide new military capability) is the only way to maintain the expertise of the laboratories; and, second, to avoid dependence of the future stockpile on cloning a single design. In any case, NNSA specifically proposed at least two types of RRW.

WILL WE LONG RELY ON AN "UNTESTED" REPLACEMENT WARHEAD?

I am concerned, though, that if a replacement warhead were to be certified without a nuclear-explosion test, it would not be long before from some influential quarter would come the complaint that the United States security was based on untested nuclear weapons. I think it likely that this would lead to a test and therefore to the destruction of the CTBT regime and of the Nonproliferation Treaty (NPT) with it. In particular, both China and Russia appear quite ready for nuclear explosion testing if the CTBT

moratorium should end, and China could add significant military capability from a few tests beyond its current base of 40. This would be an unfortunate outcome of the program which motivates many supporters with the proposition that a replacement warhead is the best way for the United States to join a global ban on nuclear explosion testing –the comprehensive test ban treaty, CTBT.

OVERCOMING PROBLEMS WITH EXISTING WEAPONS

If there are specific limitations imposed on a particular existing weapon, one cannot automatically say that a replacement program will immediately fix it. The replacement warhead would need to be a substitute for that bomb or warhead, for instance-- and it would not be available until after a substantial time for development and manufacturing. If the need for such a capability were urgent, there would be no alternative to modifying (repairing) the nuclear explosive package of the existing weapon. This would need to be done with common sense and judgment and responsibility, and verified by the full simulation of the performance of the bomb, as modified.

WOULD ONGOING STOCKPILE CONFIDENCE TESTS BE NECESSARY FOR THE EXISTING NUCLEAR WEAPONS?

Even if laboratory management in the future would find it easier, as the SSP expertise and tools advance, to do the annual assessment of existing weapons and to find them safe, reliable, and secure, might not some influential critic in the future -- even a STRATCOM commander -- simply state that he or she could not be responsible for a fleet of weapons that had not been tested for 30 years, for example?

But what would be the function of a nuclear test?

In an underground nuclear-explosion test, one typically removes much of the flight hardware, or disables it. That is, one cannot mimic underground the specified stockpile-to-target sequence that is required for arming the warhead. If part of the operation depends on the vacuum of space that needs to be simulated. One often uses a different initiator (pulsed neutron source), and, of course, the fuzing system is entirely different. Furthermore, the environment underground is significantly altered from that for an explosion in air. There is no strong deceleration as is the case for the airburst of a bomb or warhead in the atmosphere, and no spin of the warhead in test.

What would be tested? A nominal weapon under nominal conditions? Or a weapon near the end of boost-gas life, under the most stressing temperature conditions, and under the greatest conditions of combat stress? Of course there would be very many experimental data obtained because the opportunity to test instrumentation and to diagnose every aspect of the weapon performance would not be missed, but the benefit to a skeptic who urged the test would largely be the yield-- whether the weapon "worked" or not.

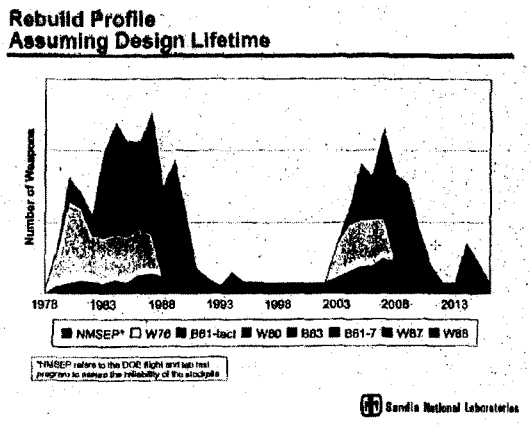
HISTORIC LACK OF INTEREST IN STOCKPILE CONFIDENCE TESTS

In the era of US underground nuclear tests, concern was sometimes expressed that much of the fleet had not undergone a test of weapons that had been in the stockpile for years or decades. In fact, routine production verification tests were sometimes delayed for years. After congressional and JCS insistence on stockpile confidence tests (SCTs), I believe that only two were conducted. On the other hand, high-fidelity flight tests (without nuclear yield) provide essential information about the performance of our weapons in their normal environment; they must continue.

HOW CAN COSTS BE REDUCED AS WARHEAD NUMBERS FALL?

The goal of cost reduction is not universally shared. The taxpayers' interest in spending the least amount to achieve a given capability conflicts with the interest of industry and local government and their representatives to have more spending and employment in a given region or activity. There can be honest disagreement about the optimum approach. For instance, when I served on a panel of the DOE Energy Research Advisory Board to review proposals for new U.S. uranium enrichment facilities, the cost of future enrichment by gas centrifuge seemed unrealistically low. It turned out the proposal involved putting the support facility for the first 6 centrifuge buildings in the first tranche of construction, so that the cost of later expansion was indeed very low; the flip side, of course, was that the cost of the first unit was extremely high, and that was not mentioned or perhaps even known by most of the proponents.

For the present task of maintaining and modifying the nuclear weapons complex (NWC), the lesson is that the system should be designed for the foreseeable task, with "load leveling" as appropriate. For example, in 1996, this subcommittee considered the chart provided by Sandia National Laboratories, "Rebuild Profile, Assuming Design Lifetime"



Although in the black and white reproduction it is impossible to distinguish the different warhead types, what is clear is that this chart assumes that the original build rate must be echoed approximately 25.0 years later by rebuild of the warheads. Assuming that some

warheads are more in need of rebuilding than others, a less expensive proposition would be to rebuild over a period of ten years—say from 20 to 30 years after initial build, thus reducing the capital cost of the rebuild establishment by about a factor two. If for some reason this were not acceptable, then rebuilding some warheads five years before their assumed end of life would also reduce the capital cost, even though some funds would be spent before absolutely necessary. This is just an example of the benefits from a NWC that could be considerably smaller than one that blindly echoed the needs or programs of the past. Although the details of the options are not available, the plan to build the Chemistry and Metallurgy Research Building (CMRR) at Los Alamos to include not only the CMRR Radiological Laboratory, Utility, and Office Building (CMRR-RLUOB) as well as a CMRR Nuclear Facility for handling bulk plutonium does not seem to reflect clearly defined missions. Again, it would be best to wait for an understanding from the National Security Council on the future nuclear warhead needs, and to see whether these can be met by the plutonium facility at TA-55 at LANL.

It was apparently assumed by many that we needed to have a nuclear weapons complex that could mirror the historical build rate, lagged by 30 years, on the assumption that the nuclear weapons had a planned life of 30.00 years. Rather than providing the capacity to build 5646 weapons in a single year, it was clear, however, that the conditions could be met at lower cost by advancing the replacement of warheads during peak years by a few years, so that some warheads would be replaced at 27, 28 or 29 years of age, with a NWC that was considerably smaller than one that blindly echoed the needs or programs of the past. Paradoxically, it is cheaper to replace weapons "before their time" (even assuming that there is a fixed lifetime for weapons) because the reduced capital investment to support the lower peak build rate more than outweighs spending money sooner than would otherwise be required. It is as if you brought your car in for service a bit early because there was a substantial special that would save you money even though you are spending it earlier than necessary.

Despite the reluctance of LANL to be involved in "production" of plutonium pits, I think this is exemplary of what needs to be done in the rest of the complex, bringing manufacture closer to the design and evaluation expertise. Make no mistake, though, the Pantex plant at Amarillo, TX, will be busy dismantling nuclear explosives, and the work to demilitarize and eventually dispose of the plutonium from pits has scarcely begun.

SUMMARY

1. There is a national need for the National Security Council to specify numbers of nuclear weapons vs. time, taking into account the forthcoming reports of the Congressional Commission on U.S. Strategic Posture and guiding the Nuclear Posture Review centered in the Department of Defense.
2. Within the nuclear weapons complex, the greatest resource is quality, knowledgeable people—scientists and engineers, who form the basis for judging and maintaining the safety, security, and reliability of these enormously dangerous weapons. The cadre of expertise and their working tools need to be

maintained and refreshed so long as the nation maintains a nuclear weapon capability. The peer review process between Los Alamos and Livermore should be recognized and supported as an essential ingredient in our nuclear capability.

3. It should be recognized that confidence in the reliability of existing weapons under a responsible stockpile stewardship program is likely to *increase* with time – because of increased understanding and technical tools – rather then diminish. This is a desirable goal. Let's make it happen.
4. Replacement-warhead programs lack quantitative assessments of benefit, risk and cost streams as new warheads are assumed to enter the force—overall improvements in surety, reliability, and safety need to be evaluated within the force numbers to be prescribed by the National Security Council. The replacement-warhead benefits over time must be compared with benefits in safety, security and reliability that might be obtained through alternative expenditures, such as improved transport containers and security measures that are tailored to the evolving threat.
5. Smaller weapon stockpiles will reduce the cost of the nuclear weapon complex only if that is a major goal of NNSA and the Congress. Cost reductions can be achieved by increased co-location of production and design activities and by modular approaches to the tasks, so that capabilities could be expanded by replication of bays, tools and staff rather than by over-sized new facilities for large-scale operations.

RLG:jah: 03172009 TEST1.doc

Mr. VISCLOSKY. Mr. Coyle.

Mr. COYLE. Chairman Visclosky, Ranking Member Frelinghuysen, I very much appreciate the opportunity to appear before you today.

Mr. FRELINGHUYSEN. Is your mike on?

There we are.

Mr. COYLE. Just 3 weeks ago the Obama administration released its overall top-line budget request for fiscal year 2010 stating, "Development on the Reliable Replacement Warhead will cease, while continued work to improve the nuclear stockpile safety, security and reliability is enhanced with more expansive life-extension programs."

This policy change will impact significantly the planning for NNSA's complex transformation effort and will also reduce the overall cost since future production capability can be reduced. This is particularly true for future plutonium pit production that NNSA has been planning at higher-than-required levels.

As such, today your witnesses are in the position of commenting on a plan for Complex Transformation that has been overtaken by events. Assumptions made about how many nuclear weapons might be produced in the future are key to sizing the NNSA production complex for the future. Now that the Obama administration has made a decision to halt the RRW, the production workload for Complex Transformation can be cut essentially in half.

In testimony last July before the House Armed Services Committee, the GAO reported, "NNSA and DOD have not established clear, long-term requirements for the nuclear weapons stockpile. It is GAO's view that NNSA will not be able to develop accurate cost estimates or plans for complex transformation until stockpile requirements are known."

The next Nuclear Posture Review (NPR) will be conducted by the Obama administration in 2009 or later, perhaps early 2010, and will be influenced by the administration's efforts to obtain lower stockpile levels in negotiations with Russia. This document will form the basis for planning complex transformations, and it will be futile for NNSA to try to proceed with complex transformation without it. In particular, the Chemistry and Metallurgy Research Replacement Nuclear Facility at Los Alamos and the uranium-processing facility at Y–12, proposed under complex transformation should not be sized or funded by this subcommittee based on outmoded assumptions.

The Complex Transformation effort has been assuming a large U.S. nuclear arsenal of roughly 6,000 warheads, including reserves, for the foreseeable future; that is, for 50 years or so. However, the total U.S. stockpile is already much smaller than this. According to an official estimate by the U.S. State Department, "The number of U.S. operationally deployed strategic nuclear weapons was 2,871 as of December 31st, 2007."

Further reductions have occurred since. As reported by the Washington Post and the Bulletin of Atomic Scientists last month, the United States has successfully reduced its operationally deployed nuclear weapons stockpile, reaching in early February or early last month the upper level of 2,200 warheads required under

the Moscow Treaty, and reaching that level 3½ years ahead of schedule.

However, in recent years NNSA has proposed wide-ranging production rates that are not consistent with the current realities. For example, in the 2005 budget request, NNSA proposed a modern pit facility that could produce up to 450 pits per year, much more than needed. In October 2006, after this subcommittee questioned the need for such a high level of production, NNSA proposed a consolidated plutonium facility with the capability to produce 125 pits per year. When this subcommittee questioned that proposal also, the current complex transformation Supplemental Programmatic EIS proposed instead the capability to manufacture up to 80 pits per year at Los Alamos.

As the U.S. nuclear weapons stockpile is reduced, and it appears that it will be the policy of the Obama administration to reduce it, then by reusing and recycling pits, an expensive high-capacity plutonium pit production facility is not necessary. In fact, the Pantex plant is currently authorized to reuse up to 350 pits per year, which Pantex itself points out is far less expensive and environmentally damaging than the production of new plutonium pits. And Pantex currently stores more than 14,000 plutonium pits and has requested authority to increase its storage capacity to 20,000 pits. Thus, there is no shortage of pits for reuse or recycling, and, if needed, smaller numbers of pits can be made at Los Alamos. In general terms, an average production rate of only about 25 pits per year could sustain the U.S. Strategic Stockpile if it were reduced to about 1,000 weapons by the year 2050.

In my view, this subcommittee should task NNSA to examine its complex transformation plans for inflection points; that is, workload assumptions that create significant benefits in the relative cost and schedule to achieve a particular capacity. Such a study could be conducted by an independent studies and analysis center, such as the Institute for Defense Analysis or RAND, to define a more optimum and adaptive production complex than one sized only for a maximum or peak production rate higher than expected to be required in the future.

In addition to sizing what I would call an "Adaptive Complex" to sustain the stockpile projected in 2012 at less that 2,200 warheads, NNSA could also look at the 1,000 strategic warhead level, about half that level, and, at 500 warheads, about one-quarter of the 2012 level. The reason for choosing these two levels is the proposals for levels of 1,000 and 500 have gained considerable constituency in this country. However, cost inflection points might be found at somewhat higher or lower values, and if so, that would be important to know.

Then for the Adaptive Complex, NNSA would consider the type of production complex and laboratory structure it would need to sustain perhaps a strategic stockpile of just a few hundred weapons, maybe only 100. In the years ahead, if the U.S. and Russia could agree to reduce their stockpiles to the order of 100 warheads, at that point the nuclear weapons capabilities of other countries, China, France, Great Britain and so forth, must be negotiated downward in concert with further reductions in U.S. and Russian stockpiles.

I just want to add that from the point of view of an American president, tactical nuclear weapons have little deterrent value, and it is difficult to imagine the circumstances in which an American president would order their use. Because there are large numbers of tactical nuclear weapons in the U.S. arsenal, which we still retain, and the likelihood that an American president would not order their use, complex transformation does not need to plan appreciable capacity to replace those tactical nuclear weapons. Thus, Complex Transformation that supports operationally deployed strategic nuclear weapons supports the U.S. nuclear weapons deterrent overall.

Mr. Chairman, this completes my opening summary, and I would be pleased to take any questions that you or the subcommittee might have.

Mr. VISCLOSKY. Thank you very much.

[The information follows:]

Prepared Remarks before the:

House Committee on Appropriations,
Subcommittee on Energy and Water

The Future of the DOE Complex Transformation Program

Tuesday, March 17, 2009
1:00 p.m.
2362B Rayburn House Office Building

Philip E. Coyle, III
Senior Advisor
World Security Institute

Chairman Visclosky, Ranking Member Frelinghuysen, distinguished Members of the Committee, I very much appreciate the opportunity to appear before you today to support your examination of ways to reduce the cost of operating the nuclear weapons complex at various levels of the nuclear stockpile.

I am a Senior Advisor to the non-profit Center for Defense Information, a division of the World Security Institute, a Washington, D.C.-based national security study center. To help insure our independence, the World Security Institute and the Center for Defense information do not accept any funding from the Federal government, nor from any defense contractors.

In 2005 and 2006, I served on the nine-member Defense Base Realignment and Closure Commission, appointed by President George W. Bush and nominated by House Democratic Leader, Nancy Pelosi.

Beginning in late 2004, I served on Governor Arnold Schwarzenegger's Base Support and Retention Council, from which I resigned to serve on the President's Commission.

From 1994 to 2001 I served in the Pentagon as Assistant Secretary of Defense and Director, Operational Test and Evaluation. In this capacity, I was principal advisor to the Secretary of Defense and the Undersecretary of Defense for Acquisition, Technology and Logistics on test and evaluation in the DOD. I had OSD OT&E responsibility for over 200 major defense acquisition systems including the present-day offensive strategic missile programs.

From 1959 to 1979, and again from 1981 to 1993, I worked at the Lawrence Livermore National Laboratory. Over those 33 years I worked on a variety of nuclear weapons and other high technology programs. My experience with nuclear weapons included original engineering design of new weapons, manufacturing and production, testing, and stockpile surveillance and stewardship. I retired from the Laboratory in 1993 as Laboratory Associate Director and deputy to the Director.

In my current capacity at the Center for Defense Information I am called upon to provide independent analysis on various defense matters. I have over 40 years of experience involving U.S. and worldwide military research, development and testing, on operational military matters, and on national security policy and defense spending.

Introduction

Just three weeks ago, on February 26, 2009, the Obama administration released its overall topline budget request for fiscal year 2010.

The Department of Energy National Nuclear Security Administration (NNSA) section of the President's budget states, "Development work on the Reliable Replacement Warhead will cease, while continued work to improve the nuclear stockpile safety, security, and reliability is enhanced with more expansive life extension programs." [1]

This policy change will impact significantly the planning for NNSA's Complex Transformation effort, and also will reduce the overall cost, since future production capability can be reduced. This is particularly true for future plutonium pit production that NNSA has been planning at higher than required levels.

Accordingly, I expect the DOE will revise its plan for NNSA Complex Transformation to take into account this change, or at least indicate that it intends to do so in the months to come. As such, today your witnesses are in the position of commenting on a plan for Complex Transformation that has been overtaken by events.

For this reason, it is quite appropriate that the Congress, and especially this Subcommittee, is closely examining the proposed workload for NNSA Complex Transformation, formerly called Complex 2030.

Assumptions made about how many nuclear warheads might be produced in the future are key to sizing the NNSA production complex for the future. In the past, Complex Transformation has assumed that the United States will maintain a large, roughly 6000 warhead total stockpile for the indefinite future. In the past, before the Obama administration's decision to halt work on the Reliable Replacement Warhead (RRW), NNSA Complex Transformation was being sized to build RRWs while also continuing regular stockpile stewardship activities with the existing U.S. nuclear weapons stockpile. To sustain a status quo stockpile, while also building RRWs to replace it, as well as having surge capability to rapidly build more nuclear weapons in an emergency, would require that Complex Transformation have a much greater production capacity than the existing DOE production complex.

This would not be consistent with DOE's commitment to transform the NNSA production complex "into smaller and more efficient operations."

Indeed as NNSA reports in its December 19, 2008 Record of Decision, "NNSA does not foresee an imminent need to produce more than 20 pits per year to meet national security

requirements." [2]

If Complex Transformation were sized to continue current stockpile stewardship activities, while also building new RRWs to replace the existing stockpile, and also maintaining a surge capacity, Complex Transformation would need roughly twice the production capacity. Now that the Obama administration has made a decision to halt the RRW, the production workload for Complex Transformation can be cut in half.

The Need for High-Level, Long-Term U.S. Nuclear Weapons Policy
As pointed out in the Defense Science Board study on Nuclear Capabilities, and the Defense Threat Reduction Agency sponsored report on Foreign Perspectives, there has been virtually no high-level, long-term articulation of U. S. nuclear policy.

These and other studies have also pointed out that the White House, the DOD and DOE/NNSA, and the Congress need to develop and agree upon a policy and plan that has bipartisan support for the future nuclear weapons program and can be supported by this and future administrations. U.S. nuclear weapons policy evolves slowly and is most enduring and successful when it bridges successive administrations.

In testimony on July 17, 2008, before the House Armed Services Committee, the GAO reported, "NNSA and DOD have not established clear, long-term requirements for the nuclear weapons stockpile. While NNSA and DOD have considered a variety of scenarios for the future composition of the nuclear weapons stockpile, no requirements have been issued. It is GAO's view that NNSA will not be able to develop accurate cost estimates or plans for Complex Transformation until stockpile requirements are known." [3]

Two weeks ago GAO reviewed the history of DOE's track record of project management before this Subcommittee. GAO reported that 8 of the 10 major NNSA and EM construction projects the GAO reviewed in March 2007 had exceeded the initial cost estimates for completing these projects - - in total DOE added nearly $14 billion to these initial estimates." GAO also reported that "9 of 10 major construction projects were behind schedule - - in total, DOE added more than 45 years to the initial schedule estimates." [4]

It is expected that the Congressional Commission on the Strategic Posture of the United States, established in 2007, will play an important role in shaping future U.S. strategic policies. This Commission released its Interim Report to Congress on December 15, 2008, and its final report is expected this coming April. The Interim Report did not answer the need for a high-level, long-term U.S. Nuclear Weapons policy, but the Final Report may.

Following the Final Report of the Strategic Posture Commission will be the Nuclear Posture Review (NPR) to be conducted by the Obama administration in 2009 or later. The last NPR was released in December 31,2001, and stated the goal of maintaining between 1700 and 2200 operationally deployed nuclear weapons by 2012, a goal that was

reiterated in May, 2002 in the Moscow Treaty. The 2002 NPR also projected that the current force would remain until 2020 or longer.

The next NPR will be influenced by the administration's efforts to attain lower stockpile levels in negotiations with Russia.

These documents will form the basis for planning Complex Transformation and it will be futile for DOE to try to proceed with Complex Transformation without them.

In particular, the Chemistry and Metallurgy Research Replacement Nuclear Facility at Los Alamos and the Uranium Processing Facility at Y-12, proposed under Complex Transformation, should not be sized or funded by this Subcommittee based on outmoded assumptions.

The NNSA itself has recognized this reality, saying for example in its December 19, Record of Decision, "Until completion of a new Nuclear Posture Review in 2009 or later, the net production at LANL would be limited to a maximum of 20 pits per year."

Meanwhile, to reduce its overall costs of operation, the DOE is in the process of closing, mothballing, or dismantling unneeded facilities. In addition, the DOE is requiring its Laboratories and plants to reduce the footprint from unneeded facilities as part of any new construction that takes place.

Thus, cost benefits are already being obtained under DOE's philosophy to reduce its footprint and minimize expenses.

Projected Workloads

The Complex Transformation effort has been assuming that the United States will and should maintain a large nuclear arsenal of roughly 6,000 warheads, including reserves, for the foreseeable future, for least 50 years.

However, the total U.S. stockpile is already much smaller than this. According to an official estimate by the U.S. State Department, the "number of U.S. operationally deployed strategic nuclear warheads was 2,871 as of December 31, 2007." [5]

Further reductions have occurred since. As reported by the Washington Post and the Bulletin of Atomic Scientists last month, the United States has successfully reduced its operationally deployed nuclear weapons stockpile, reaching the upper limit level of 2200 required under the Moscow Treaty in early February 2009, three and a half years ahead of schedule. [6]

However, in recent years NNSA has proposed wide-ranging needs for pit production rates that are not consistent with these current realities. In its FY-2005 budget request, NNSA proposed a Modern Pit Facility that could produce up to 450 pits per year, much more than needed. In October 2006, after the Chairman of this Subcommittee questioned the need for such a high level of production, NNSA proposed a "Consolidated Plutonium

Facility" with the capability to produce 125 pits per year. When this Subcommittee questioned that proposal also, the current Complex Transformation Supplemental Programmatic Environmental Impact Statement proposes the capability to manufacture up to 80 pits per year at Los Alamos.

Assuming that the United States is committed to further reductions in U.S. nuclear weapons stockpiles - perhaps to a few hundred residual warheads - and also committed to work toward a global prohibition on nuclear weapons, the construction over the next 30 years of a new infrastructure that would manufacture hundreds of new warheads would not be required. For example, a much smaller pit production or refurbishment capability could be recommended.

As the U.S. nuclear weapons stockpile is reduced - and it appears that it will be the policy of the Obama administration to reduce it - then by reusing and recycling pits an expensive high-capacity plutonium-pit production facility is not necessary. In fact, the Pantex Plant is currently authorized to "reuse" up to 350 pits per year, which Pantex points out is far less expensive and environmentally damaging than the production of new pits.

Pantex currently stores more than 14,000 plutonium pits, and has requested authority to increase its storage capacity to 20,000 pits. Thus, there is no shortage of pits for reuse or recycling and, if needed, smaller numbers of pits could be made at Los Alamos. In general terms, an average production rate of only about 25 pits per year could sustain the U.S. strategic stockpile if it were reduced to about 1,000 warheads by 2050.

An Adaptive Complex: Complex Transformation Inflection Points

It would be helpful to the Obama administration and to Congress if the NNSA would examine its Complex Transformation plans for inflection points, that is, workload assumptions that create significant benefits in the relative cost and schedule to achieve a particular capacity. Such a study could be regarded as a first step in thinking through the type of adaptive production complex the country might need in the coming decades. The premise for this study would be that the production rates for the near term are not expected to be required in the years to come. NNSA might then design the complex differently than if it were sized only for a maximum or peak production rate much higher than expected to be required in the future.

In addition to sizing what could be called an "Adaptive Complex" to sustain the stockpile projected in 2012 at less than 2200 weapons, the NNSA might also look at 1,000 strategic weapons - about half that level - and at 500 weapons about one quarter the 2012 level. As explained below proposals for levels of 1000 and 500 weapons have gained considerable constituency. [7]

Then for the Adaptive Complex, NNSA could consider the type of production complex and Laboratory structure it would need to sustain a strategic stockpile of just 100 strategic weapons. 100 weapons is regarded as a logical step towards a world free of nuclear weapons. In the years ahead, if the U.S. and Russia could agree to reduce their stockpiles

to the order of 100 weapons, at that point, the nuclear weapons capabilities of other countries – China, France, Great Britain, Israel, India and Pakistan – must be negotiated downward in concert with further reductions in U.S. and Russian stockpiles.

U.S. Nuclear Weapons Stockpile Reductions

In testimony before the House Armed Services Committee on July 17, 2008, Administrator Thomas P. D'Agostino described the progress made over the past few years in reducing the size of the U.S. nuclear weapons stockpile, as follows: "In 2002, President Bush and President Putin signed the Moscow Treaty, which will reduce the number of our operationally deployed strategic nuclear warheads to 1,700 to 2,200 by 2012. In 2004, the President issued a directive to cut the entire U.S. nuclear stockpile—both deployed and reserve warheads—in half by 2012. But this goal was later accelerated and achieved 5 years ahead of schedule in 2007. As of the end of 2007, the total stockpile was almost 50 percent below what it was in 2001, when the President took office. On December 18, 2007, the White House announced the President's decision to reduce the nuclear weapons stockpile by another fifteen percent by 2012. This means the U.S. nuclear stockpile will be less than one-quarter its size at the end of the Cold War—the smallest stockpile in more than 50 years."

The relative ease at which these reductions have been implemented reveals the thinking of U.S. strategic planners. Although many of the weapons eliminated under the Moscow Treaty will be held in reserve, nuclear strategists have been fairly comfortable adjusting to lower figures and have not raised any significant resistance. However, it is also important to note that a substantial part of the reductions under the Moscow Treaty occur simply by "naming" nuclear weapons as being in reserve, not by actually dismantling them. Thus, decision makers and strategists can argue that they need to maintain a nuclear infrastructure that accommodates a reserve level much higher than the Moscow Treaty limits.

Tactical Nuclear Weapons

Except for dismantlements, tactical nuclear weapons are not a significant factor in sizing the future U.S. nuclear weapons complex. From the point of view of an American president, tactical nuclear weapons have little deterrent value and it is difficult to imagine the circumstances in which an American president would order their use.

Before an American president would order the use of nuclear weapons - especially the use of tactical nuclear weapons - certain criteria would be considered.

These criteria are a necessary, but not necessarily sufficient, set, as other factors might further pertain against nuclear use. For an American president to choose to use nuclear weapons, the following would be required:

1) A unique mission or crisis situation that is extremely unlikely to be solved by other means, such as diplomacy.
2) A mission that cannot be accomplished as well or with the required decisive finality if conventional weapons had been used.

3) A mission whose benefits must outweigh the inevitable backlash, recriminations and criticisms that would follow, and
4) A mission that has to put an end to the crisis situation that motivated the use of nuclear weapons in the first place. If the end result is unchanged or the problem is essentially ongoing, no U.S. president could justify the use of nuclear weapons.

There are few missions that would meet these requirements. U.S. conventional capability offers other ways to accomplish many of the missions tested by the first criterion. Under the second criterion, although conventional weapons strikes might not be able to eliminate the threat as conclusively, they could probably do so if their deployment level was increased. Hard targets that could not be conclusively destroyed with conventional bombs or missiles might be taken out by ground forces.

The third criterion is also significant. Using nuclear weapons would have enormous costs; only removing an extraordinarily immediate and severe threat to U.S. security would justify their use. This will likely remain the case unless there is some shift that eliminates the nuclear taboo. The United States didn't use nuclear weapons against North Korea in the 1950s when – compared to today – the U.S. military had many fewer options, and when it might have been more politically acceptable to do so. As time has passed, the nuclear taboo has only become stronger, and it remains despite the confusion and uncertainty of the post-Cold War period.

Also, the unique cost of nuclear weapons suggests that any proposed use should have some finality in addressing the ultimate threat. Nuclear weapons used against individual nuclear installations or individual terrorist bases would not eliminate the overall problem. The demonstrated use of nuclear weapons might alter the threat perceptions of some U.S. foes, but, given the motivations of conceivable future adversaries, it could also enhance their commitment. The difficult fourth criterion of finality symbolizes why we still hear inchoate threats of nuclear retaliation to a hypothetical major terrorist attack.

At present, Russia views nuclear weapons, including tactical nuclear weapons, as a deterrent to America's conventional military superiority. Ironically, this is exactly the argument that the U.S. made during the Cold War when America felt it needed a "flexible response" to stop the vast Russian Army coming through the Fulda Gap.

Nevertheless, both because of the large numbers of tactical nuclear weapons which the United States still retains, and the likelihood that an American president would not order their use, Complex Transformation does not need to plan appreciable capacity to replace those tactical nuclear weapons. Thus, Complex Transformation that supports operationally deployed strategic nuclear weapons supports the U.S. nuclear weapons deterrent overall.

Next Steps in Nuclear Arms Reductions

For three decades the U.S. Congress also has supported the continuing reductions in the stockpiles of U.S. nuclear weapons regardless of the political party in power.

Going beyond the reductions in the Moscow Treaty, nuclear strategists are entertaining prospects of lower and lower totals of nuclear weapons. As a next step, a stockpile of 1000 U.S. nuclear weapons has been proposed and has gained wide acceptance in the United States.

A 1997 study by the National Academy of Sciences called for "a program of progressive constraints to reduce U.S. and Russian nuclear arsenals to 1,000 total warheads each and then, if security conditions permit, to a few hundred warheads, provided adequate verification procedures and transparency measures have been implemented." [8]

Authored by a group of distinguished scientists, retired senior military officers and experts policy analysts, most of whom have been closely associated with various aspects of nuclear security affairs, the study set a credible goal for next steps in nuclear arms reductions by the United States and Russia.

Various posture proposals with a 500-warhead figure also are being advocated. [9]

The fiscal year 2008 Defense Authorization Act mandates two separate nuclear posture reviews that may well affect future U.S. policy. [10] Yet recent posture proposals still don't persuasively articulate the contemporary missions of the American nuclear forces that might remain after further reductions. If many of the proposed missions for nuclear weapons are not credible within the security future of the United States, those missions will not justify the retention of nuclear weapons to carry them out.

As the continued reductions occur, many of the long-held assumptions and analytical frameworks that undergird the U.S. nuclear weapons posture become more tenuous. Past assumptions are not a basis for predicting future requirements. Most critically, as the U.S. nuclear stockpile passes below 1,500 nuclear weapons to the next stage of 1,000 or even 500, the planning assumptions for Complex Transformation cannot be based on the past.

Slowly but surely the Pentagon has been shifting away from the nuclear option in almost all of its war plans. One conventional option is Prompt Global Strike (PGS), that is, the rapid delivery of conventional weapons at intercontinental range. The continuing development of the PGS program and framework demonstrates that U.S. military planners desire conventional options to deal with situations where it is desirable to attack targets at long ranges on short notice. By definition, such situations call for swift action or response, using conventional – not nuclear - warheads. The Pentagon has illustrated the desire to incorporate conventional alternatives by refashioning the traditional nuclear triad into a "New Triad" that incorporates non-nuclear strike capabilities.

Indeed, the U.S. military has never preferred nuclear options, and gradually over the past fifty years military planners have moved away from options that involve nuclear forces. Such changes are often prompted within the U.S. military itself: first with the Army giving up its tactical nuclear weapons, and then with the Navy and the Air Force doing

likewise. Today, U.S. nuclear capabilities are centered in the "Nuclear Navy" of ballistic missile submarines and in the Strategic Air Force. Increasingly, these outposts appear more and more isolated from the rest of the DOD.

"A Nuclear Free World"

As this Subcommittee well knows, George Shultz, Henry Kissinger, Bill Perry and Sam Nunn have proposed a world free of nuclear weapons. [11] Their time line is longer than an Energy and Water Appropriations time line, but there are near term implications for Complex Transformation.

The Obama administration supports this initiative, as explained on the new White House web site:

"Move Toward a Nuclear Free World: Obama and Biden will set a goal of a world without nuclear weapons, and pursue it. Obama and Biden will always maintain a strong deterrent as long as nuclear weapons exist. But they will take several steps down the long road toward eliminating nuclear weapons. They will stop the development of new nuclear weapons; work with Russia to take U.S. and Russian ballistic missiles off hair trigger alert; seek dramatic reductions in U.S. and Russian stockpiles of nuclear weapons and material; and set a goal to expand the U.S.-Russian ban on intermediate-range missiles so that the agreement is global."

In its Interim Report, the Strategic Posture Commission also touches on the Shultz et al vision:

"Four senior statesmen have urged that the nation work towards the global elimination of nuclear weapons. It is clear that the goal of zero nuclear weapons is extremely difficult to attain and would require a fundamental transformation of the world political order. If, however, the new administration accepts their proposal as a long-term goal, there are steps that could be taken in the next few years that would be consistent with such a goal and, at the same time, consistent with maintaining and even increasing our security. Some of our recommendations will deal with such steps."

"Steps that could be taken in the next few years that would be consistent with" the zero option are expected to be outlined in the Commission's Final Report, and those steps will likely be of immediate priority for the NNSA and for this Subcommittee.

Complex Transformation and Arms Control

The National Nuclear Security Administration, the part of the DOE responsible for nuclear weapons, has been approaching Complex Transformation as a largely technical and managerial matter. However, Complex Transformation has been criticized not only for its planning, cost and management issues, but for the arms control and nuclear proliferation issues it raises.

By way of example, and to draw an analogy with the RRW which until recently has been central to the planning assumptions for Complex Transformation, at a House Energy and Water Appropriations hearing on March 29, 2007, former senator and long-time chairman of the Senate Armed Services Committee, Sam Nunn, summarized the situation

this way: "On the RRW itself, if Congress gives a green light to this program in our current world environment, I believe that this will be misunderstood by our allies, exploited by our adversaries, complicate our work to prevent the spread and use of nuclear weapons ... and make resolution of the Iran and North Korea challenges all the more difficult."

In short, Senator Nunn and other witnesses questioned how the RRW might impact nuclear non-proliferation efforts worldwide.

Senator Nunn's comments could also be applied to the NNSA Complex Transformation effort. If the United States builds a production complex with substantially larger capacity than required to sustain intended U.S. stockpile levels, then that could also be "misunderstood by our allies, exploited by our adversaries, and complicate our work to prevent the spread and use of nuclear weapons ... and make resolution of the Iran and North Korea challenges all the more difficult."

As Senator Nunn testified, himself no stranger to the responsibilities of congressional oversight, "I believe that we need a strategic reassessment of the role and purposes of nuclear weapons in the 21st century and an urgent change in direction with both vision and steps. This change in direction should precede congressional decision on the RRW. I would not fund additional work on the RRW at this time."

At the same hearing, former Secretary of Defense William Perry noted that maintaining the capability of U.S. nuclear weapons designers would be important if we ever needed to design more nuclear warheads. But Dr. Perry also noted that present U.S. nuclear weapons will retain their capability for 50 to 100 years, particularly if the United States continues to downsize its nuclear arsenal. He summarized saying, "On balance, I believe that we could defer action for many years on an RRW program, and I have no doubt that this would put us in a stronger position to lead the international community in the continuing battle against nuclear proliferation, which threatens us all."

Again, both Senator Nunn's and Dr. Perry's comments could be applied equally well to the planning for the NNSA Complex Transformation effort, and go hand in hand with that planning, since the future NNSA production complex will be sized to support Americas strategic nuclear weapons needs.

Considering such strong testimony from such highly-regarded statesmen, the arms control implications of the proposed NNSA Complex Transformation program need to be thought through. For example, if the tables were turned, and Russia and/or China were building a new industrial capacity to sustain a stockpile with twice as many nuclear weapons as they said they intended to keep, the United States would likely question the sincerity of their declared peaceful intentions.

Mr. Chairman, this completes my prepared testimony. I would be pleased to take any questions you and the Subcommittee might have.

End Notes:

[1] "A New Era of Responsibility" – The 2010 Budget, U.S. Government Printing Office Washington D.C. 2009.
www.whitehouse.gov/omb/assets/fy2010_new_era/Department_of_Energy.pdf

[2] Energy Department, NNSA, "Record of Decision for the Complex Transformation Supplemental Programmatic Environmental Impact Statement—Operations Involving Plutonium, Uranium, and the Assembly and Disassembly of Nuclear Weapons," Federal Register, vol. 73, no. 245, December 19, 2008, p. 77,647,
http://www.complextransformationspeis.com/project.html

[3] Testimony, Nuclear Weapons – Views on NNSA's Proposal to Transform the Nuclear Weapons Complex, GAO-08-1032T, July 17, 2008.

[4] Testimony, Contract and Project Management Concerns at the National Nuclear Security Administration and Office of Environmental Management, GAO-09-406T, March 4, 2009.

[5] State Department, Bureau of Verification, Compliance, and Implementation, "2008 Annual Report on Implementation of the Moscow Treaty," 2008, p. 2.

[6] U.S. Ahead of Moscow Treaty Schedule in Reducing Its Nuclear Arsenal, Washington Post, February 13, 2009.
Bulletin of the Atomic Scientists, March/April 2009. "Nuclear Notebook: U.S. Nuclear Forces, 2009. Robert S. Norris and Hans M. Kristensen

[7] Policy Memo, March 3, 2009, The Stanley Foundation.
http://www.stanleyfoundation.org/publications/policy_memo/RealizNukeDisarm309.pdf

[8] National Academy of Sciences, The Future of U.S. Nuclear Weapons Policy (Washington, D.C.: National Academy Press, 1997.)
See also for example the Stanley Foundation Policy Memo, March 3, 2009.

[9] The Drell-Goodby proposal is of 500+500 force "of 500 operationally deployed nuclear warheads, plus 500 in a responsive force." Sidney D. Drell and James E. Goodby, What Are Nuclear Weapons For? Recommendations for Restructuring U.S. Strategic Nuclear Forces, Arms Control Association: Revised and Updated October 2007, http://www.armscontrol.org/pdf/20071104_Drell_Goodby_07_new.pdf, p. v.

[10] Congress has mandated a special Congressional Commission on Strategic Posture, which released its Interim Report December 15, 2008. The regular Nuclear Posture Review is mandated to release its report to Congress "not later than March 1, 2010."

[11] George P. Schultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, "A World Free of Nuclear Weapons," Wall Street Journal, January 4, 2007; George P. Schultz,

William J. Perry, Henry A. Kissinger, and Sam Nunn, "Toward a Nuclear-Free World," Wall Street Journal, January 15, 2008.

Mr. VISCLOSKY. Dr. Eggenberger.

Mr. EGGENBERGER. Thank you, Mr. Chairman and members of the subcommittee. I am A.J. Eggenberger, and I am the Chairman of the Defense Nuclear Facilities Safety Board, known as DNFSB, and our agency was established by Congress to provide nuclear safety oversight at DOE and, of course, now at NNSA. We provide this oversight by making recommendations and suggestions to the Secretary of Energy.

I will be brief. Some of the general issues from a nuclear safety point of view that we are dealing with are the implementation of integrated safety management at NNSA, and, at the suggestion of this subcommittee, the integration of nuclear safety into early design projects. And we are dealing very much with the use of unsound facilities across the complex.

NNSA should not be relying on outdated facilities, and (Oak Ridge) two examples that I give you are the 9212 complex at Y–12 (Oak Ridge) and the CMR (Chemical and Metallurgical Research) facility at LANL (Los Alamos National Laboratory). It appears that the 9212 complex will need to serve in some fashion until about 2018, plus or minus. I am not quite sure on those dates, but they are close. And the CMR facility will probably need to serve until about that same time, at 2017 or 2018. There are programs to enhance nuclear safety until those time periods at both the facilities.

One other thing, and this was mentioned by other people at the table, was the importance both on the DOE's side and the contractor's side of technical management excellence within the complex. And I say both at the headquarters and at the field facilities.

Let me talk a little bit about the CMRR; in other words, the replacement facility that is proposed for the CMR. Section 3112 of the National Defense Authorization Act of 2009 put a funding limit on that project for NNSA. It is subject to a certification by the DNFSB and NNSA that safety issues are well understood and toward resolution by NNSA.

This process of certification that the Board is conducting is well understood by NNSA. It consists of items that we need to have delivered to us so that we can make a certification. And it is based on DOE requirements, and it has to do mostly with identification of safety systems, the identification of safety controls, and the establishment of requirements and criteria.

It appears to me that this certification, if things go as I understand them as of this week, we should be able to do that in the time frame of June through September, again depending upon the deliverables. There are specific nuclear safety items that the Board is interested in and looking at the particular NNSA sites.

But, in summary, I would like to say nuclear safety is preserved basically by having very well trained and understanding people in the technical management area. Improving nuclear operations is a good bang for the buck, and working in safe facilities such as ones that have designed criteria that are current and protect both the workers and the public.

That ends my oral statement. I am available for any questions, Mr. Chairman.

[The information follows:]

TESTIMONY OF

DR. A.J. EGGENBERGER, CHAIRMAN

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

WEAPONS COMPLEX NUCLEAR SAFETY ISSUES

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

MARCH 17, 2009

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to testify on nuclear safety issues at defense nuclear facilities operated by the National Nuclear Security Administration (NNSA). I have arranged my testimony in three parts. First, I will provide some background on the Defense Nuclear Facilities Safety Board (Board) and how we operate. Next, I will describe broad nuclear safety issues that affect activities throughout NNSA's part of DOE's defense nuclear complex. Last, I will summarize the key safety issues at individual NNSA defense nuclear sites.

Legislative History and Statutory Mission of the Board

The Board was created by Congress in 1988. Congress tasked the Board to conduct safety oversight of defense nuclear facilities under the control or jurisdiction of DOE. The Atomic Energy Act of 1954, as amended, currently establishes two categories of facilities subject to Board jurisdiction: (1) those facilities under Secretary of Energy control or jurisdiction, operated for national security purposes that produce or utilize special nuclear materials, and (2) nuclear waste storage facilities under the control or jurisdiction of the Secretary of Energy. The Board's jurisdiction does not extend to facilities or activities associated with the Naval Nuclear Propulsion Program, transportation of nuclear explosives or materials, the U.S. Enrichment Corporation, facilities developed pursuant to the Nuclear Waste Policy Act of 1982 and licensed by the Nuclear Regulatory Commission, or any facility not conducting atomic energy defense activities.

Under its enabling statute, 42 U.S.C. § 2286 *et seq.*, the Board is responsible for independent oversight of all programs and activities impacting public health and safety within DOE's defense nuclear facility complex, which has served to design, manufacture, test, maintain, and decommission nuclear weapons. The Board is authorized to review and analyze facility and systems designs, operations, practices, and events, and to make recommendations to the Secretary of Energy that the Board believes are necessary to ensure adequate protection of public health and safety, including worker safety. In this regard, the Board's actions are distinguishable from a regulator in that the Secretary may accept or reject the recommendations in whole or in part. The Board must consider the technical and economic feasibility of implementing the recommended measures, and the Secretary must report to the President and Congress if implementation of a recommendation is impracticable because of budgetary considerations. If the Board determines that an imminent or severe threat to public health or safety exists, the Board is required to transmit its recommendations to the President, as well as to the Secretaries of Energy and Defense. After receipt by the President, the Board is required to make such recommendations public and transmit them to the Committees on Armed Services and Appropriations of the Senate and to the Speaker of the House.

The Board's enabling statute also requires the Board to review and evaluate the content and implementation of health and safety standards, including DOE's orders, rules, and other safety requirements, relating to the full life cycle of defense nuclear facilities, including design, construction, operation, and decommissioning. The Board must then recommend to the

Secretary of Energy any specific measures, such as changes in the content and implementation of those standards that the Board believes should be adopted to ensure that public health and safety are adequately protected. The Board is also required to review the design of new defense nuclear facilities before construction begins, as well as modifications to older facilities, and to recommend changes necessary to protect health and safety. The Board periodically reviews and monitors construction at these defense nuclear facilities to evaluate whether construction practices and quality assurance ensure nuclear safety-related design requirements are met.

In support of its mission, the Board may conduct investigations, issue subpoenas, hold public hearings, gather information, conduct studies, establish reporting requirements for DOE, and take other actions in furtherance of its review of health and safety issues at defense nuclear facilities. These powers facilitate accomplishment of the Board's primary function, which is to assist DOE in identifying and correcting health and safety problems at defense nuclear facilities. The Secretary of Energy is required to cooperate fully with the Board and provide the Board with ready access to such facilities, personnel, and information the Board considers necessary to carry out these responsibilities.

Nuclear Safety Issues at NNSA's Defense Nuclear Facilities

The Board evaluates all of NNSA's activities in the context of Integrated Safety Management. The core functions of Integrated Safety Management are straightforward and have been institutionalized in policy by DOE and NNSA in response to the Board's recommendations. They are:

- Define the scope of work
- Analyze the hazards
- Develop and implement hazard controls
- Perform work within controls, and
- Provide feedback and continuous improvement

Integrated Safety Management also institutionalizes guiding principles that form the basis for a safety-conscious and efficient organization, including:

- Line management responsibility for safety
- Competence commensurate with responsibility, and
- Identification of safety standards and requirements appropriate to the task at hand

When properly implemented at all levels, Integrated Safety Management results in facility designs that efficiently address hazards, operating procedures that are safe and productive, and feedback that drives continuous improvement in both safety and efficiency. Shortcomings in safety and efficiency in the operation of NNSA defense nuclear facilities can almost always be related to a failure to apply Integrated Safety Management.

I would like to highlight four broad safety issues that cut across NNSA's defense nuclear complex:

- The need to preserve and continuously improve safety directives
- The need to consider safety early in the design of new defense nuclear facilities
- The need to replace unsound facilities, and
- The need to develop and maintain a technically qualified federal workforce

Preserving an Effective Nuclear Safety Directives System:
Preserve the Departmental requirements and guidance essential to ensuring safety within the DOE defense nuclear complex.

DOE and NNSA have developed a system of nuclear safety directives enumerating a comprehensive set of nuclear safety requirements, garnered from 60 years of operating experience in both the commercial and defense-related arenas. We evaluate their safety directives, provide comments when we find gaps or weaknesses, and use those directives as fundamental yardsticks for evaluating safety of facilities and activities.

DOE and NNSA also are reviewing a significant subset of the directives to ensure that objectives are "accomplished without being unclear, overly prescriptive, duplicative, or contradictory" per the direction of the Secretary of Energy in a memorandum dated September 10, 2007. Furthermore, in January 2009, DOE issued a sweeping revision to the directive that governs the structure of the directives system and the processes used to develop and revise directives. This revision is a fundamental paradigm shift that will result in DOE and NNSA reworking many existing directives.

In all, more than 60 nuclear safety-related directives were redrafted during 2008, and more will be redrafted in 2009. This is a large and costly effort, and care must be taken to avoid weakening the directives that underpin safety throughout the defense nuclear complex. The Board is maintaining an intense level of oversight over the revision to the directives system and the vitality of the directives being revised to ensure that the margin of safety embodied in DOE's directives is maintained or increased. It is essential that the senior leadership of DOE and NNSA do the same, or many years of progress in development and refinement of the directives system could be undone.

Integrating Nuclear Safety Early in the Design of Defense Nuclear Facilities:
Continue implementation of the safety-in-design initiative as a high priority.

NNSA defense nuclear facilities currently under design and construction have a total project cost of about $10 billion. The Board is required by law to make such recommendations to the Secretary during design and construction that would ensure that new defense nuclear facilities provide adequate protection of the health and safety of the workers and the public. For the past several years, the Board has driven an initiative to ensure that DOE and NNSA design project teams focus on early recognition and rapid resolution of safety issues. The Board and

DOE prepared a joint report to Congress, dated July 19, 2007, that describes in detail many of the actions being taken to accelerate identification and resolution of safety issues. Performing thorough reviews of safety issues earlier in the design process allows issues to be resolved efficiently and in a timely manner, and minimizes adverse impacts to project cost and schedule. This approach is essential to the success of major design and construction projects, which for NNSA includes facilities such as:

- Chemistry and Metallurgy Research Replacement Project, Los Alamos National Laboratory (LANL)
- Uranium Processing Facility, Y-12 National Security Complex
- Pit Disassembly and Conversion Facility, Savannah River Site
- Radioactive Liquid Waste Treatment Facility Replacement Project, LANL
- New Solid Transuranic Waste Facility, LANL

The importance of this initiative, especially in light of the current federal budget environment, cannot be overstated. This approach is the best way to avoid costly late resolution of major design issues or surprises late in the development of a new facility.

Section 3112 of the National Defense Authorization Act for Fiscal Year 2009, Public Law 110-417, enacted a limitation on funding for the Chemistry and Metallurgy Research Replacement Project at Los Alamos National Laboratory until the Board and NNSA each submit a certification to the Congressional defense committees stating that the concerns raised by the Board regarding the design of the facility's safety class systems (including ventilation systems) and seismic issues have been resolved. To this end, the Board is reviewing design documentation supplied by NNSA, and has established a process that will allow NNSA and the Board to achieve resolution on each issue identified by the Board. The Board's goal is to reach a decision on certification as soon as possible following receipt from NNSA of the information necessary for the Board to formulate a reliable expert opinion on the design. The Board is devoting a significant portion of our technical staff to this effort. Our reviews of the safety basis have found deficiencies in the identification of safety-related controls and associated functional requirements and performance criteria. Correcting these problems will greatly reduce the likelihood that significant changes will be required late in design. The Board is also making progress in reviewing the seismic design and will render a conclusion whether the seismic design of the structure and associated safety-related equipment is adequate once NNSA completes the necessary analyses.

The House Conference Report 109-702 on the National Defense Authorization Act for Fiscal Year 2007 (H.R. 5122) directed the Board to provide quarterly reports on the status of significant unresolved technical differences between the Board and DOE on issues concerning the design and construction of DOE's defense nuclear facilities. While the direction no longer requires the Board to continue providing quarterly reports, we believe these reports serve as an appropriate mechanism to keep all parties informed of the Board's concerns with new designs for DOE defense nuclear facilities. The Board has also been encouraged by the feedback received

from the Congressional committees and intends to continue providing these reports to Congress and DOE. The seven reports issued thus far are available to the public on the Board's web site.

Ending Reliance on Unsound Facilities:
Manhattan Project era facilities are no longer suitable for prolonged use.

NNSA continues to rely on aging facilities to carry out hazardous production missions in support of the nation's nuclear deterrent while planned replacement facilities suffer extended design and construction delays. Examples include the 9212 Complex at Y-12 (portions of which are more than 60 years old), to be replaced by the planned Uranium Processing Facility; and the Chemistry and Metallurgy Research building at LANL (55 years old), to be replaced by the Chemistry and Metallurgy Research Replacement Project. The 9212 Complex cannot meet existing nuclear safety requirements for Hazard Category 2 nuclear facilities, and the Chemistry and Metallurgy Research building's seismic fragility poses a continuing risk to the public and workers. Other facilities in similar situations include the Radioactive Liquid Waste Treatment Facility at LANL and the scattered facilities that constitute LANL's capability to repackage, characterize, and ship transuranic wastes offsite for disposal.

NNSA is taking interim actions to improve the safety posture in the existing facilities. NNSA has reduced the inventory of uranium solutions in plastic bottles at the 9212 Complex, and plans to relocate some activities from the Chemistry and Metallurgy Research building to a more robust facility at LANL. NNSA also is executing a line-item project to upgrade certain facility systems in the 9212 Complex based on a facility risk review and is consolidating operations in the Chemistry and Metallurgy Research building into wings of the structure that do not lie directly above a seismic fault. However, these are stop-gap measures. These facilities are structurally unsound, are unsuitable for use any longer than absolutely necessary, and will have to be shut down, perhaps before the replacement facilities are ready.

Unfortunately, planned replacement facilities have been delayed beyond original projections and face continued scrutiny regarding cost, scope, and programmatic need. NNSA must continue to drive safety improvements at the existing facilities while, in parallel, building replacement facilities quickly or finding alternative, safer means of accomplishing mission-related work.

Improving Federal Technical Staff Capability:
Ensure technical project managers, facility representatives, and safety system oversight personnel have appropriate backgrounds, training, and qualifications.

Safe and efficient execution of NNSA's mission requires an adequate complement of qualified technical staff at its headquarters and site offices. Therefore, NNSA has committed to developing and maintaining a technically competent federal workforce. However, across the complex, the number of qualified individuals on NNSA staffs is well below desired levels, as evidenced by the quarterly reports issued by the DOE Federal Technical Capability Panel. In particular, NNSA needs to rectify shortages of qualified federal staff in the Technical

Qualification Program, Facility Representative Program, and Safety System Oversight Program, each of which is critical for providing technically competent personnel for the oversight of defense nuclear facilities. Unfortunately, hiring was severely curtailed under this year's Continuing Resolution, and NNSA does not have an aggressive and proactive staffing plan that integrates anticipated losses with recruitment and the time required to complete training. The ability of NNSA to effectively manage projects and oversee its contractors will not improve until adequate numbers of qualified staff are available to do this work.

That summarizes the highest level of cross-cutting concerns that the Board has raised to NNSA. Now, I would like to briefly review the primary nuclear safety issues that the Board is concerned about at specific NNSA sites.

Los Alamos National Laboratory: Many of the safety systems in defense nuclear facilities at this site have documented inadequacies, as do the supporting administrative programs. NNSA has accepted the risk of operating under these conditions, in part due to confidence in the laboratory contractor's plan to assess and correct the widespread, systemic deficiencies. The Board believes that NNSA should insist on the contractor's implementation of these plans. The primary safety improvements needed include:

- Nuclear facility safety bases—development and implementation of high-quality safety bases to provide assurance that defense nuclear facilities can operate in a manner that protects workers, the public, and the environment

- Institutional safety programs—significant improvement in institutional safety programs such as formality of operations, training and qualification, integrated work management, fire protection, and nuclear criticality safety

- Infrastructure replacement and upgrades—interim upgrades and near-term replacement for the Chemistry and Metallurgy Research building and Radioactive Liquid Waste Treatment Facility; and safety system upgrades for the Plutonium Facility

- New facility design issues—resolution of safety issues in the design of the Chemistry and Metallurgy Research Replacement facility, Radioactive Liquid Waste Treatment Facility Replacement, and New Transuranic Solid Waste Facility

I have already mentioned that the existing Chemistry and Metallurgy Research facility is structurally unsound. NNSA must quickly replace the Chemistry and Metallurgy Research Facility and construct new facilities for processing solid and liquid radioactive waste in order to accomplish programmatic activities at Los Alamos safely.

Lawrence Livermore National Laboratory: NNSA plans to reduce the inventory of special nuclear materials at Livermore such that there would no longer be any facilities characterized as security category I or II at the site. This will allow eliminating costly security measures, but the Superblock facilities would retain enough special nuclear material to be considered Hazard Category 2, which requires continued effective nuclear safety measures. The

Board is closely evaluating the laboratory's planning for continuation of ongoing nuclear safety improvements during and after the inventory reduction program.

Nevada Test Site: The Device Assembly Facility at the Nevada Test Site is being modified to house the Criticality Experiments Facility, which has been relocated from LANL. NNSA is also still considering using the facility for nuclear explosive operations to supplement Pantex. NNSA must ensure that the facility infrastructure is ready to support safe conduct of criticality experiments and potential nuclear explosive operations. The most significant physical problem that needs to be fixed is the impaired fire suppression system, which at this point cannot be credited as a reliable means of suppressing fires within the facility.

Pantex Plant: The implementation of a concept known as Seamless Safety for the 21st Century (SS-21), a reengineering of nuclear explosive operations at Pantex, has improved both safety and productivity at the plant. Pantex is also taking a lead role in implementing a forward-looking approach of monitoring leading indicators in an effort to identify negative trends in safety before any unwanted events happen. The principal safety issues of concern to the Board for Pantex include the following:

- Technical support by design agencies—implementation of NNSA requirements governing the development, documentation, and peer review of technical analyses of postulated events and environments during nuclear explosive operations at Pantex

- Lightning and electrostatic discharges—characterization and control of the effects of lightning strikes and electrostatic discharge in nuclear explosive facilities

- Nuclear explosive safety process—effectiveness and management support of the expert Nuclear Explosive Safety Study Groups that independently evaluate the safety of nuclear explosive operations at Pantex

Y-12 National Security Complex: As I discussed earlier, the most significant safety issue at Y-12 is the continued operation of the very old 9212 Complex. The Board has succeeded in focusing NNSA on the need to accomplish interim safety upgrades at the facility, but it is vital that it be replaced as soon as possible. The primary safety issues we are pursuing at this site are as follows:

- 9212 Complex—risk reduction and facility safety improvements required to allow interim operations to continue safely in the short term

- Nuclear criticality safety program—improvement in the site's nuclear criticality safety program to ensure that applicable standards are properly implemented

- Nuclear materials storage—continued and where possible accelerated efforts to reduce the inventory of excess and legacy nuclear materials stored indefinitely in aging facilities

- New facility design issues—resolution of safety issues in the design of the Highly Enriched Uranium Materials Facility and the Uranium Processing Facility

Savannah River Site: The tritium extraction and processing facilities that support the nuclear weapons stockpile are located at the Savannah River Site. NNSA plans to build facilities at the Savannah River Site to disposition plutonium and waste materials from surplus weapon components. The Board's nuclear safety oversight of NNSA's materials disposition activities at the Savannah River Site focuses on the design of the Pit Disassembly and Conversion Facility (which may be combined with the Office of Environmental Management's Plutonium Preparation Project) and the resolution of safety issues in the design of the Waste Solidification Building. The third planned facility, the Mixed-Oxide Fuel Fabrication Facility, is not within the Board's jurisdiction. It will be licensed by the Nuclear Regulatory Commission.

Conclusion

I anticipate that the issues I have described are familiar to NNSA and our Congressional oversight committees. They have been previously identified by the Board in public documents, such as letters to DOE and NNSA, and Quarterly Reports to Congress that summarize unresolved safety issues concerning design and construction of defense nuclear facilities. These reports and documents are available for review on the Board's public web site.

Thank you for the opportunity to report to you on safety issues at defense nuclear facilities operated by the National Nuclear Security Administration. I will be happy to answer any questions you may have.

Mr. VISCLOSKY. Gentlemen, I really appreciate your testimony and your preparation. I also want to thank all the Members for their attendance.

I just have one short observation and one quick question for Dr. Beckner, and then I will turn it over to my Ranking Member.

Doctor, you had mentioned in your statement that the committee has been working towards a smaller budget for NNSA. I wouldn't quibble over the semantics, but would state that my position would be that we want to spend what is appropriate. At some point if there is a discernible number of warheads that are defined by a strategy that then defines what the complex should be, that is what we should spend. It might be more than we are spending today or less, and would not argue at all that no matter what the transformation looks like, there will be some up-front costs. And it is worth it to the American taxpayers to make that investment up front to have a rationalized complex that potentially, in relative terms at least, costs them less.

The one point you had made is that—you made a number of them, but the one I would ask you a question on is NNSA, you say they are prepared essentially for every contingency. Who defines the contingency? Is that NNSA, or are those contingencies that Mr. D'Agostino has to deal with driven by someone else, such as DOD and their requirements?

Mr. BECKNER. It is defined in a number of different ways by a number of different agencies. The DOD, I think, is the biggest hammer around in that sense, because they are the ones that the President expects to be utilizing nuclear weapons if that has to be done. And so the stockpile when it gets defined is heavily influenced by DOD requirements. And DOD requirements then get passed over to NNSA pretty much as something that NNSA has to respond to. For the past, what has it now been, almost 10 years, the stockpile has been coming down, but every year you are working with something that is uncertain. What is it going to be this year, or what is it going to be 2 years from now? And the slope continues down.

The DOD continues to believe it has to respond to emergency contingencies wherever in the world they may be, and NNSA is expected to support that. And it is there that I think the real problem arises. What does it really mean when you say NNSA has to support these broad range of contingencies, when, in fact, everybody looks at it and says, well, they are coming down, so why can't you come down faster? Having been a part of the system for a while, that is the hard part, and that is the part this committee has to deal with as well, is what is the right thing to do when you know that in all likelihood the stockpile will be smaller 5 years from now than it is today, but you can't bet on it? That is the problem. And so historically NNSA has tried to have a capability to respond to all of those uncertain requirements, and it means generally the complex is still larger than it has to be.

Mr. VISCLOSKY. I do think it is an important point, and, Mr. D'Agostino, I recognize you because this is driven by customers, if you would, that have a certain demand. And one of the things that we have been pushing collectively for a number of years is to make sure everyone is talking to each other. And I think more than one

witness also pointed out that maybe there ought to be some sharing of costs.

We were aghast within the last 18 months that a high-ranking official at the Department of Defense acknowledged that he did not know who was paying for this and was under the misimpression that they were. Well, if they are not, then there is not as much pressure to be adroit and attentive to what the true requirements are. And, again, that is the point we have been trying to get at.

Mr. D'Agostino.

Mr. D'AGOSTINO. Thank you, Mr. Chairman.

Mr. VISCLOSKY. None of us have ever figured those mikes out, so don't worry about it.

Mr. D'AGOSTINO. I would say Dr. Beckner and I have a similar experience. Mine has been more recent. On the Nuclear Weapons Council, on which the Administrator's position sits, I have been that focal point. And I can use plutonium as an example, the plutonium pit manufacturing capability.

As we are going through in the last 2 years, it was because of the effort of the Department of Energy/NNSA's representation on that panel that got the Defense Department and us together to say, you know what, let us not build 450. Let us get away from there. Stay away from 125. Stay away from 50 to 80, because we know that there is going to be an election, there is going to be a Nuclear Posture Review; that the most important thing we do is maintain that capability, which ends up to coming down to having the right people, and working the right people. And so I decided, I signed the Record of Decision on plutonium production, that we would not exceed the minimum capacity, which was up to 20 pits per year, needed to maintain the capability, and we would hold off on the decision until the Nuclear Posture Review. We recognized that that could potentially drive some infrastructure changes.

Quite frankly, there is a chart that we actually have up here, and I think you actually may have this on your desk in front of you, which shows that our endgame, quite frankly, is to significantly reduce the amount of plutonium space the country has and not have it in two geographic locations, but only have it in one; and not have it spread out over seven different sites across those two geographic locations, but only have it essentially in two locations within one site.

What we end up doing is we drive the cost down dramatically to just maintain that minimum capability. It turns out that that minimum capability can take you from zero at the floor, or the desire to make maybe one pit per year, up to about 50 or 80 maximum. And given the correct points that were brought up dealing with expected reductions in the size of the overall complex, we think that that production rate, that minimum capacity, would probably never need to go above that.

But we don't want to presume what the NPR says, so we don't want to ask for more resources, for example, to take us beyond that point. But there is plenty of discussion at the Nuclear Weapons Council on plutonium and uranium capability. I am the break or the lid on the pressure cooker, if you will, to kind of bring people to reality, because I testified before your committee, sir, and others

as well, to justify that. So I am quite aware of that tension back and forth. Thank you for the opportunity to respond.

Mr. VISCLOSKY. Thank you.

Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Both the Chairman and I serve on the Defense Subcommittee on Appropriations and obviously on this committee. I don't think there is anything more important to me than our national security. Just across the wire service earlier today from BBC, the Russian President—and I somewhat quote from the BBC announcement—has said Moscow will begin a comprehensive military rearmament from 2011. The President said the primary task would be to increase the combat readiness of Russia's forces; first of all, our strategic nuclear forces.

Now, I am not here to promote a nuclear arms race. That is something we don't need. I am all for reducing our nuclear weapons stockpile, but we are making some substantial investments here, and I would like to make sure that we are erring on the side of our national interest. I don't want to invest in facilities that are providing too much. On the other hand, I don't want to invest in, shall we say, facilities that are providing too little. And we may not be able to talk about it in here, but we can certainly reference it. Who knows what our adversaries are up to. They may have signed treaties, and I am pointing perhaps to the People's Republic and to Russia, and my view is trust and verify. Where are we going?

Administrator.

Mr. D'AGOSTINO. Thank you, sir. Make sure I have this right. There was a lot of details that, of course, we can't talk about here, but what we can say is the Russians have a different philosophy in their approach to maintaining their arsenal. Their philosophy is a fairly aggressive production, kind of build and replace, depending on what their arsenal is. We think we know what it is, but I won't say it here, but it is a build and replace. It is to constantly exercise their production and research and design infrastructure. Scientists and engineers do their best work when they are actually doing work. You can learn a lot about your problems that you are addressing if you are actively trying to engage in those problems. That is the philosophy, the approach, that the Russians have done.

Ours has been different: to invest in the science and technology to understand. Dr. Garwin is absolutely correct. We have learned a lot about our stockpile as a result of the investments over the past 15 years.

Mr. FRELINGHUYSEN. So in some ways you don't disagree with some of his contentions?

Mr. D'AGOSTINO. Some of it I don't. I would probably like to have a discussion later on others later. But the reality is we have learned a lot about our stockpile. We are very confident in some areas; we are actually less confident in other parts of our stockpile, but it is two different philosophies. We took the approach starting in the 1990s to reduce the investments in our production infrastructure, and for over a decade, quite frankly, we have underfunded that capability. This is not what the Russians would have done. And, in fact, we were having some impact on the science and

technology. What we are trying to do right now is make sure that we maintain a capability. I am not saying a large capability.

Mr. FRELINGHUYSEN. So can you say for the lay person, capability is one thing——

Mr. D'AGOSTINO. Yeah.

Mr. FRELINGHUYSEN [continuing]. But does that translate into flexibility?

Mr. D'AGOSTINO. Absolutely. I think what we want to do, because I believe—and you don't have to trust me, we have independent business case groups, the Cost Analysis Improvement Group. We have actually taken Mr. Coyle's thoughts and have had independent groups of people look at it, and they have said this is that minimum capability that you need to maintain, and what that allows you to do is if the country has a need to ramp up. Now, hopefully we won't get ourselves into a global security situation where we might need that, but if the country has to ramp up, we could add——

Mr. FRELINGHUYSEN. You are assuring us to some degree——

Mr. D'AGOSTINO. That is right.

Mr. FRELINGHUYSEN [continuing]. That what we are moving into, we made some substantial investments the cost of which, the construction of which, seems to escalate.

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN. That we are not building into some degree of obsolescence?

Mr. D'AGOSTINO. Yes, sir. There is a range between building one unit a year and 100 units a year. Just being able to build one allows you to build 100. That doesn't mean that you will build 100 or add the extra shift work, but you can go up to 100 a year.

But given where this administration has said it is going, we think we will probably end up somewhere in that range. And so I want to have one good uranium capability for the United States of America, one good plutonium capability for the United States of America, and one good high explosives capability for the United States, and not do more than that and provide that flexibility into that system.

Mr. FRELINGHUYSEN. So that gives you a degree of comfort that we would have the potential to ramp up if we found ourselves in a somewhat more adversarial—we have our own posture. Others have their posture.

Mr. D'AGOSTINO. Right. Heaven forbid we would get into that situation, but if we had to, we would build flexibility into some of the initial design work on this plutonium capability, the CMR replacement facility that you heard about, to add more space to. That is not in our current plans. We are not planning to do it right now. It is not in our baseline. But that capability exists.

Similarly, with uranium, adding more lathes and more workers could provide a ramp-up. But what we are not trying to do, we are not going there now. We want to make sure that we provide that one basic capability.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. VISCLOSKY. Mr. Edwards.

Mr. EDWARDS. Mr. D'Agostino, can you tell us regarding our nuclear complex—you touched on this, but I want to be clear—what

decisions should we make now versus what decisions should we delay until after the Obama administration has reviewed our nuclear posture and made decisions on the size of our nuclear forces?

Mr. D'AGOSTINO. I think my approach would be to continue on with the design work because, in the end, a decision to move forward on a project is a decision. Especially when you start turning ground over—if you will, pouring concrete—it is hard to back off from that; and in our projects, the nuclear facility and the uranium processing facility have some more design work that has to get done.

Dr. Eggenberger referenced the need to get a certification on integrating safety into design.

We have learned in the past that we have problems with our projects when we don't fully understand what we are doing before we lock down a cost, schedule, and scope. We are learning from the past. We are not going to do that. We will do as much of the design work as possible before we actually start breaking ground.

So when the nuclear posture review process is completed—we understand it is supposed to be by December, and as you know, the Under Secretary for Policy Michele Flournoy has come on board recently, so we will be starting that process—the Congress, the administration, the committee will have, in all likelihood, some indication before that point of how things are going.

I don't think we are going to be overcommitting ourselves this year. I think this is a real issue for the 2011 budget on how we commit large amounts of resources in certain areas. I think we have enough flexibility right now, sir.

Mr. EDWARDS. Thank you.

Dr. Eggenberger, you referenced unsound facilities across the nuclear complex. What do you mean by "unsound"? And is the public at risk? Are employees at the complexes at risk? Would you elaborate on that?

Mr. EGGENBERGER. I knew you would ask that question.

When I talk about "unsound," basically I mean they do not meet current codes and standards. And let's look at the two facilities that I talked about, the 9212 complex at Y–12 and the CMR complex at LANL; and your question was, are they safe or is the public at risk? And what we have been able to do is to convince NNSA to put in a life extension program at both of these facilities to be able to reduce the consequences of an accident over a reasonable period of time.

For example, at the 9212 complex at Y–12, they have put in a program where they monitor certain systems and have certain tasks that they do on upgrades on a yearly basis; and then they report back to us yearly on what the state of the facility is, so, if we need to change, we are able to do that. So the Board is comfortable if that process continues up to a date of about 2017 or 2018.

Now—so that is the 9212 complex at Y–12.

Now, if you go to the CMR facility at Los Alamos, the Department, NNSA, is in the process of coming up with a process for getting out of the CMR facility. That was briefed to me last week. I don't have a complete understanding of it myself as of yet, but the NNSA has undertaken a process to remove certain activities from

the CMR facility and also to reduce the amount of nuclear materials in that facility. That will enhance safety should an accident occur. And the time line, again, is about the same as the 9212, 2017 or 2018, but we believe—the Board believes that getting out of that facility is fairly important.

Mr. EDWARDS. Thank you for that. I wish we, for more specificity, were in a classified briefing; but given we are in an unclassified briefing, I think that is as good an answer as one could give in this setting. Thank you.

Mr. VISCLOSKY. Mr. Wamp.

Mr. WAMP. Thank you, Mr. Chairman.

The first question is for the administrator, following up on what we have already heard, the President's Nuclear Posture Review. Don't you think the committee should assume that the NPR will require that we maintain our stockpile's reliability?

Mr. D'AGOSTINO. Yes, sir, absolutely.

Mr. WAMP. And don't you think we should assume that it will require certification?

Mr. D'AGOSTINO. No question about it.

Mr. WAMP. And that it will continue to provide fuel for our Navy?

Mr. D'AGOSTINO. Yes, sir.

Mr. WAMP. All right. So we say that we have to wait for it, but under those basic assumptions, do you see any scenario where there would not be a need for the capability that the UPF—and I apologize for seeming parochial, but this is one of these three major projects that Dr. Beckner referred to that I live with every day. I have been to Los Alamos and I know the others, but this is the one that I live with. It is not really parochial; it is just my piece of this action.

So on UPF is there any scenario where the capability that UPF provides would not be needed?

Mr. D'AGOSTINO. The capability is going to be needed whether we have a stockpile of zero weapons or a stockpile of thousands of weapons.

Mr. WAMP. Right. So even if there are no new weapons—no new weapons, no life extension, you still have to have UPF?

Mr. D'AGOSTINO. Absolutely.

I think, if I could add to in answer to the question, one of the shifts that I want to push very strongly is to shift away from a nuclear weapons complex view, which I believe is a Cold War view, and shift to a nuclear security enterprise view, which is—nuclear security means nonproliferation, it means being able to do nuclear forensics and attribution of a device, an improvised nuclear device. Hopefully, one will never go off, but we have to be prepared.

It means being able to do work around the world collecting material, it means doing intelligence work and analysis, it means being able to respond to emergencies. This is a shift towards nuclear security. And the UPF actually is one of those facilities that supports naval reactors in fuel, it supports nonproliferation in a whole variety of areas in the Intelligence Community as well as the stockpile.

Mr. WAMP. I want to keep this line of questioning together within this 5 minutes. I will get gaveled down.

9212 is where this work is done now, right?

Mr. EGGENBERGER. That is my understanding.

Mr. WAMP. This is one of the facilities that Mr. Edwards asked us about. I just want everybody to know that when Chairman Hobson came to this site and went into the heart of Y–12 is when this committee decided to fund the HEUMF. Because he saw it.

That is absolutely essential to understand Mr. Edwards' question of Dr. Eggenberger. You have to see it. You have to understand how old it is, when it was started, and why new facilities are needed.

But 9212—I think in your testimony—there are health and safety problems today associated with the workforce in these facilities, correct?

Mr. EGGENBERGER. That is correct.

Mr. WAMP. And I believe that over the next 10 years—which is still questionable, whether 9212 can be maintained as capable for its production for 10 years, which would be the time it would take to actually build the replacement of UPF, that the cost of maintaining it exceeds the cost of the UPF—the total cost associated with 9212 could exceed the cost of UPF; is that not correct?

Mr. EGGENBERGER. That I don't know. Maybe the administrator—I don't know that, Congressman.

Mr. WAMP. We need to look at that.

But I think we are running into numbers that would very much justify the expense, as big as it is. And even as big as it is, Dr. Beckner, I think some of your testimony said that you think it was 25 percent too large; is that right?

Mr. BECKNER. I would say that it would be a good idea to try to take 25 percent out of it.

Mr. WAMP. So 25 percent smaller is very different than not at all.

Mr. BECKNER. I didn't say not at all.

Mr. WAMP. Taking "not at all" out of the question, you do believe that there is a need for us.

Mr. BECKNER. Oh, yes, I say that in my testimony.

Mr. WAMP. I will come back on the next series. I wanted to get out of that together, Mr. Chairman.

Mr. VISCLOSKY. Mr. Davis.

Mr. DAVIS. Mr. Chairman, thank you very much.

And I do appreciate the testimony that each of you has given and certainly the opportunity to visit you on several issues that I think are extremely important to our national defense—even beyond our national defense as far as weapons are concerned, but also as we look in the future as we deal with energy and the different areas of energy. I think nuclear energy is certainly a part of and must continue to be a part of what we expect as we continue on the path to energy independence.

I want to direct questions also at the building at 9212. I have probably a local interest as well. I represent a part of Oak Ridge that is in Roane County, not a great deal of it; my friend from the other part of Tennessee, Mr. Wamp, represents the largest share of that. But Roane County has for many years been proud to claim Oak Ridge as part of the population inside Roane County.

I, too, have visited the building at 9212 when I was a state senator and discussions then about an antiquated building built in the

early 1950s and the hazard that employees may have, the scientists who are there. As my grandson would look at a space movie and see the space suits, they still wear those there for protection in this particular facility at 9212 where, in fact, with the new structure probably less than 1 or 2 percent of the time they would literally be required to have protective clothing on.

My question is mainly directed at any who can answer this. I have some information that says there would be considerable savings. Does anyone have an idea how much we would save on maintenance each year—each year, if a new structure was completed and built?

Mr. D'AGOSTINO. I will start with that.

We have looked at the life cycle costs, the difference between maintaining 9212 and moving forward, recognizing that it presents some pretty significant cash flow problems, and that is something that clearly has to be balanced. But we believe that about $68 million—it is in the $60-ish million range maintenance cost associated with maintaining 9212 and the supporting infrastructure; there are other old buildings around there. That is the difference between doing that versus the maintenance of a UPF, once the UPF is built. Of course, you have to build it before you can realize that savings. So, it is a cash flow problem.

Overall, if you factor in security, operational savings, maintenance, it is about $205 million a year. And that is not just a cost we have done up in Y–12 or the NNSA; it is something that we have had other people look at and validate, in fact, and do their own study, quite frankly, because this is of such an important component of ours.

But again it does present a bit of a cash flow problem and that is going to be the challenge that the administration is going to have to present to the committee on our way through.

Mr. DAVIS. So if we had the ribbon cutting for the building this year we would save $205 million a year for the next several years, including inflation? In essence, the building would almost pay for itself in 8 or 10 years?

Mr. D'AGOSTINO. Yes, sir. And that is as compared to doing business the way we are currently doing business.

Mr. DAVIS. And it would also provide a much safer work environment for the employees who work there, this new building?

Mr. D'AGOSTINO. There is no question about that on the safety piece.

Mr. DAVIS. Are there any other facilities in this country where the uranium process that is being done at Y–12 can be done today, that you know of?

Mr. D'AGOSTINO. Well, the country does have other uranium capabilities. It has downblending capabilities and the like. But working with highly enriched uranium, that is the purview of the U.S. Government and the NNSA's job. So we end up providing feedstock material to organizations that downblend; and that does pass through Y–12 as well. It is part of the nonproliferation piece of it as well.

Mr. DAVIS. Let me ask you something else. My wife is often looking at the kitchen saying, that we need to redo the kitchen. She is going through constantly, finding things that we need to do.

How many times have you or anyone on this panel visited the building at 9212 to analyze what needs to be done? Have you visited there, Mr. Beckner?

Mr. BECKNER. I have been there.

Mr. DAVIS. How many times have you been there and when was the last time?

Mr. BECKNER. I have been gone from NNSA for 4 years, and it was probably a year or two before that, the last time I was there.

Mr. DAVIS. Was that the only visit?

Mr. BECKNER. No, I have been there several times. I wouldn't care to guess how many. It is not a dozen, but it is more than one.

Mr. DAVIS. You are very familiar with the building?

Mr. BECKNER. Pretty familiar. It was one of my nightmares for a while.

Mr. DAVIS. Mr. Chairman, I will yield back on the second round possibility.

Mr. VISCLOSKY. Mr. Calvert.

Mr. CALVERT. Thank you, Mr. Chairman.

Administrator, the Lawrence Livermore, the inventory efforts are highly leveraged with its pit manufacturing, its R&D capability activities. Do you plan to sustain funding levels for Lawrence Livermore's pit manufacturing R&D to maintain core competency and ensure no disruption to the inventory effort?

Mr. D'AGOSTINO. As we deinventory and take nuclear material out of Lawrence Livermore—and we are doing that because of financial concerns as well as some safety concerns for the community—we plan on maintaining that capability. And then, ultimately, we are working with—Lawrence Livermore and Los Alamos are working together to transition the Livermore capability into—there is a building in Los Alamos called Plutonium Facility 4, or PF–4, to transition it there.

So, yes, sir, we do plan on maintaining a Livermore capability to work with plutonium.

Mr. CALVERT. One of the questions, too—and I talk about the workforce, both the workforce at Lawrence Livermore and Los Alamos—is there some concern with all of you about the workforce?

I have heard comments about the aging of the workforce in the past. Do you feel that there are competent replacements coming up through the process to work for our purpose in the future?

That is for everyone.

Mr. D'AGOSTINO. I will start, and I am sure—I know others have been talking to people, so I am very concerned about it. It could end up being, you know, very frankly, my number one concern.

This is not a problem that is going to fall apart tomorrow or next year, but it is one where it is very difficult to turn a workforce around. So I am concerned about the long-term scientific and technology capability. I will give an example that might help explain.

Radioanalytic chemistry is a skill that we used to exercise a lot back in the days of pre-1992, when we were underground testing. Radioanalytic chemists were the people who would go off and sample the material and determine how the test was. But it happens to be incredibly important to do nuclear forensic work, which the Nation thinks is going to be important in the future. But those

radioanalytic chemists are few and far between. We are starting, and hopefully not too late, to try to bring people into that field.

Admiral Chiles recently completed a study last year that summarizes his view of critical skills in nuclear security for the Nation and points that one particular piece out. Maybe others here at table could add to that or their views.

Mr. CALVERT. Any other comments on that?

Mr. Coyle.

Mr. COYLE. I am retired from Lawrence Livermore, but talking with people who still work there, I think the concern you raise is important to them. I think—I think they worry about how to sustain the skills that are needed going forward into the future.

I agree with the comments that other witnesses have made today about the importance of good people. It should go without saying, but I certainly agree with it.

But I think Dr. Beckner made an important suggestion when he said it would be good to look at bureaucratic rules and regulations. I think that one of the issues which is discouraging for the employees is what they see as bureaucratic rules and regulations that are either duplicative or unnecessary or going overboard. It is hard to say these kinds of things without sounding like you want the operations to be unsafe, which of course nobody does.

Mr. CALVERT. I guess one concern I have Mr. Frelinghuysen brought up: If we bring down our capacity to a certain level and for some reason, unbeknownst to us right now, we have to increase that capacity, how quickly can you bring in a trained workforce to do that?

Does anybody have any comment on that?

Mr. D'AGOSTINO. I would say very slowly, actually.

Mr. CALVERT. Do you take that into account as we make these decisions down the road?

Mr. D'AGOSTINO. As a matter of fact that is—the answer is "yes." That is why we have asked for these critical skills studies—Admiral Chiles did a study about 10 years ago—and take a look at trends. We did another one just last year to look at, are we heading in the right direction?

Some things we have fixed; some things we have not. But we are getting down into the small business numbers of people that are needed to maintain our—and quite frankly, the flexibility part is going to be challenging.

The other piece I would say to that is, as a part of our life-extension program work that we are doing, we explicitly and our lab directors explicitly look to pair up folks that have experience with younger team groups of people to provide that cross-fertilization, to bring up the younger folks.

But it takes real work in the end in order to exercise the workforce.

Mr. CALVERT. And lastly, on the issue of NIF—Dr. Becker brought up NIF—as I understand, all 192 lasers were successfully targeted and we broke an energy barrier that was quite extraordinary. But are there enough resources there—we spent quite a bit of money building that apparatus—to operate it efficiently?

Mr. BECKNER. I would say the number is bigger than a little. It is very expensive to operate, which is why I was looking for some

other customers to get on board. You are going to need help keeping that facility running because of the operating costs. You aren't going to know for a number of years just how valuable it is going to be. There is very high expectation.

So I believe it is an example of NNSA putting a lot of good money into a good project, and now you need to capitalize on it. And you are going to have to look for some other customers, I think, to help pay for it. Or at least it would surely help NNSA if you could find some other customers to help pay for that.

That is probably the best example right now of a one-of-a-kind facility that NNSA has brought forward that I think they can be very proud of.

Mr. CALVERT. Thank you, Mr. Chairman.

Mr. VISCLOSKY. Mr. Pastor.

Mr. PASTOR. Mr. Chairman, now in this new era of bipartisanship, I will yield my 5 minutes to my good friend Mr. Wamp.

Dr. Beckner persuaded me that I have to wait until December to finally worry about this, so——

Mr. WAMP. Wow, I thank the gentleman for the time. I will try not to talk about just UPF. I have one more question; it is obvious to me, but I want to make sure everyone else understands.

We just spent several hundred million dollars building the HEUMF, which is the storage facility. It is finished. Even if UPF was downsized and built, wouldn't it need to be at the same site as the HEUMF because, otherwise, you would have to build another HEUMF where you built the UPF?

Mr. D'Agostino, you have to have the storage facility next to the production facility?

Mr. D'AGOSTINO. It is always better to have your material located, very closely located to where you are going to operate it. So I think from that standpoint, yes.

Mr. WAMP. And I want to say that the nonproliferation focus is a very, very, very important focus. I mean, I understand that. And Chet Edwards and others have been great leaders here for a long, long time there.

But I would also say this: There is not a time in my now 14 and 3 months' service here—14 years—that we haven't found materials of a nuclear nature somewhere in the world that someone from Oak Ridge wasn't dispatched to go and handle that—not a time that I know of.

And I know of all the projects; I have been briefed by all of them. And this capability that must be maintained is critical to nonproliferation—not just production, not just stewardship, not just maintenance and reliability, but nonproliferation globally. Either we have the experts or somebody else does; and I sure don't want to trust the "somebody else does," and that comes with this piece.

That is exhortation; I thought I would throw it in there.

One thing, Dr. Beckner. You talked about the declining budgets. I want to point out that is—respectfully, in a bipartisan way, because it was the Bush administration and now the Obama administration—that was just the budget of this particular area. Budgets of other programs sure didn't get squeezed. We are spending $6.5 billion on weatherization; that is 31 times more than we have ever

spent in any single year on weatherizing homes. I am all for it, but that is a 31 times increase, $6.5 billion for weatherization.

But we are going to squeeze our nuclear weapons capability and our stewardship and our stockpile and the reliability and bring these things into question of whether or not we are doing this with a 60-year-old legacy doing it in a safe and modern way.

That is a question. That is a big question. That is why this hearing, to me, is the most important hearing this committee is going to have this year.

But the one thing I do want to know—and I find that it is fascinating, Dr. Garwin has been around here longer than any one of our witnesses, and he is the one reading off of a laptop; all of you all are reading off of paper.

My note has "genius" by his name. That ought to tell you something. It says, "Dr. Garwin, genius."

One of you'all mentioned the administration's retreat from the CMRR at some level. Can you explain that to Mr. Simpson and me, exactly? Like here, I think there is consensus developed that UPF is necessary, but it might need to be streamlined somewhat. That is what I am feeling; you have got to do it, but let's try to streamline it to save some money.

What is the future of CMRR? And can it be streamlined? We haven't focused enough on that.

Dr. Beckner you are first.

Mr. BECKNER. I would apply the same criteria to CMRR. I think we are realizing, as time goes on, that if we work harder at restricting our ambitions, we can keep these things a little bit smaller than they might otherwise become.

And so, at any of these major facilities, I think we have to apply the same criteria; and that is, are you sure you need everything that you have got in there? And are you sure that you can bring it in on budget, just by the way? Because it has turned out to be extraordinarily difficult to do that with nuclear facilities. The record is very poor.

Mr. WAMP. Well, but the administrator also said we learned some lessons along the way; and my experience is, when you have great turnover is when the lessons get blown out the window. And I would encourage, no matter what your ideological perspective or partisan flavor, not to have any more turnover than is necessary in this continuum going forward with this new posture review, because turnover is a killer for efficiency.

Dr. Garwin, have you something to say? Your hand is up very politely.

Mr. GARWIN. On the CMRR, there are two aspects to that. There is the research laboratory, which is pretty well constructed, and then the nuclear facility.

And I would suggest that one look at doing without the nuclear facility that is requiring further upgrades to the PF–4, plutonium facility, at TA–55 at Los Alamos; but a real rethink, if we are not making new design pits, what can be done in the research laboratory upgrade building without the big expenditure on the NF.

We might be able to put that off if we look at that specifically.

Mr. WAMP. Mr. Administrator, response, rebuttal?

Mr. D'AGOSTINO. I will, and then maybe the chairman.

What I would say is, the other thing that is a killer typical on large projects is design changes that come in. The radiation laboratory is almost completed with its construction. So we—there are some huge nuclear safety impacts associated with trying to bring that capability into the radiological laboratory.

The other piece, just to clarify for the committee, we are not building pits in the CMR nuclear facility. The thing I want to do is actually reduce the amount of plutonium capability in the country by shutting down the plutonium capability at Lawrence Livermore and bringing it to Los Alamos into a much smaller size; and that is what the chart that you have in front of you shows.

So I do think there are opportunities to look at the CMR nuclear facility project very hard, to look to drive out the kinds of things that Dr. Beckner talked about. That is something we are continuing to look at; and we are very early on in the nuclear facility design, and we are very conscious of our cash flow problems.

Mr. VISCLOSKY. Administrator, I would point out in follow-up to that—because we will have a series of votes, I want to recognize Mr. Fattah—numbers 14, 15 and 16 for the record bear on that issue, and we attach a lot of importance to those.

Mr. Fattah.

Mr. FATTAH. Thank you, Mr. Chairman.

First, Dr. Garwin, the plutonium facility, that is about 35 years old? The present?

Mr. GARWIN. No, no. I think the TA–55 has been continually modernized.

Mr. FATTAH. But you are suggesting that we put on hold the nuclear for redesign, but proceed with the plutonium, right?

Mr. GARWIN. Well, there is some confusion. The plutonium facility, No. 4, as I understand it, refers to the TA–55 site.

Mr. FATTAH. Right.

Mr. GARWIN. And I think that is good. We should see maybe how much that could be expanded further, which is typically less costly than having a new facility connected by tunnel to it.

So I haven't made a conclusion here. It is just, I think—with Mr. D'Agostino—that is worth a hard look.

Mr. FATTAH. I haven't made a conclusion yet either. I thought I was with my friend, Mr. Wamp, on the UPF until he started attacking the weatherization program.

I was certain that I was for it. I was certain that he was right, given the storage facility being done and everything else.

Now, if he was attacking, you know, us being—spending billions a week in Iraq or some other kinds of spending, he could have kept me on board. But when he said somehow those people who are in these cold weather States like my State, Pennsylvania, and other places, that weatherization investment somehow wasn't a worthwhile thing, he kind of lost my enthusiasm.

But I do want to ask about this human capital issue in terms of the long-term personnel needs. I think we know this, but if you could just give us a general sense of who you are competing with for talent at this point.

Mr. D'AGOSTINO. Well, we expect, most likely, potentially to be competing with the civil nuclear power industry—I mean, as there is an expectation that is going to build up a little bit.

There is a little bit of competition, frankly, with the Navy, but we have a good competition there because we end up using some of the Navy capabilities, the naval nuclear propulsion people. That is more symbiotic. We help each other out in that area, and the competition is kind of in our minds.

A lot of people look at the work that we are doing as, well, this is all about nuclear weapons work and therefore nuclear weapons is passe; I don't care about that, so I don't want to go work in that area.

And quite frankly our focus is to talk about nuclear security. In fact, that is why Congress, in its wisdom, called us the National Nuclear Security Administration; it is not the National Nuclear Weapons Administration. So I have to get people to think about nuclear security being nonproliferation, forensics, intelligence analysis, incident response. The country is going to need that well out into the future, and there is a good career there.

Mr. FATTAH. If we surveyed American universities today and the terminal degrees in the hard sciences, we would find a dearth of native-born Americans pursuing these degrees, right?

Mr. D'AGOSTINO. Yes, technical degrees.

Mr. FATTAH. Do you have a long-term game plan or do you have studies being done to figure out what you are going to need as the baby boomers retire and in the outyears? Because if we invest billions on these facilities, but we don't have the people, you know, we are going to be in a tough place.

Mr. D'AGOSTINO. Yes, sir. We have a two-pronged game plan, one dealing with the contractor workforce and one dealing with the Federal workforce.

On the Federal side we have gone out actively within the program direction account—one of the four accounts that you appropriate, sir—to go forth with a science, technology, and engineering program, going out to a variety of different institutions to bring people into the Federal workforce that are technically trained that don't typically get that kind of support.

On our contractor side, we have asked our laboratory directors—they have their own education and university programs to bring people in from that standpoint. We use these studies, like the Chiles Commission study, to inform ourselves of the status of our workforce.

Mr. FATTAH. Mr. Chairman, I want the administrator to know that I am very interested in working on this area with you; and I would be very interested to be briefed in a little more detail and perhaps find some way to be helpful.

Dr. Garwin, you wanted to add a point.

Mr. GARWIN. I emphasized human capital in my testimony as well.

Mr. FATTAH. I saw that.

Mr. GARWIN. I have had a lot of experience with the laboratories and worked really a lot over the last years on nuclear weapons matters and nuclear security—not motivated by the money, but by trying to do something for my country. And I know that there are a lot of people out there who would do the same.

Now, we have eliminated some of the competition because the high-paying jobs on Wall Street for quantitative people have been

eliminated. That doesn't mean we can convert them, but we can have people who are interested in reality, who are interested in doing a good job. They may not be identifiably the very best people, but they are very good people and I am sure we can motivate them.

The Federal problem is greater, really, than the laboratory problem because of the constraints on Federal work, on having intellectual reward, being able to do something. The laboratory work is not so great either in recent years, because laboratory brains have been sacrificed for increased fees—and there is micromanagement from Washington—and we need to address those.

Mr. FATTAH. I want to thank you. And again, I am very interested in trying to help us think through how we might proceed.

And I want to yield the remaining time I may have to Congressman Wamp to see whether he wants to rephrase his concern about weatherization.

Mr. VISCLOSKY. Given the fact that Mr. Simpson has not yet participated, we will now recognize Mr. Simpson.

Mr. SIMPSON. I haven't participated for a good reason. I would like to yield my time to Congressman Wamp.

No.

Mr. VISCLOSKY. We have to go now.

Mr. SIMPSON. It is—I think Congressman Wamp is right. This is probably a pretty important hearing, but I am fairly frustrated by it in spite of the fact, Mr. Chairman, that I think it is a wonderful hearing.

I am frustrated because for the last couple of years—and here again, I feel like I am out here trying to design a mode of transportation not knowing what I want it to do. Whether I want it to fly in the air, go in the water, go over rocky roads and mountains, whether I want it to go on the interstate, or whether I want it to do all of these things.

Until the customer tells us what it wants, how do we know what a complex is supposed to look like? And we are just making assumptions based on, we have to keep the stockpile that currently exists in good working order, some reliability there. But we really don't know what the stockpile of the future is going to look like until we get a report on—what do you call it? The Nuclear Posture report, right?

Mr. D'AGOSTINO. Right.

Mr. SIMPSON. So it seems to me this hearing is a little premature until we get that in from the Department of Defense or whoever does that.

Mr. D'AGOSTINO. Could I offer a comment, sir?

Mr. SIMPSON. Sure.

Mr. D'AGOSTINO. I actually do think we know what the stockpile of the future is going to look like. We have some sense.

We know we can't throw a light switch and immediately change that stockpile of the future. We know that it will take us, depending on how the math works, on how many warheads the Nation is going to want to maintain and our capability to make those, that it could take anywhere from 10 to 50 years to make that type of a change.

So we have a sense that the stockpile over the next zero to 20 years, for example, will be probably reduced numbers of what we

have now; and maybe at some future date we will bring in some warheads that are much safer and much more secure than the ones we have now.

But—again, the general trend going down, but there will be—and President Obama has said this—a deterrent. And we do plan on maintaining it. So we do have some indications.

There are plenty of options. The chairman talked about pit reuse and ways to be a bit more flexible so we don't build up excess capacity. Those need to be looked at. And, in fact, we are looking at those, and when they are done, we will report back to the committee.

But I think for a period of time the stockpile over the next 20, 30 years or so is going to be a modification, probably pretty significant, of what we currently have.

Mr. SIMPSON. You are talking the next 20 or 30 years.

Is the Obama administration's idea of what the stockpile ought to look like the same as the Bush administration's?

Mr. D'AGOSTINO. It would be hard for me to answer that because we haven't done—we don't have all the political appointees in the positions yet, and we haven't had a chance to fully vet that out.

Mr. SIMPSON. Guess how many administrations we will have over the next 30 years? We will have several. And that is one of the problems here, this strange—I mean, it is just the nature of our government. Every 4 years we change our policy and change our direction and change whatever we are doing.

Now I understand they have halted work on the RRW. They have decided to close Yucca Mountain without knowing what the heck we are going to do. On and on and on. How do you ever have a program that is sustainable for the next 30 or 40 or 50 years, knowing that every 4 years the philosophy is going to change?

Mr. D'AGOSTINO. Well, it is very difficult; there is no question about it.

I think the key word is "flexibility," don't overbuild what you need. But at same time there are certain realities. Fissile material, plutonium and uranium, that material is not likely going to—the uranium is not going to disappear. We have to be concerned about fissile material in this world, and we are going to likely be concerned about fissile material for the next 5, 6, 7, 8 decades.

So in order to make sure that you can work with fissile material, you need to have this enterprise that we have been talking about there and be able to work on the nonproliferation aspects of it.

And particularly as—a point I would like to make, as we reduce the size of the stockpile, the expected reduction in the size of the stockpile, that it becomes even more important that the workforce that you have there, make sure that they are current and up to speed and can challenge each other, have this independent technical review on that.

Mr. VISCLOSKY. Mr. Simpson, we have about a minute for a vote. We are down.

Mr. SIMPSON. I only have 12 more questions. I am just kidding. We do have some we will submit.

I will just—in fact, we can leave, but I would like to ask you. There has been some debate on the fate of the pit disassembly and conversion facility, and since I was down to Savannah River just

last Friday, taking a tour of the facility, I understand the DOE is currently evaluating whether to combine the PDCF with its operations of the EM plutonium disposition process at Savannah River's K reactor.

What is the status of that evaluation and when can we expect a report on that?

Mr. D'AGOSTINO. We are currently not only completing the design work for the PDCF facility as the primary alternative, but studying this combination, as you suggested; we think we will have the analysis on that work done by early summer. That is when it will come to me to evaluate and to do this analysis of alternatives to look at what is the best approach. And we plan on making sure that the committee staff—and we will work with the committee staff on that.

So I think it will help inform the decisions that you may be making later on this year.

Mr. SIMPSON. As Mr. Beckner said, sometimes these project comes in above cost. This is about 65 percent above cost. And I should point out that the last one that came in on cost was the SNF at Oak Ridge. I say this for my good friend Zach Wamp. On cost, under budget.

Mr. VISCLOSKY. Mr. Garwin, 30 seconds?

Mr. GARWIN. Yes, I used to chair the Naval Warfare Panel of the President's Science Advisory Committee, and you could predict the future Navy because the ships would last for 30 years, so you could predict it 60 years in advance.

But with nuclear weapons it is different. One thing that you can really do is reduce them rapidly. And it is possible that we will see a major reduction from the 6,000 or so to the 1,000 range. As I indicated, that could have very substantial impact with rapid demilitarization, and I think PANTEX is a growth stock for storing the pits.

Mr. VISCLOSKY. I would close by making a couple of observations. We will probably be in subcommittee in June. And so we will have to be adroit and staying in touch. And I think in a number of questions and comments it was emphasized that there are some things, no matter what the future holds, we will have to do.

The other thing I would point out—and I do think Mr. Simpson brought up a good point: This committee emphasized to the past administration and, I would emphasize, to the new administration that the strategy, the policy, really does have to be one that they anticipate, recognizing that the world changes every day, that future administrations that either party can live with, that future Congresses controlled by either party can live with, because you do look at the Cold War. And there was a policy, if you will, that was in place that succeeding administrations and Congresses felt there was consensus on; and we were, to the extent we were all here, successful in that.

So I do think it is important, while philosophies and emphasis may change, it is important for the incoming administration to understand that whatever decisions they make, people in the future on a consistent basis are going to have to make. We can't with a complex like this bouncing around every couple of years.

I really appreciate all of your participation, your contributions to this country, and your contribution to helping to educate us. And we would ask if we could stay in touch with you. That would be terrific.

Anything else?

We are adjourned. Thank you very much.

QUESTIONS FOR THE RECORD

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
HOUSE COMMITTEE ON APPROPRIATIONS

OVERSIGHT HEARING ON THE NUCLEAR WEAPONS COMPLEX
MARCH 17, 2009

U.S. NUCLEAR WEAPONS STRATEGY FOR THE 21st CENTURY

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. In Fiscal Year 2008, Congress directed the Secretary of Energy in consultation with the DoD and the Intelligence Community to develop a comprehensive nuclear security plan. The three parts of the plan include:

- First, a comprehensive nuclear defense strategy based on current and projected global threats, defining the future U.S. nuclear deterrent requirements and nuclear nonproliferation goals.
- Second, a new Nuclear Weapons Stockpile Plan that clearly defines military requirements for the size and composition of the stockpile.
- Third, a comprehensive, long-term expenditure plan that defines the needs and capabilities of the NNSA weapons complex.

In Fiscal Year 2009, this direction was again reiterated by this Committee and Congress. NNSA has provided the Committee a stockpile plan, shared some strategic planning information and also released a Record of Decision on Complex Transformation. However, the level of detail and strategic sequencing is lacking. For example, there is no further information on the stockpile plan beyond 2012. The information provided in the joint DOE-DOD strategy document lacked a sufficient level of specificity. It is that specificity which is essential to inform decisions about the make-up of the complex. The sequence is essential. First, the strategy. Second, from the strategy we derive the stockpile numbers and types of weapons. And third, from the numbers and types we derive the complex. I can't stress this enough. We would not be responsible if we were to spend the taxpayers' money for weapons without understanding the strategy those weapons are going to serve. Can you please elaborate on your work with the Department of Defense to develop a weapons strategy for the 21st century? When can the Committee expect a full substantive response to the FY2008 directives?

MR. D'AGOSTINO. The DoD's 2009 Quadrennial Defense Review (QDR) will be a comprehensive examination of the national defense strategy, force structure, force modernization plans, infrastructure, budget plan, and other elements of the defense program and policies of the United States with a view toward determining and expressing the defense strategy of the United States and establishing a defense program for the next 20 years. Additionally, the 2009 Nuclear Posture Review (NPR) will help to set strategic nuclear policy and posture for U.S. nuclear forces over the next five to ten years. NNSA will work closely with the DoD on the NPR; both agencies seek to complete this effort in time to influence the President's FY11 budget request.

With regard to the size of the future stockpile: Because we cannot predict the future, we cannot predict the size of the stockpile that this nation will require in 20 or 50 years. That said, recent trends in the stockpile are downward, and we expect this to continue in the future. I can assure you, however, that the significant reductions we have made in the past two decades (today's stockpile is 1/4 its size at the end of the Cold War) have not undermined U.S. security. Our challenge for the future is to ensure that whatever stockpile level we plan to achieve, that we have the right R&D and production infrastructure in place so that we can adjust that stockpile size—up or down as appropriate—in response to emerging threats, or to an improved global security environment.

Hearing Date/Question Number: March 17, 2009 / Question 1

DISSUASION FACTOR FOR FUTURE WEAPONS COMPLEX

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Our nuclear weapons arsenal is transitioning from a Cold War posture to something smaller. While we may be working with the Russians to reduce our stockpiles, nuclear deterrence is not dead. We're mindful of not reducing our stockpiles to a point that other countries might seek to challenge our strategic dominance. Should dissuasion be a factor in the future of the weapons complex? That is, might other countries interested in challenging the United States increase their own weapons production if we make dramatic cuts to our production complex?

MR. D'AGOSTINO. This is a question best answered by the Department of Defense. That said, as we move to lower levels of nuclear forces, we must be mindful of the implications for strategic stability—both crisis stability and the longer-term arms race stability referred to in your question. In this latter regard, as we further reduce forces, the United States must assess the implications in terms of incentives for other countries to "sprint" to match our reduced force. Such an assessment will almost certainly be addressed in the upcoming Nuclear Posture Review.

DR. GARWIN. I don't think so. I think that the weapons in being will suffice, together, for a long time, and the weapons that might be fabricated from components that are stored at Pantex and Oak Ridge will provide more dissuasion than would a normal production complex.

Hearing Date/Question Number: March 17, 2009 / Question 2

U.S. NUCLEAR WEAPONS STRATEGY FOR THE 21st CENTURY

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. There's nothing more important to me than protecting our national security. And today, we're discussing potential decisions that will seriously affect the security not just of this generation, but of future ones.

- The facilities we're investing in today will be operative for many decades – perhaps more than 50 years. Is the stockpile that we're supporting over the next five years the same stockpile that will be necessary to protect us in 20 years? 50 years?
- If not, how do we build the flexibility into these facilities to ensure they won't quickly become obsolete?

MR. D'AGOSTINO. In conjunction with DoD, NNSA has evaluated a range of stockpile scenarios that include maintaining today's existing legacy weapon designs and stockpile size, as well as prospective options for future replacement weapons that may allow a smaller stockpile size when coupled with a demonstrated modern, responsive production capability. We cannot project the exact size of the stockpile over the next 20 to 50 years and thus our approach is to ensure that (1) we maintain essential capabilities required for any stockpile size in safe, secure, and operationally efficient facilities, and (2) we provide sufficient flexibility into these facilities to ensure they won't quickly become obsolete.

A stockpile as large as today's that requires continued long-term refurbishment of the legacy weapons could require a refurbishment throughput higher than projected facility baselines. To reduce this risk, we are looking at second shift or extended work-week operations and/or contingency space for additional equipment that could be added later to provide flexibility. For the smaller future stockpile sizes analyzed, production is compatible with that planned for pit production at Los Alamos and secondary production at Y-12. These lower throughputs, however, may necessitate some direct reactivation and reuse of components to meet the requirements for some future scenarios. The potential for re-use adds flexibility as well.

We will continue to work closely with DoD in the upcoming Nuclear Posture Review to define the future stockpile required. The NNSA believes, however, that the facilities currently being planned will not be impacted significantly by the size of the future stockpile, as long as the stockpile is not significantly increased above today's size, and there is not a significant change in the mix of weapon types in the stockpile. Maintaining required nuclear capabilities has a greater impact on the minimum size of our facilities than throughput capacity. Neither our workforce numbers nor facility square footage scale linearly with the size of the stockpile. In an era of smaller future stockpiles, the required square footage in an up-to-date facility for a minimum, essential capability provides sufficient capacity to meet future expected requirements.

DR. BECKNER. The question points out the basic problem of NNSA being charged by the congress to be prepared to deal with all possible contingencies. This is not possible as the budget continues to be reduced. Rather, the congress must recognize that it must deal with "unknowns" and "unknown unknowns" not by wishing that they would go away, or otherwise trying to ignore them, but rather by assessing the likelihood (probability) of the event, and the consequences associated with that event if it should occur. This is in every way similar to risk assessment that is done for possible threats to the public and the environment from nuclear reactor operations. It is more difficult to do in the case of nuclear weapons than nuclear

reactors, but it still possible to do such assessments and gain important insights from the analysis.

Hearing Date/Question Number: March 17, 2009 / Question 3

U.S. NUCLEAR WEAPONS STRATEGY FOR THE 21st CENTURY

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. We can't speak in specifics about what other countries are doing with their nuclear stockpiles. However, I think it's important that we not consider changes to our own production complex in a vacuum.

- Setting aside the threat from emerging nuclear countries, have all other declared nuclear weapons states halted development of their nuclear weapons?
- We're working with the Russians to coordinate stockpile reductions. Have they reduced their production complex as we're discussing reducing ours? What about other countries, like China? How does our complex compare to that of any other country in the world?

DR. GARWIN. We have a much deeper understanding of nuclear weapons, and our weapon computing capability is certainly unapproached anywhere in the world. More telling, I don't know anyone who would say "yes" in answer to the question, "Would you be willing to exchange the U.S. nuclear weapons and the U.S. nuclear weapon complex with that of any other nation on Earth?".

Hearing Date/Question Number: March 17, 2009 / Question 4

DOD/NNSA INTERAGENCY COMMUNICATION

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. We all understand that NNSA's mission is nuclear security, not just nuclear weapons. But it's clear that the interagency divide is wider than it should be. The Department of Defense decides what kind of weapons and how many it wants, and then NNSA has to build and maintain them. Communication across this gap is not what it should be. A year ago the Deputy Secretary of Defense testified that he was unaware that the Department of Energy funds nuclear weapons. What steps has NNSA taken to improve this communication, and what further steps can be taken to ensure that at least DoD and NNSA are working well together and have a clear mutual understanding?

MR. D'AGOSTINO. There are many venues through which communications occurs today between DoD and the NNSA. Communications and dialog between STRATCOM and NNSA have been significantly strengthened over the past 5 years. Gen. Chilton's focus and commitment to the nuclear deterrent has facilitated this improvement. More recently, the Nuclear Weapons Council has increased the frequency of meetings and implemented a new deliberative body called the Transformation Coordination Committee which facilitates dialog and communication between NNSA and DoD.

DR. GARWIN. It would be better if the Department of Defense in fact provided the requisite funds for supporting the nuclear weapon activity, but just as the Department of Defense should NOT have the unilateral ability to decide on nuclear strategy and nuclear weapon numbers, so should it not have the sole authority and responsibility to supporting the nuclear weapon establishment, which needs to be forward looking and to support a national and not a Department of Defense strategy.

My testimony emphasizes that it is the NSC and not the DOD that should set the policy and the posture.

Hearing Date/Question Number: March 17, 2009 / Question 5

WORKLOAD AND NUMBER OF SITES

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Is there any plausible scenario you see for fewer than eight sites today or in the future?

- If not, given fiscal and political realities, how can we distribute the workload more efficiently among the sites

MR. D'AGOSTINO. As part of the business case analyses to support NNSA's December 2008 Records of Decision, we looked at a range of alternatives that included closing existing sites. The analyses showed closing sites were not justified based on cost or risk for any reasonable projection of future stockpile requirements. The value of current investments in people and facilities at the existing sites that would have to be replicated at fewer locations eliminated the benefits of consolidation.

One of the objectives of transformation has been to distribute the workload more efficiently among the sites. We are consolidating missions and special nuclear materials to reduce costs and increase efficiency. We are eliminating redundancy for major experimental and testing facility capabilities. We have proposed to eliminate 9 million square feet of buildings and structures being supported by Weapons Activity Account funding. Given fiscal realities, implementing these proposed actions will be challenging and can only be accommodated with the support of Congress.

DR. BECKNER. When discussing the number of sites NNSA must operate to have a working weapons complex, it is important to note that in the case of the labs, they are rapidly moving toward not three sites, but 1 full-weapons-activity site (LANL) and two sites where expenses are shared with multiple sponsors (call them half-sites), namely Sandia and LLNL. This is a reasonable development in the case of the labs and the Nevada Test Site, but it cannot be expected to work at the production plants. The plants are too expensive to operate for other sponsors to be able to use them extensively. In that case, the only way to reduce costs is to reduce overhead (too much redundant oversight), increase efficiency (too many conflicting rules) and management which is concentrating on the plant being truly productive rather than on maximizing their award fees.

As a part of this question, you asked where the Nevada Test Site fits into these matters. In reality, the NTS is becoming less important to the weapons complex than any other part of the complex. To survive with strength, the management of that site must be judged in terms of their ability to bring in "work for others." If they cannot do so, the NTS will slowly but surely continue to wither away.

Hearing Date/Question Number: March 17, 2009 / Question 6

NEVADA SITE

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. The Nevada Site seems to offer unique advantages and disadvantages. Its original mission was nuclear testing. It's used for a variety of experiments, and we've heard it suggested as a possible site for testing arms control verification technologies, training on WMD neutralization, nuclear forensics exercises, weapon dismantlement, and plutonium storage and experiments. On the positive side, it's very stable seismically, it has excellent isolation for security and for experimenting with unpleasant substances, it has lots of tunnel space, lots of vacant land area, and lots of secure space, and per-square-foot cost is relatively low. On the other hand, this same isolation, combined with the long commute to residential areas, could make it difficult to attract and hold top talent. And the high-tech equipment it might be able to use is mostly located at other sites and would be expensive to move.

- What is your net assessment on this? Where does Nevada fit in the future of the complex?

MR. D'AGOSTINO. We clearly recognize the unique capabilities the Nevada Test Site brings to bear. Our people at the Nevada Test Site are valuable contributors to our stockpile certification and nuclear emergency response programs as well as a set of other nuclear security activities in support of the Department of Defense and the Department of Homeland Security. As the NNSA moves forward in its efforts to create a leaner, less costly nuclear security enterprise, we will weigh how the people, assets and programs of the Nevada Test Site will contribute to our overall enterprise future.

Hearing Date/Question Number: March 17, 2009 / Question 7

PANTEX PRIORITIES

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. The Pantex Plant has three functions. It dismantles weapons. It does life extension programs. And it protects the security of more weapons and weapons-grade material than we have anywhere else. Given that funding is tight, how do you rank-order those three priorities?

MR. D'AGOSTINO. The purpose of Pantex, as an integrated element of the Nuclear Security Enterprise, is to sustain the stockpile. All three functions you mention must be supported, and balanced, both within the Plant and across the national security enterprise.

Pantex Plant has the following major functions that are critical enablers to the success of the sustainment mission:

- Weapon maintenance programs (repairs and limited life component exchange),
- Weapon disassembly and surveillance programs,
- Weapon life extension programs,
- High explosive production and surveillance,
- Pit storage (strategic reserve and other) and
- Weapon dismantlement and component disposition.

In support of the functions identified, Pantex provides a security capability that must protect systems while in storage, during transportation, and while engaged in operations. In similar fashion, Pantex must establish and maintain an effective safety basis supporting all nuclear explosive operations, provide comprehensive weapon and special nuclear material storage capability, and maintain effective internal transportation capabilities.

All of these functions represent vital elements of NNSA's core mission to maintain the nuclear weapons stockpile. Limited life component change-out function maintains weapon systems in an active performance posture. Weapon disassembly and surveillance functions address aging conditions of the stockpile and feed performance reliability and certification assessments done by the national laboratories. Life extension functions address needed changes or upgrades in specific systems that prolong performance life. High explosive production capability supports both life extension and surveillance requirements. The dismantlement function relieves the Nation of the security and maintenance burden of weapons no longer needed for national security. Pits identified as strategic reserves are stored on-site for potential future application. Other pits are also stored at Pantex, but only until the Plutonium Disposition and Conversion Facility is completed.

Since these functions are essential to core mission performance, prioritization must be achieved on an integrated basis, including Readiness in Technical Base and Facilities (RTBF) workload as well as Office of Secure Transportation (OST), Safeguards and Security, Cyber Security, and Directed Stockpile Work (DSW) areas of control. Funding support (RTBF) for appropriate facilities, security, and transportation capabilities must provide a foundation for the site's ability to perform weapons work. Prioritization of actual Directed Stockpile Work (DSW) is generally focused first on limited life component exchange requirements and then on functions associated with assessment and certification of weapon system performance. Life

extension, pit storage, and dismantlement requirements would follow in an integrated weapon system by a weapon system analysis of driving need and existing commitments versus available resources and funding. Our security investment is relatively insensitive to the stockpile size. It is principally driven by the threat assessment and our ability to reduce the security footprint.

DR. GARWIN. We need to minimize costs within the nuclear weapons complex, while getting the job done. If this means increasing the funding of Pantex while cutting more elsewhere, that is a good bargain, and that is what I propose to do. We should use technology and sensors at Pantex to provide security and awareness. We should install remote firing batteries so that artillery can be used from several firing points to protect the storage bunkers, if they were under massive attack to steal nuclear weapons or nuclear weapon materials. The shells should dispense cluster munitions harmless to the bunkers but lethal to attacking forces.

And we should ensure that Pantex is ready to store the nuclear materials from Livermore and elsewhere. I address this under item 13 as well, but I repeat it here.

According to a 2004 article in the Bulletin of the Atomic Scientists,[1] "each of the igloos at Pantex can store 400 pits, double-stacked. These 400 storage containers could also be used for plutonium material from demilitarized pits or bulk material that has not been made into pits. Since each U.S. primary contains on the average about 4 kg of Pu (a number cleared for the 1994 NAS CISAC report), 6 tons of Pu at 4 kg per storage container is about 1500 storage containers or 4 igloos, double-stacked. If there are not igloos available at Pantex, it would be inexpensive to build a few more.
Hearing Date/Question Number: March 17, 2009 / Question 8

[1] "Dismantling of U.S. nuclear warheads," *Bulletin of the Atomic Scientists*, Vol. 60, No. 1, pp. 72-74, January/February 2004. http://thebulletin.metapress.com/content/hh405772860642u7/fulltext.pdf

CONSOLIDATION OF COMPUTERS AND WEAPONS TYPES

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. I commend NNSA for its decision in the fiscal year 2009 budget to begin consolidating the number of weapons lab supercomputer sites from three down to two. But I wonder how much additional redundancy we could eliminate.

Why not take it further and go down to one location? Essentially maintain the advantages of two competing teams but co-locate them at the same facility. In this case, we would avoid putting all our eggs in a single computer, reduce the risk of common-mode failure and eliminate redundant overhead costs and use a single electrical power source. What is your view of this approach?

How much could we save by using one set of computer codes instead of two? What would we risk?

MR. D'AGOSTINO. Additional consolidation does not make sense in the near term. Our need for computing cycles requires more floor space than any one of our facilities can handle. We will continue to reassess computing locations as our needs change, either because technology offers less voluminous solutions, or our computing needs change. An important consideration is our concern for the security that a second site provides, should catastrophic failure occur at one site. While it's important to keeping the complex running, the security afforded by multiple sites is essential for time-critical missions related to attribution and nuclear forensics. In addition, our experience shows that capitalizing on the competiveness of multiple teams of compute scientists working at separate sites leads to accelerated advances in high performance computing in support of our stockpile stewardship mission.

With respect to simulation codes, relying on a single code for science-based stewardship is not prudent. Current nuclear weapons design and simulation, including the codes that support this work, benefits from independent approaches—at least two different approaches to assess the scientific credibility of simulation results. The scientific credibility of independent, peer-reviewed approaches is the backbone of our ability to ensure a safe, secure, and reliable nuclear weapons stockpile. We have made significant progress at the labs by eliminating support for multiple codes at a single lab.

DR. GARWIN. I do believe that LANL and LLNL should each have a major computing installation. It would perhaps be different if one were creating two computing sites from scratch, but both exist now, with their infrastructure. Yes, we should make remote access to computing effective and efficient.

As for one set of computer codes instead two, I believe that there should be convergence on the more efficient set of production codes, but there ought to be competition on the introduction of improved codes. This is not dependent on the choice of one location or two, but it is an essential feature to ensure the validity of codes.

Hearing Date/Question Number: March 17, 2009/Question 9

CONSOLIDATION OF COMPUTERS AND WEAPON TYPES

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. How much could we save by using one weapon type for each leg of the strategic triad? That is, one submarine-launched weapon instead of the present two; one ICBM warhead type instead of the present two; one aircraft-delivered weapon instead of the present three.

- What would we lose by going to one weapon line for each leg? In your opinion, would the Department of Defense have any reason to be concerned with this approach?

MR. D'AGOSTINO. Maintaining stockpile warhead diversity both within and across delivery systems is a key element of our strategy to hedge against a technical problem in the stockpile that could render unreliable a particular warhead type. This is particularly important in an era of no nuclear testing, and when our capabilities to remanufacture existing warheads, or build modern ones, is severely limited. The Department of Defense believes that this approach to diversity is prudent, although it is quite likely that broad hedging strategies will be reviewed in the upcoming Nuclear Posture Review.

Regarding NNSA reduced costs in accepting the risk of reduced diversity: Direct funding for sustainment of Stockpile Systems is less than 7% of the Weapons Activities budget and less than 4% of the NNSA total. Initial cost avoidance could include such things as eliminated maintenance and surveillance/assessment, reduced logistics/training, and focusing of design and production agency resources. Potentially significant cost avoidance could be achieved by not extending the life of a weapon soon to be eliminated. The base NNSA capabilities and infrastructure for Stockpile Stewardship will remain essential as long as the U.S. wishes to remain a nuclear power.

Regarding DoD costs: The DoD would need to assess cost adjustments for the associated weapon system operations, logistics implications (maintenance, training, spares provisioning, support equipment, technical publications, etc.), and changes in personnel requirements related to support of fewer weapon types.

DR. GARWIN. If the Department of Defense were required to choose a single warhead type for each delivery vehicle, it would very likely choose that with the higher maximum yield. This would result in greater kill probability for point targets and a larger damage area for area targets. It would also mean that any unexpected concern with a warhead would affect a larger portion of the strategic force. It would be impractical except in the context of major reductions, where there would probably be enough warheads to arm the entire land-based or the entire sea-based force, and there one could obtain major reductions in ongoing expense by caring for warheads only of a single type.

Nevertheless, this suggestion merits more attention than I am able to give it here.

Hearing Date/Question Number: March 17, 2009/Question 10

MANAGEMENT MODELS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. There are several management models under which the weapons labs are run. Sandia has been government owned but contractor operated since the 1940s. In contrast, Los Alamos and Livermore were operated by the University of California until 2006-7, and now they're operated by corporate consortiums.

- Between the multiple-manager model of Livermore and Los Alamos, and the single-manager model of Sandia, which works best?
- Or is there a third model?
- When Norman Augustine headed Martin Marietta, it was of course a for-profit corporation, but he was absolutely firm that Sandia was to be run not for profit, but as a national service. What are your thoughts on Mr. Augustine's approach? Could it be applied today?

MR. D'AGOSTINO. All management models, whether for-profit or not-for-profit based, can be equally effective for running our weapons labs if the proper combination of contract clarity, contractor diligence, and consistent contract administration exists. We have not seen a noticeable difference in the effectiveness of management between a limited liability corporation (an entity consisting of multiple sponsoring company interests) and a single corporate entity at our labs or plants. We have been able to utilize the additional fee, or profit, now available at our labs to incentivize desired behavior. The incentive fee arrangement contained in our award fee plans provides the contractors the opportunity to earn additional fee if their performance is outstanding. However, if their performance is substandard, this tool allows us to decrease their fee. As was the case with Lawrence Livermore National Laboratory last year, we decreased fee due to performance concerns. In summary, the for-profit incentive fee structure allows for greater federal program management flexibility while encouraging contractors to be more responsive to changing mission environments.

DR. BECKNER. Management models. The multiple-manager model of LLNL and LANL is proving to be a mistake. There are too many corporate entities involved, and no way to get integrated solutions to hard problems. They end up focussing on maximizing award fees, since NNSA (at the urging of congress) increased the award fee pool to the point that in both these examples the contractor can potentially earn fees well in excess of $50 million per year, - an amount that clearly is distorting the attention of the management team away from the real mission and toward performance against the award criteria.

DR. GARWIN. The Norman Augustine model for Sandia, I think, was a good one. As a result of the rising expectations among investors, however, fueled by phony numbers from the dot-com boom of the 1990s and even more from the financial manipulations of the recent decade, stockholders and especially management have increasingly been dissatisfied by normal profit and have reached for unattainable returns and compensation. This led to the starving of normal industrial investments and to the present fiscal meltdown.

I believe that the corporate-consortium model for LLNL and LANL had not been thought through and that the much increased fee and the liability to taxes have both impaired the substantive program at these laboratories.

DR. EGGENBERGER. The nuclear safety requirements that each laboratory contractor must satisfy are the same for all governance models.

Under any governance model that might be selected, NNSA will need to improve the capabilities of its Federal technical staff, ensuring that it has appropriate numbers of technical project managers, facility representatives, and safety system oversight personnel, and that they have appropriate backgrounds, training, and qualifications.

In general, NNSA has been relying on site personnel (Federal and contractor) rather than headquarters personnel to manage operations and projects. This has resulted in safety issues being addressed in an inconsistent manner, and has left NNSA headquarters with limited numbers of qualified technical staff to understand, evaluate, and address the issues that arise from the field.

The safe and efficient execution of NNSA's mission requires an adequate complement of qualified technical staff at both its headquarters and site offices. NNSA has committed to developing and maintaining a technically competent federal workforce, however, across the complex, the number of qualified individuals on NNSA staffs is well below desired levels, as evidenced by the quarterly reports issued by the DOE Federal Technical Capability Panel. In particular, NNSA needs to rectify shortages of qualified federal staff in the Technical Qualification Program, Facility Representative Program, and Safety System Oversight Program, each of which is critical for providing technically competent personnel for the oversight of defense nuclear facilities. Unfortunately, hiring this last year was severely curtailed, and NNSA does not have an aggressive and proactive staffing plan that integrates anticipated losses with recruitment and the time required to complete training. The ability of NNSA to effectively manage projects and govern its contractors will not improve until adequate numbers of qualified staff are available to do this work.

The Board also notes that the NNSA site offices are relying on contractor self-assurance systems as the central tenet of their oversight plans. For all NNSA contractors, these systems remain unproven, and it is premature to place undue reliance on their execution. Ultimately, DOE's and NNSA's oversight responsibilities cannot be delegated to the contractor. The Board's Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*, provides a framework to ensure that DOE and NNSA establish and maintain the technical capabilities and appropriate responsibilities to enable effective safety oversight.

Hearing Date/Question Number: March 17, 2009 / Question 11

CHEMISTRY AND METALLURGY RESEARCH-REPLACEMENT AND PIT NUMBERS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. We frequently hear that we must get out of the current Chemistry and Metallurgy Research (CMR) facility at Los Alamos, and that the Chemistry and Metallurgy Research Replacement (CMRR) facility is required to accomplish that. The CMRR-NF is projected to have 22,500 square feet of lab space, including room to place all the current capability from CMR, at a cost of upwards of $2 billion. And this facility would be extraordinarily secure, given the sensitivity of the work contained there.

NNSA's budget materials state CMRR-NF, operating in an "integrated fashion" with Plutonium Facility 4 (PF-4), will provide the capability to produce pits for the stockpile.

- Will any pits actually be constructed at CMRR-NF?
- What would actually take place in CMRR-NF that is necessary for pit production?
- How much space would these activities take up?

MR. D'AGOSTINO. No pits will be manufactured in the CMRR-NF itself. All operations concerning the manufacturing of a pit, with the exception of non-nuclear pit components, would be conducted in Technical Area 55/Plutonium Facility 4 (PF-4). Manufacture of non-nuclear pit components are conducted at the Los Alamos National Laboratory SIGMA facility.

There is no space in the CMRR-NF that is specifically intended to support pit production. The 22,500 square feet of laboratory space provides for the equipment to conduct analytical chemistry and material characterization on samples of material from the production of pits, to ensure the plutonium material and part fabrication meet specifications, and actinide research and development for all programs using plutonium. Much of the equipment would be used in support at various times during the development, qualification, and production of pits. The equipment would also be used to support a variety of other programs, such as surveillance, forensics analysis, research and development, Advanced Recovery and Integrated Extraction System (ARIES), non-proliferation, nuclear materials disposition, nuclear ceramics, and science where material or parts need to be analyzed and characterized for the program.

Vaults located in CMRR-NF would be used to meet a variety of requirements, including to store pits produced in PF-4.

Hearing Date/Question Number: March 17, 2009 / Question 12

CHEMISTRY AND METALLURGY RESEARCH-REPLACEMENT AND PIT NUMBERS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Additionally, there is to be room for 6 metric tons of Special Nuclear Material.

- How much space is this?
- Why is this storage space necessary?
- Are there other sites around the complex, such as Nevada Test Site or Savannah River, which could take this material? K-Reactor at Savannah River is already highly secure and is storing special nuclear material. I know it currently has extra space – why not move it there and not build additional storage?
- How much could be saved from the CMRR cost estimate if this material were stored elsewhere in the complex?

MR. D'AGOSTINO. The vault space within the CMRR-NF is approximately 17,000 square feet on two floors.

The vault is required to store the variety of parts, shapes, and material for all programs requiring the use and handling of plutonium. The vault provides storage for material coming into LANL (such as pits for disassembly and material preparation for pit production or for the Advanced Recovery and Integrated Extraction System to provide plutonium oxide for the Mixed Oxide Fuels Fabrication Facility); provides interim storage until material or product leaves the site; and provides day storage in support of activities operating on the floor of the facility.

With LANL being the major facility for plutonium operations, sufficient vault space must be available to address current and future missions. Relying upon storage space at another site would be very inefficient operationally. "Just-in-Time" operations would be difficult, given the Category I security requirements for material. It would also increase the demands on the limited resources and assets within the Office of Secure Transportation while increasing the road miles of Category I security/Category 2 hazards material on public roads around the United States. Logistics problems also develop as not all forms of material stored in a vault (residues, oxides, etc.) are amenable to transportation on public highways. At present neither the Nevada Test Site, nor the Savannah River Site have sufficient storage to address both their current missions, as well as, additional storage based on LANL missions. The Savannah River Site K-Area reactor storage is predicted to saturate in 2011, while the Device Assembly Facility at the Nevada Test Site is not configured for the storage of the variety of plutonium process materials, such as residues and oxides associated with a plutonium processing facility.

The total square footage of the CMRR-NF facility is – 384,000 square feet on multiple floors. Most of this space is for laboratory space (22,500 square feet) and the supporting infrastructure (HVAC, utilities, fire protection, and security) required for a Category I security/Category 2 Hazards class facility handling plutonium. Elimination of 17,000 square feet for storage vaults would not provide a large savings of the facility costs, since the security and hazards class of the facility would not change, thereby requiring most safety and security infrastructure to remain. A design change to remove the vault at this phase in the design would not produce any savings in the cost of the facility and would lead to investments at other sites to replace this storage capability.

DR. GARWIN. I have already indicated in my response to (8) that this material could be stored at Pantex. It is not like gold, which is valuable but inert and can be stacked so that 6 tons would fit in 11 cubic feet—3 desk drawers. Because of nuclear criticality hazards, the plutonium must be stored with substantial spacing enforced by strong containers. Alternatively, it could be packaged with a large amount of special material such as boron to enable closer stacking, if storage space were very expensive. At Pantex the storage space is cheap, but in high-security new construction it might merit compact storage with material that would reduce the criticality.

Hearing Date/Question Number: March 17, 2009 / Question 13

CHEMISTRY AND METALLURGY RESEARCH-REPLACEMENT AND PIT NUMBERS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. I understand that some of the CMRR-NF facility would take over the Pu-238 mission currently performed in PF-4.

- How much of the 22,500 square feet of lab space at CMRR would be for the Pu-238 mission?
- Is there any requirement that this work be done at Los Alamos, or could it be done elsewhere in the complex where Pu-238 work is already being done?
- How much could be saved from the $2 billion estimate for the CMRR-NF if the Pu-238 mission were transferred elsewhere?
- Pu-238 is also handled at Idaho National Lab. How much investment would have to take place there to take over the entire Pu-238 mission?

MR. D'AGOSTINO. The CMRR-NF does not plan to have, nor does design of the facility have, any operations associated with Pu-238, therefore, no savings accrue to the CMRR-NF by moving Pu-238 operations from LANL.

While there is no requirement that the Pu-238 work be done at Los Alamos, numerous studies have been performed indicating that it is the most economical location given there is already a facility operating (Technical Area 55/Plutonium Facility 4) that conducts Pu-238 activities in support of the Office of Nuclear Energy for National Aeronautical Space Administration and other users' needs. Also, there are some activities conducted and materials needed for Defense Programs.

Previous qualitative studies evaluating the move of the Pu-238 mission from LANL have indicated that movement of the missions, clean-up of space within TA-55/PF-4, and construction of new nuclear space would be in excess of $1 billion in capital investments alone.

Hearing Date/Question Number: March 17, 2009 / Question 14

CHEMISTRY AND METALLURGY RESEARCH-REPLACEMENT AND PIT NUMBERS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. NNSA's Record of Decision published in December says, "There is little difference in the size of a facility needed to produce between I and 80 pits a year." Would you please comment on this assessment?

- Given a facility of a certain size, there is still substantial cost for the equipment, and for skilled personnel, that go into the pit facility. Does the cost of equipment and personnel vary from 1 to 80 pits per year?
- To what extent does that make the cost of the total pit facility, including equipment, sensitive to pit production within the 1 to 80 range?
- How would pit-reuse factor into the needs for a new facility?

MR. D'AGOSTINO. Establishing or maintaining required production capabilities has a greater impact on the minimum size of our facilities than throughput capacities required for the smaller stockpile of the future. The required square footage in an up-to-date facility providing a minimum, essential capability frequently provides sufficient capacity to meet future requirements. Thus, the cost of building construction is relatively insensitive over a 1 to 80 range.

The cost of equipment and personnel does vary over a 1 to 80 range but the percentage cost increase would be significantly less than the percentage throughput increase. For a facility of a certain size, there would be additional costs for equipment and personnel as one increases throughput from 1 to 80 pits per year. However, there is a base amount of equipment required to manufacture just a single pit and each piece of equipment typically has an inherent throughput capability that is much greater than one operation per year. To go from 10 pits per year to 80 pits per year (800% increase) requires a relatively small increase in glove boxes (23%) and associated equipment. In addition to equipment there would be an increase in personnel, both operator/technician and manufacturing support to achieve the higher throughputs.

The requirement of equipment and personnel for pit reuse, as opposed to production of a new pit, depends upon the degree of intrusion into the pit. Pit reuse can vary from using the pit "as is", which would require minimum plutonium space, to more significant work on the pit requiring disassembly and assembly space. No foundry work would be anticipated, so there would be a reduction in the amount of pit production space required. However, because metal preparation and foundry work is required to support other programs, such as research and development, science, and testing, the need for this equipment would still exist.

DR. GARWIN. There is some merit in the statement that a capability to build one pit per year provides the capability to build 80 pits per year, except that it is not realized in the facility at LANL. If the small crew that would be adequate for the machining and other manipulation to produce one pit per year were used efficiently, surely they could produce

one pit per week. On page H-6 of a 2005 report2 of the Secretary of Energy Advisory Board task force I quote,

> "From a modern industry standpoint, world class productivity, quality, and safety can all be attained at the TA-55 facility by thorough and rigorous analysis and hard work on the production floor. The cursory analysis of the TA-55 facility yields a ratio of value-added to non-value added work of perhaps 1:20 or much worse. This indicates a tremendous opportunity for improvement. The available productive capacity of this plant is being wasted by inefficient utilization of plant equipment and personnel.
>
> "In conclusion, the TA-55 facility is an expensive national asset, which has the opportunity to be a dramatically more effective and efficient facility if operated as a modern production facility, utilizing available automation and world class operations management techniques."

The solution really would be to build a truly lean modern facility of this type.

"How would pit-reuse factor into the needs for a new facility?"

For weapons of existing type, the reuse of pits from Pantex would eliminate the requirement for new manufacture. In my opinion, however, we should be manufacturing some pits simply to put them into the stockpile and to monitor the aging of the newly produced pits.

Hearing Date/Question Number: March 17, 2009 / Question 15

---

[2] U.S. Department of Energy. Secretary of Energy Advisory Board. Nuclear Weapons Complex Infrastructure Task Force. Recommendations for the Nuclear Weapons Complex of the Future, draft final report, July 13, 2005, xi + 33 p. + 14 appendixes; available at [http://www.seab.doe.gov/publications/NWCITFRept-7-11-05.pdf]

COST SAVINGS FROM STOCKPILE REDUCTIONS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Stockpile levels have declined from about 35,000 at the peak of the Cold War, to about 10,000 at the beginning of the previous Administration, and to half of that today. Another 15% cut is scheduled. Still further reductions seem highly probable as a result of policy changes, economic pressures, and possible arms control agreements.

- If they do exist, where are the knees in the cost/stockpile curve? That is, at what stockpile levels do reductions allow us to save at an increasing rate?
- How can we best take advantage of these inflection points?

MR. D'AGOSTINO. A complete assessment to answer these questions can only be done jointly with DoD in the context of results affecting the nuclear stockpile that may result from the upcoming Nuclear Posture Review (NPR).

Direct funding for sustainment of Stockpile Systems is less than 7% of the Weapons Activities budget and less than 4% of the NNSA total. The current NNSA support provided by the Nuclear Security Enterprise is primarily focused on a capabilities-based approach that does not significantly change except in the areas of Life Extension Programs (LEP) and potential alterations/modifications of a specific weapon type. These required capabilities remain relatively constant to maintain the capability for assessment, surveillance, dismantlements, and production base for the stockpile. Additional capability increases are required to do refurbishments in the areas of research and development, production engineering, and production for LEPs and/or refurbishment of existing weapons. If the future NPR conclusions eliminate a weapon type that is planned for a LEP or other refurbishment, then there may be some potential for some cost avoidance.

Hearing Date/Question Number: March 17, 2009 / Question 16

COST SAVINGS FROM STOCKPILE REDUCTIONS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. One of Dr. Beckner's recommendations is that we disaggregate which complex improvements are required irrespective of stockpile size and composition, seriously considering funding those, and then postpone other facilities and improvements until we have an agreed path forward.

- What within the December Record of Decision MUST take place no matter the size and composition of the stockpile? In other words, what can we be doing today as we wait to develop a consensus path forward on the size and composition of our stockpile?
- Can you give more specificity on the sizing options, especially for the Uranium Processing Facility (UPF) and CMRR, depending on eventual stockpile decisions?

MR. D'AGOSTINO. We are pursuing a path that is consistent with Dr. Beckner's recommendation that we disaggregate and fund those improvements which are required irrespective of stockpile size and composition and postpone other facilities and improvements until we have an agreed path forward on the stockpile. You may have noticed that we did not make decisions in the December Records of Decision for a number of potential projects that were evaluated in the Complex Transformation Supplemental Programmatic Environmental Impact Statement. For example, we analyzed storage and weapons surveillance facility options at the Pantex site and purposely deferred decisions until we had more information on the future stockpile. The decisions made in the December Record of Decision should be implemented irrespective of the size and composition of the stockpile. Prior to completion of the 2009 Nuclear Posture Review, we are committed to only implement those actions that must take place to safely and effectively operate the Complex. For example, my approach is to continue the design work on our major nuclear facilities and defer construction until the Obama Administration's review of our nuclear posture is complete.

Relative to the sizing options for major nuclear facilities, especially for the Uranium Processing Facility (UPF) and Chemistry and Metallurgy Research Replacement (CMRR), our current approach is to focus on sustaining essential capabilities that should support a baseline capacity from 1 to 80 units per year. While no decision has been made to alter our current production of 20 units per year, this would be sufficient for stockpile decisions resulting from the upcoming Nuclear Posture Review. If future stockpile decisions exceed this capacity, we would need to exercise some of the flexibility inherent in a modern facility design to achieve higher capacities.

DR. EGGENBERGER. NNSA must end its reliance on unsound facilities—NNSA's Manhattan Project era facilities are no longer suitable for prolonged use. As indicated in my testimony, the 9212 Complex at Y-12 includes facilities that are more than 60 years old; and the Chemistry and Metallurgy Research building at LANL is more than 55 years old. The 9212 Complex cannot meet existing nuclear safety requirements for Hazard Category 2 nuclear facilities; an earthquake-induced fire will release enough radioactive material to have significant impact on site workers. The Chemistry and Metallurgy Research building's seismic fragility

poses a continuing risk to the workers and the public. A design basis event at either facility would probably require permanent shutdown of the facility.

The Board continues to drive NNSA to take interim actions to improve the safety posture in the existing facilities. NNSA has reduced the inventory of uranium solutions in plastic bottles at the 9212 Complex, and plans to relocate some activities from the Chemistry and Metallurgy Research building to a more robust facility at LANL. NNSA also is executing a line-item project to upgrade certain facility systems in the 9212 Complex based on a facility risk review. NNSA is relocating some mission-related work from the Chemistry and Metallurgy Research building and is attempting to consolidate other operations into wings of the structure that do not lie directly above a seismic fault. However, these are stop-gap measures. These facilities are structurally unsound and are unsuitable for use any longer than absolutely necessary. The Board continuously evaluates whether conditions have reached a point such that the Board must recommend that the facilities be shut down.

Hearing Date/Question Number: March 17, 2009 / Question 17

STAGGERING CMRR AND URANIUM PROCESSING FACILITY (UPF)

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Constructing CMRR and UPF at the same time creates a large budgetary burden.

- Would it make sense to stagger these programs rather than do them simultaneously?
- If so, which would you do first?

MR. D'AGOSTINO. CMRR and UPF will be multi-billion dollar investments. If both projects are pursued simultaneously, these large nuclear assets will represent a significant funding hurdle for Defense Programs, since each project has peak annual funding requirements in the range of $300 million.

Programmatically, Defense Program prefers to fund both projects as rapidly as possible. Each project has compelling national interests to support, and when completed will allow for significant efficiencies in operations and annual cost savings. However, Defense Programs now considers it unlikely that sufficient budget authority will be available to support pursuing both projects simultaneously.

DR. GARWIN. I think that one should have a new look at the CMRR-NF—the "nuclear facility"—to see how its job can be parceled out between TA-55 at LANL and Pantex. Similarly, UPF should have a hard look to see whether it is essential in the near future.

DR. EGGENBERGER. Staggering the facilities will increase the time that NNSA will be required to rely on unsound facilities—Manhattan Project era facilities that are no longer suitable for prolonged use. As indicated in my testimony, the 9212 Complex at Y-12 includes facilities that are more than 60 years old; and the Chemistry and Metallurgy Research building at LANL is more than 55 years old. The 9212 Complex cannot meet existing nuclear safety requirements for Hazard Category 2 nuclear facilities; an earthquake-induced fire will release enough radioactive material to have significant impact on site workers. The Chemistry and Metallurgy Research building's seismic fragility poses a continuing risk to the workers and the public. A design basis event at either facility would probably require permanent shutdown of the facility.

The Board continues to drive NNSA to take interim actions to improve the safety posture in the existing facilities. NNSA has reduced the inventory of uranium solutions in plastic bottles at the 9212 Complex, and plans to relocate some activities from the Chemistry and Metallurgy Research building to a more robust facility at LANL. NNSA also is executing a line-item project to upgrade certain facility systems in the 9212 Complex based on a facility risk review. NNSA is relocating some mission-related work from the Chemistry and Metallurgy Research building and is attempting to consolidate other operations into wings of the structure that do not lie directly above a seismic fault. However, these are stop-gap measures. These facilities are structurally unsound and are unsuitable for use any longer than absolutely necessary. The Board continuously evaluates whether conditions have reached a point such that the Board must recommend that the facilities be shut down, regardless of whether a suitable replacement facility has been constructed.

Hearing Date/Question Number: March 17, 2009 / Question 18

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. One of the highest costs we have is that of security for weapons-grade material. I'm not criticizing this. We need very high security for the spaces where we keep weapons-grade material, and we need to pay for it. But it may be that we have more secure space than we need.

Consider the Chemistry and Metallurgy Replacement Research (CMRR) Nuclear Facility. This is intended to be a facility that is designed to do many things, only some of which involve weapons-grade material. But plans call for the entire facility to be within the nuclear-security perimeter and to receive weapons-grade security. How much could we save by reducing the secure area by splitting off the work areas that won't involve weapons-grade materials, and moving them far enough away so all they'll need will be ordinary security?

MR. D'AGOSTINO. The CMRR project is comprised of two separate facilities — the Radiological Laboratory, Utility, and Office Building (RLUOB) and the CMRR Nuclear Facility. The RLUOB was designed to have both classified and unclassified space within the facility to lower the number of Q cleared personnel required and to allow access to certain areas of the facility by uncleared visitors and newly hired trainees. The facility is being built outside the Protected Area (PA) and will be accessed with badge reader access. RLUOB will have some 'light laboratory' space in the facility that handle small amounts of radiologic materials and will be in a Limited Area within the building, but does not require the protection afforded by a Perimeter Intrusion Detection and Assessment System (PIDAS). The limited area, with automated access personnel controls, will not require any significant security expenses.

The CMRR Nuclear Facility, where the weapons-grade material operations take place; is being constructed with security features/strategy built-in; and once built will be enclosed within the PA at TA-55 (i.e. inside the PIDAS). Personnel working in that facility will be required to have Q clearance, be enrolled in the Human Reliability Program (HRP), pass through a stringent Entry Control process (badge reader; hand geometry; x-ray screening for briefcases, bags, backpacks, coats, etc.; chemical screening; and other entry control processes) when entering or leaving the PA. However, the number of personnel accessing and operating the CMRR Nuclear Facility will be significantly smaller than the current Chemistry and Metallurgy Research (CMR) facility, where everyone accessing the existing CMR facility must have a Q clearance. Security features designed into the CMRR Nuclear Facility include: the majority of the facility below

grade to limit profile for attack and protection of bermed earth; heavy wall construction with heavy vault type doors for securing material; limited access and egress points to make it easier to defend; badge reader, hand geometry; and other identification required to access the facility and compartments inside the facility; and special areas for protective force usage to help in defending the facility.

Hearing Date/Question Number: Month Day, 2009/ Question 19A

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. One of the highest costs we have is that of security for weapons-grade material. I'm not criticizing this. We need very high security for the spaces where we keep weapons-grade material, and we need to pay for it. But it may be that we have more secure space than we need.

Hiring larger numbers of security people is expensive; to what extent can we bring down the cost of security and increase its effectiveness at the Special Nuclear Material (SNM) sites by using better technology and fewer people?

MR. D'AGOSTINO. The National Nuclear Security Administration (NNSA) is aggressively deploying security technologies to reduce the manpower burden where feasible. The use of technology enhances the efficiency and effectiveness of protective forces, and allows for modifications to security schemes. For example, automated access control and perimeter sensors have allowed the protective force to shift from a detection role to a response role. Defense Nuclear Security is developing an NNSA nuclear security enterprise physical security plan to streamline technology deployment and increase the effectiveness for protecting SNM.

NNSA is also aggressively pursuing complex transformation that will reduce our security footprint and SNM target locations along with leveraging new facilities with robust engineered security features designed into them to reduce security manpower. This will significantly decrease the cost of security at some NNSA locations. For example, when Y-12's Highly Enriched Uranium Material Facility (not yet operational) and Uranium Processing Facility (still in design phase) are fully operational they will be able to realize a protective force reduction of 200 FTEs. The cost savings in protective force manpower alone is estimated to be approximately $33 million annually. Additional cost savings in physical security will be realized through a 90 percent footprint reduction of the current security area at Y-12.

Below are several examples where technology provides increased effectiveness for protecting SNM and have resulted in or may result in significant cost savings or cost avoidance.

- The Mobile Detection Assessment and Response System (MDARS) is an unmanned vehicle that will provide remote monitoring within an area that requires constant security presence. This system will permit the reduction of 12 protective force positions at a particular site. Initial analysis estimates an annual cost savings of $2 million, which equates to a 259 percent return on investment over three years. It also leverages the Army's several years and millions of dollars invested into the research and development effort.

- The Long Range Radar Detection System (LRDS) will replace two outdated Mobile Intruder Reconnaissance Vehicles. This system will result in a reduction of 16 protective force personnel for a savings of $3 million annually, which equates to an 89 percent return on investment over three years.

- The Dillon Minigun engagement simulation system has resulted in an immediate savings of nearly $500 thousand on ammunition and travel costs at one of our smaller sites. The

potential savings to be realized at a larger site that deploys the Dillon weapon system as the result of substituting a technological qualification capability in lieu of expending tens of thousands of rounds of very expensive ammunition during qualification cycles will be significant.

- The Tactical Training Simulator at Pantex, along with one currently being installed at the Los Alamos National Laboratory, will bring an estimated cost avoidance of approximately $4 million annually in protective force training costs.

Lethal denial technologies are currently a capability gap. We are working on the final stages of a Department of Energy (DOE) safety standard. Further analysis will be needed to identify any potential manpower savings associated with these systems.

Remotely Operated Weapons Systems (ROWS) have the potential to reduce protective force manning by virtue of their potential for delivering increased firepower and accuracy while simultaneously obviating the need for deploying manpower resources to cover the operators. We are currently working with DOE, Department of Defense (DoD), and the Nuclear Regulatory Commission on a DoD-funded initiative to develop an interagency ROWS capability.

Hearing Date/Question Number: March 17, 2009 / Question 19B

PIT RE-USE

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. It seems that pit re-use could produce very significant cost savings. According to a JASON report, typical pit life is 80 to 100 years.

- Is pit re-use readily feasible, or does it face significant technical hurdles?
- I realize the question I'm about to ask is tied up in multiple variables, but what is the range of savings in the cost of the complex that we might expect from pit re-use?
- In light of the potential of pit re-use, why is it necessary to push ahead today with the capability to manufacture new pits? That is, I understand the need to maintain a pit production capability against future contingencies. But if we accept the position the House took last year that we have more W88s than we need, is it possible that pit re-use could eliminate the need for new pit manufacture altogether?
- Similarly, what are the potential complex savings from secondary re-use?

MR. D'AGOSTINO. Direct pit reuse, the use of existing pits with no modifications, is feasible but can offer only limited improvements in performance margin and surety and only for some systems. Modifications of existing pits would allow for more margin and surety improvements for volume-constrained systems than direct reuse; this would require some of the same investments in our R&D and manufacturing infrastructure as is required to establish a production capacity for new pits. Using newly manufactured pits offers the most flexibility for improving performance margin and surety. All options for the future stockpile will require investments in the science tools that allow us to assess and certify the stockpile in the absence of nuclear testing.

A variety of future pit and secondary alternatives have been evaluated as part of the planning for transforming the nuclear weapons complex infrastructure. The most preferred pit reuse option exists in limited quantities only, and would require new manufacture of the existing design to meet current or potential stockpile requirements. The best economic and technical alternative, for all potential pit and secondary production capabilities, is to retain and build on the existing R&D and production facilities at Los Alamos and Y12.

Depending on warhead type, our best estimate of minimum pit lifetime is 85-100 years. While this exceeds previous estimates, degradation from plutonium aging still introduces uncertainty in overall system performance, particularly for lower margin systems. As the stockpile continues to age, we must plan to replace considerable numbers of pits in currently stockpiled weapons. Our experience restarting pit production at Los Alamos indicates the degree of difficulty the nation faces should the current capability to produce be eliminated.

We are attacking annual operating costs. Our plutonium research and production capability supports a broader workload than pit manufacturing. We have to have the capability to produce other plutonium shapes and parts to support on-going plutonium science activities, including potential future subcritical experiments, to perform a variety of surveillance operations, to support other programs of national significance, including nuclear forensics.

All these activities require safe and effective workspace, glove boxes, equipment, test and diagnostic capabilities and are all factored into the program requirements and design. The capability to produce one pit provides the capability to produce some number of additional pits before additional equipment and glove boxes would be needed to produce a greater quantity. To maintain this capability, we need to sustain the required level of security, safety systems, authorization basis, and operational readiness.

If a future decision is made to field replacement warheads, we may require expanded pit production capacity to introduce sufficient numbers of warheads into the stockpile, depending upon Department of Defense requirements.

DR. GARWIN. Pit reuse is certainly feasible for expanding the inventory of existing weapons while there are spare pits in storage. And expected major reductions in nuclear weapon stockpiles mean that there will be spare pits in inventory.

The bigger question is whether one can fabricate nuclear weapons by a mix-and-match approach to the reuse of primaries, secondaries, and perhaps even other portions of nuclear weapons. I would be reluctant to do this unless absolutely necessary and until it has been accompanied by full and flexible simulation of the detailed weapon configuration and a full certification process. Putting an untested warhead into the stockpile is infeasible at the present state of our capability.

MR. COYLE. The Obama administration has halted the RRW. The RRW is shorthand for, "Reliable Replacement Warhead," where existing warheads are replaced with warheads composed of newly manufactured components using designs not previously produced for stockpile use. However, the stockpile life of existing warheads might be extended using refurbished nuclear weapons or components, or by reusing certain components already in the U.S. nuclear weapons stockpile.

If NNSA adopts this approach, future stockpile stewardship programs will be based on reuse and refurbishment, not on "replacement."

It will be important for the Subcommittee to understand these two approaches – Reuse and Refurbishment - and their implications for proposed new facilities.

This new approach complies with the Obama administration policy that work on the RRW will cease, while supporting the Obama policy that "continued work to improve the nuclear stockpile, safety, security and reliability is enhanced with more expansive life extension programs."

"Reuse" is defined as warheads composed of newly manufactured and/or existing components from warheads previously in stockpile use.

"Refurbishment" is defined as warheads composed of newly manufactured or existing components originally designed for that warhead. This is the approach that was used for the W87 Life Extension Program (LEP) and is currently being used for the W76 LEP.

Under these scenarios the necessity for two proposed new facilities -The Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR-NF) at Los Alamos and the Uranium Processing Facility (UPF) at Y-12 – could be quite different.

For example, if refurbishment is employed, UPF could be required but CMRR-NF could be significantly delayed. If reuse is employed, then UPF could be delayed but CMRR-NF or equivalent capability could be required.

To be able to assess NNSA funding proposals for these two facilities, the Subcommittee will need to understand whether "reuse" or "refurbishment" is going to be the preferred option, and the time scales over which either or both might be applied.

If "replacement" were used, both UPF and CMRR -NF could be required. However, the Obama administration has eliminated that option.

Hearing Date/Question Number: March 17, 2009 / Question 20

PIT DISASSEMBLY AND CONVERSION FACILITY (PDCF)

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. There has been some debate about the fate of the Pit Disassembly and Conversion Facility, currently proposed for Savannah River. The current cost estimate for this facility is roughly $2.8 billion, a 65% increase over the initial estimate.

- The PDCF's mission would be to provide feedstock for the Mixed Oxide Fuel Fabrication Facility. However, PF-4 in Los Alamos will provide the initial tranch of feedstock.
- Why not let PF-4 continue this mission and forgo the $2.8 billion for PDCF?
- How much would it cost to upgrade PF-4 to take over feedstock operations for MOX?
- I understand that DOE is currently evaluating whether to combine PDCF with the operations of an EM plutonium disposition process in Savannah River's K-Reactor. What is the status of this evaluation?

MR. D'AGOSTINO. While it is accurate that PF-4 at Los Alamos has a small scale capability to disassemble and oxidize plutonium metal from pits, its annual throughput capacity is limited to approximately 300 kilograms per year. Based on this capacity, the base plan relies on Los Alamos to produce approximately 2 MT over the next 8 years, which is significantly different from the required production-scale process to provide 3.5 MT per year to the MOX facility over a multi-year period. Significant capital upgrades, equipment purchases, increased storage, and staffing would be required to increase the PF-4 throughput capacity to meet the 3.5 MT annual requirement. The increase in facility and floor space that would be needed to house processing equipment and provide storage will compete directly with other ongoing research and development and national security missions in PF-4.

The decision to site the Pit Disassembly and Conversion Facility (PDCF), along with the Mixed Oxide Fuel Fabrication Facility (MOX FFF) at the Savannah River Site (SRS) was made after a lengthy, thorough, and well-documented process that involves technical studies and evaluations, public involvement, National Environmental Policy Act (NEPA) evaluations including two environmental impact statements (EISs) and cost analyses, which are culminated in a January 2000 Record of Decision (ROD), *"Surplus Plutonium Disposition Environmental Impact Statement"* (SPD EIS) (DOE/EIS-0283, November 1999).

While project cost is important, there are other factors that should be considered such as cost savings through integrating the entire surplus plutonium storage disposition program across the DOE complex. In numerous NEPA evaluations and Records of Decision, SRS has been evaluated and selected as the site to locate plutonium disposition missions and provide consolidated storage for surplus special nuclear materials for the DOE complex, enabling hundreds of millions of dollars in savings associated with surveillance, facility maintenance and security costs for storing these materials at multiple sites across the complex. Much of the materials that are being consolidated at SRS will be used as feed for MOX and makes up almost 23 % of the MOX feedstock. Within SRS, the Department is evaluating alternatives that could establish a more optimal approach in dealing with the disposition of surplus plutonium and could result in cost savings through combining the pit disassembly and conversion needs of NNSA with an Environmental Management

(EM) program project, the Plutonium Preparation Project (PuP), planned to be located within the K Area Material Storage facility at SRS. Accordingly, an
alternative analysis, incorporating both EM and NNSA plutonium disposition scope, is underway. By summer 2009, NNSA expects to complete the detailed analysis of alternatives and provide a preferred recommendation to the Acquisition Executive.

DR. BECKNER. The entire mission assigned to PDCF cannot reasonable be done at PF4 as long as PF4 has large program responsibilities to the mainline nuclear weapons program. However, the Pu-oxide activities at PF4 can be enlarged at LANL to take on a larger role (than its present assignment) in producing Pu-oxide, such that the PDCF can be much smaller and have a much more limited mission (at much lower construction and equipment costs), and probably also negating the need for a new building. That said, it continues to be important to keep the major Pu-oxide production role at SRS in order to keep the state of South Carolina supporting the DOE and NNSA programs. Also, with the recent decision by Duke Power to drop their commitment to take MOX fuel for their reactors, there is less time-urgency to get the pits turned into oxide.

DR. GARWIN. As I indicated in my oral testimony, there is now no call for MOX fuel for existing reactors. It is a very high cost approach to disposition, and disposition of excess weapon plutonium should now be done for the foreseeable future by consolidation and secure storage at Pantex. Eventually, this plutonium might be used for an economical, safe breeder reactor program to provide commercial electrical energy. So I believe the pit disassembly and conversion facility should be put on hold.

Finally, I believe that the safety, security, and reliability of the U.S. nuclear stockpile depend upon having a viable cadre of nuclear weapon experts at both LANL and LLNL. True, the plutonium work will all be done at LLNL, but it is essential in order to avoid group think that there be nuclear weapons design and assessment conducted at both LANL and LLNL.

As I say in my oral testimony, it is essential not to sacrifice people for machines or for fee, and I add here, for taxes.

Hearing Date/Question Number: March 17, 2009 / Question 21

TRITIUM OPERATIONS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. At least one of the witnesses has questioned whether we should put the tritium operations at Savannah River into standby mode.

- Is this a realistic option?
- How much money would be saved?
- Would there be problems with ramping it back up again?

MR. D'AGOSTINO. Putting all tritium operations in a standby mode is not realistic. Savannah River tritium operations include the ability to recycle and recover tritium to support stockpile needs. These operations need to continue. Depending on the projected tritium demand curves, to be informed by the pending Nuclear Posture Review (NPR), recycle and recovery of material could supply the complex with tritium to meet these requirements. NNSA would have to anticipate substantial reductions in both active weapons and types of weapons with no reactivation requirement for this option to be feasible. It should also be recognized that there are secondary requirements for tritium, beyond sustaining the current stockpile, that benefit from maintaining active tritium operations. These are generally in support of other national security requirements, current and projected.

Putting the Tritium Extraction Facility (TEF) in cold standby (with ventilation active to contain contamination) could save approximately $13 million per year compared to continuing in the current Responsive Operations mode. Responsive Operations to year 2025 would cost approximately $400 million (in FYIldollars). Inserting a ten year shutdown period would reduce the costs by about $130M. However, to restart the facility would cost on the order of $70 million or more. Thus, inserting a ten year shutdown would potentially offer only a 10% savings or roughly $40 million. This 10% potential savings is well within the uncertainty of these estimates.

Restarting the TEF would require refurbishment of hardware, replacement of seals, etc., hiring, obtaining security clearances for, and training of personnel, and conduct of an Operational Readiness Review (ORR), which is estimated to take place in a two year period. The cost for this activity would be approximately $70 million in current year dollars. The uncertainty in these estimates, which have not considered placing the facility in cold standby, could easily exceed the potential savings.

The facilities are currently being run in a responsive operations mode, i.e. sharing of labor resources, limited extractions, limited operations, etc. This operating mode is effectively meeting the intent of the question being posed. Until there is greater definition of the final stockpile numbers, types, and options on which to estimate tritium demand, the responsive operations mode meets a cost effective and risk based approach to operating.

DR. BECKNER. It is not possible to put all tritium operations into stand-by mode. The activities of receiving old tritium reservoirs from weapons, purifying the gas, and filling replacement reservoirs must be continued in order to have a viable stockpile. However, the operations involving the production of new tritium gas at the new Tritium Recovery Facility are probably not required for at least 10 years and could be moth-balled for a long time. This may

not save a lot of money, since it will obviously cost money to re-start that facility, but it will surely save some money and NNSA needs every savings it can get. Furthermore, risks associated with restarting operations are minimal.

Hearing Date/Question Number: March 17, 2009 / Question 22

NNSA PENSIONS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. Administrator D'Agostino, the press is reporting that NNSA is facing a $1 billion shortfall in your pension fund. What is the actual shortfall being faced by NNSA? What impact could this have on your future plans?

MR. D'AGOSTINO. The "pension fund" you refer to are the defined benefit pension plans sponsored by the Management and Operating contractors for the DOE/NNSA laboratories and facilities. These are the pension plans for their employees, and NNSA reimburses costs for these plans as determined allowable under its contracts. Although the pension plans are strong, the downturn in the financial markets coupled with the requirements of the Employee Retirement Income Security Act (ERISA), as amended by the Pension Protection Act of 2006 (PPA), and Secretarial direction to ensure that benefit restrictions are avoided, have caused unplanned funding requirements for most of the pension plans at NNSA sites.

At this point, we estimate the FY2009 pension plan funding for NNSA at approximately $427 million, this is approximately $150 million more than previously anticipated. We are taking steps to mitigate the impacts of this increased cost on affected sites and programs, including development of a proposal for reprogramming that will be provided to this and other cognizant Congressional committees.

The long term impact of the increased pension costs due to the poor performance of the financial markets and the Pension Protection Act cannot be accurately assessed at this time. If this situation continues for a number of years, a $1 billion cumulative impact is not beyond possibility.

Until the financial markets fully recover, NNSA will be experiencing an increased cost of doing business at our M&O contractors. This will challenge us to accelerate planned actions to move to a smaller and less expensive nuclear security enterprise in a time of overall fiscal constraint and diminished financial resources.

Hearing Date/Question Number: March 17, 2009 / Question 23

SITE OFFICES

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. We have heard a lot of criticism of the Site Offices. We are aware, for example, that the Livermore Site Office certified physical security at Livermore to be adequate, shortly before a force-on-force exercise last year proved physical security there to be inadequate.

- What changes, if any, should be made in the funding and operations of the Site Offices?

MR. D'AGOSTINO. There are no changes under consideration for the operation of NNSA Site Offices. Senior management is prioritizing available funding to ensure continuity of federal oversight capability at all Site Offices. Corrective actions implemented to successfully address physical security issues at Livermore included management changes at the Livermore Site Office and the Lawrence Livermore National Laboratory.

Hearing Date/Question Number: March 17, 2009 / Question 24

PROBLEMS IN THE LEP PROCESS

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. The GAO recently published a rather scathing report regarding the W76 and B61 life extension programs. Frankly, the GAO's conclusions have to make one wonder whether NNSA's planning abilities are up to the task of managing our nuclear weapons in a timely, cost effective manner. GAO made a list of recommendations, but there is a couple I'd like to ask you about.

- It's known that the W76 program was both delayed and driven up in cost because of problems reproducing a material called "fogbank". One of GAO's recommendations is that program managers responsible for construction of new facilities needed for future LEPs coordinate directly with the LEP managers.
    - Are there new specialized facilities that will need to be built for upcoming LEPs?
    - If so, what are they are what would they cost?
- Apparently, STRATCOM did not comprehensively review the military requirements for the B61 before NNSA began refurbishment activities, resulting in increased delays and costs. How much time and cost was caused by this oversight?
- How will you, the STRATCOM commander, and the Secretary of the responsible service ensure that this type of mistake does not happen in the future?

MR. D'AGOSTINO. Construction requirements for specialized facilities other than those already identified as part of SPEIS activities will depend on the scope of the upcoming Life Extension Programs and decisions to reuse, remanufacture or redesign highly specialized components. These decisions are made in the Feasibility and Down Select Phase (Phase 6.2/6.2A) and prior to authorization of Production Engineering (Phase 6.3). NNSA concurs with the GAO recommendation on the subject and has taken steps to ensure better integration and documentation of construction requirements during the Study Phase of the Life Extension Program.

The next Life Extension Program is currently early in the Feasibility Study and Down Select Phase (Phase 6.2). Until this study is completed, construction requirements and estimated costs are unknown at this time.

Development of the alternative material was a risk mitigation effect began early in the B61 Alteration 357 project and much of the effort proceeded in parallel with other development efforts. The alternative material effort was dropped in 2005 after approximately one year of extensive development once the DoD authorized a change in the delivery requirements. Costs impacts are not available at this time.

NNSA will continue to work very closely with the appropriate Air Force (AF) and Navy Project Officers Groups (POGs) on performing a comprehensive review of military requirements during the Feasibility and Down Select Phase (Phase 6.2/6.2A) prior to authorization of Production Engineering (Phase 6.3). NNSA is also taking additional steps to overlay and add rigor, accountability, and integration through a formal "Integrated Phase Gate" process. This process is an adaptation of an industry process developed to improve the requirements, risk and cost management program elements of major acquisition projects. This methodology will be applied to the next Life Extension Program.

Hearing Date/Question Number: March 17, 2009 / Question 25

ORDER 413.3

CHAIRMAN VISCLOSKY AND RANKING MEMBER FRELINGHUYSEN. A couple of weeks ago this Subcommittee held a hearing on cost overruns and other management problems at DOE. One of the few positive findings of the panelists was that DOE's Order 413.3 is a solid set of project management guidelines that should improve DOE's cost management, if followed.

- Does NNSA have to follow Order 413.3?
- If not, why not?
- What changes would NNSA have to make in order to fully implement the provisions of Order 413.3?

MR. D'AGOSTINO. Yes, NNSA must follow DOE Order 413.3. We have taken an initiative in NNSA to further improve our project management. Over a year ago, senior leadership chartered Special Focus Area #5 to address methods by which NNSA can improve project management performance across the NNSA complex. We conducted a thorough review of each site within the complex and determined that DOE 413 is being implemented and executed well, and identified two attributes of good project management that required strengthening. The two areas are Tailoring and Systems Analysis/Engineering.

Tailoring is a predetermined streamlining of a project's execution without sacrificing any of the requirements of the Order. Tailoring affords the field offices the opportunity to take advantage of schedule and cost saving measures. Systems Analysis/Engineering, in the project management context, is a concept of applying resources (engineering and other expertise) in a holistic manner through all phases of project execution and for all major project decisions. NNSA has recently implemented a new Business Operating Procedure 50.004: Program Requirements Document (PRD) for Construction Projects, dated February 15, 2008 that when fully implemented should assist in addressing the Systems Analysis concern. Guidelines will be prepared on "tailoring". We are also working in concert with the DOE's Office of Engineering and Construction Management, as well as other DOE Program Offices, to revise and improve DOE Order 413.3A.

DR. EGGENBERGER. Part 1: Yes, NNSA must follow DOE Order 413.3A. This is specifically delineated in paragraph 3.a of the Order, portions of which are extracted below:

> "The requirements identified in this Order are mandatory for all DOE Elements (unless identified in the exclusions paragraph), including the National Nuclear Security Administration, for all capital asset acquisition projects having a Total Project Cost... greater than or equal to $20 Million (M)."
>
> "The principles as set forth in this Order and Project Assessment and Reporting System reporting requirements apply to all projects with a Total Project Cost... greater than or equal to $5M."
>
> "The Under Secretary, National Nuclear Security Administration will assure that National Nuclear Security Administration employees and contractors comply with their respective responsibilities under this directive."

Part 2: This part of the question is not applicable, since DOE Order 413.3A applies to NNSA.

Part 3: No changes are required for NNSA to fully implement DOE Order 413.3A—the Order is already levied upon NNSA and full implementation is required. However, full implementation has not yet been achieved. In part, this is because DOE and NNSA are still working to completely define the requirements that will ensure that safety is incorporated early in the design process for all DOE and NNSA projects.

Following the Board's urging in a February 22, 2008, letter, DOE issued a new standard, DOE Standard 1189, *Integration of Safety into the Design Process*, and issued a change to DOE Order 413.3A, including new requirements that provide consistency between the Order and DOE Standard 1189. DOE also issued 16 guides to support implementation of changes to DOE Order 413.3A. The Board is monitoring the implementation of these new requirements and guidance by both DOE and NNSA, consistent with commitments made in the Joint Report to Congress, *Improving the Identification and Resolution of Safety issues During the Design and Construction of DOE Defense Nuclear Facilities*, issued July 19, 2007. The Board also continues to provide reports to Congress on a quarterly basis, giving both Congress and DOE/NNSA senior management a clearer understanding of the Board's outstanding nuclear safety concerns regarding DOE and NNSA design projects.

The Board has used DOE Order 413.3A and DOE Standard 1189 to drive DOE and NNSA to develop a more robust approach to resolution of nuclear safety issues raised during the design process. Early resolution of nuclear safety issues will help minimize the impact of design changes on a project. Clear safety expectations, early Board involvement in the safety-related activities, conservative design assumptions, and more rigorous analysis and detail in the Conceptual Safety Design Report (prior to approval of Critical Decision-1) all support meeting Congressional expectations for DOE, NNSA, and the Board.

Hearing Date/Question Number: March 17, 2009 / Question 26

NUCLEAR FORENSICS AND ATTRIBUTION

MR. CALVERT. Nuclear forensics and attribution is an increasingly important national priority and relies on similar skills and knowledge needed to support the stockpile stewardship program.

What kind of efforts is NNSA pursuing to integrate nuclear deterrence activities to provide core compentencies and facilities that are needed to support the U.S. stockpile and nonproliferation/counterterrorism efforts?

MR. D'AGOSTINO. The scientific skills, expertise, and facilities developed over many years in NNSA's nuclear weapons program underpin the forensic analysis of foreign nuclear threats, including the assessment of an improvised nuclear device. As examples of capabilities existing within the NNSA national laboratories that would play a critical role in nuclear forensics and attribution, I would point to radiochemistry, high-performance computing to model nuclear weapons performance, and specialized laboratories that can handle samples containing fissile materials or radioactively-contaminated debris.

Within a coordinated national planning process that assigns specific nuclear forensics roles and responsibilities to different federal agencies, NNSA makes its laboratory capabilities and experts available where they are needed. We have created an office within our emergency operations program to execute the nuclear forensics tasks assigned to NNSA and given responsibility for overall coordination of our contribution to the national nuclear forensics effort to the Deputy Under Secretary for Counterterrorism.

Hearing Date: March 17, 2009

LAWRENCE LIVERMORE WORKFORCE

MR. CALVERT. As you know, LLNL's workforce has been substantially reduced in recent years. I would appreciate your assessment of efforts to maintain core competencies, particularly with regard to maintaining nuclear weapons expertise, necessary to ensure an adequate U.S. deterrent and support nonproliferation and counterterrorism activities, such as nuclear forensics, in light of the transfer of CAT I/II quantities of Special Nuclear Material out of LLNL -how does NNSA plan to maintain peer review capability in this vital arena. Does your consolidation and transformation plan include accommodation of LLNL SNM research at LANL?

MR. D'AGOSTINO. We share your sense of urgency to maintain the nation's capability, both expertise and supporting infrastructure and the science, technology and engineering that underpins the NNSA laboratories' national security missions. The strategic steps we are taking are to transform the Nation's nuclear security enterprise by modernizing and streamlining our capabilities, and to support a broader scope for our NNSA laboratories by including a focus on the full spectrum of national security concerns. We are currently working through the details of this transition from a weapons complex to a national security enterprise, and hope to have planning complete in the next few months. We do not believe that the removal of category (CAT) I/II quantities will impact either this effort or peer review. Furthermore, let me assure you that our plans for consolidation include the accommodation of key LLNL plutonium activities at the Los Alamos National Laboratory. The two laboratories have completed what they call a governance agreement, which addresses LLNL use of Cat I/II facilities and capabilities at the Los Alamos Plutonium Facility #4 (PF-4) for both research and technology demonstration. Under the Plutonium Sustainment program, there are plans including the "cold' testing of LLNL designed and developed technology in an appropriate facilities at Los Alamos, and--subject to the technology's performance and availability of funding--subsequently insertion into the "hot" plutonium operational environment within PF-4.

DR. BECKNER. The plan to transfer the CAT I/II quantities from LLNL to LANL makes lots of sense, so long as LANL has the facilities necessary to conduct all the programs required. I think NNSA has thought this through, and the savings at LLNL are real and will continue indefinitely if the lab successfully makes the transition in its operations from doing such plutonium work at LLNL and doing it instead at LANL.

Hearing Date/Question Number: March 17, 2009

DEFERRING INFRASTRUCTURE DECISIONS

MR. CALVERT. Does the NNSA see opportunity costs, or risks of incurring greater future costs, by deferring infrastructure decisions to a later date?

MR. D'AGOSTINO. Given the age and high operating cost for our existing infrastructure, NNSA assessments typically show higher risks and greater costs by deferring infrastructure decisions to a later date. The NNSA believes that facilities currently proposed to move forward will not be impacted significantly by the size of the future stockpile, as long as the stockpile is not significantly increased above today's size, and there is not a significant change in the mix of weapon types currently in the stockpile. Maintaining required nuclear capabilities has a greater impact on the size of our facilities than throughput capacity for the smaller stockpiles expected in the future.

Hearing Date: March 17, 2009

NATIONAL IGNITION FACILITY

MR. CALVERT. I am aware that Lawrence Livermore National Laboratory just fired all 192 laser beams into the target chamber breaking the 1 megajoule energy barrier - quite extraordinary! I know this has been a challenging technical endeavor - congratulations on this most recent accomplishment.

What is NNSA's transformation plan to continue this record of success and provide the necessary resources to fund the planned ignition campaign at NIF?

MR. D'AGOSTINO. The NNSA transformation plans acknowledge the importance of the science and technology infrastructure for all of our future endeavors. It is NNSA's intent to keep our ignition experiments on track and make NIF available to the national security enterprise to address key nuclear weapons stewardship issues, and provide an important resource to the broad scientific community

The achievement of the greater than one megajoule of laser energy into the target chamber is a significant accomplishment and a major advance for stockpile stewardship and the broader scientific community. The energy available on NIF will be a major factor in determining our success at achieving ignition. Ignition remains a significant technical challenge as recently re-iterated in a JASON study of our ignition plans. The National Ignition Campaign (NIC) is a major sub-element of the Inertial Confinement Fusion Program. The NIC is under enhanced management that is project-like with a carefully defined scope, budget and schedule. The NIC plan specifies three major experimental series to work on ignition from 2010 through early 2012.

Hearing Date: March 17, 2009

LAWRENCE LIVERMORE DEINVENTORY

MR. CALVERT. I know that LLNL's deinventory efforts are highly leveraged with its pit manufacturing R&D capability activities. Do you plan to sustain funding levels for LLNL's pit manufacturing R&D to maintain core competency and ensure no disruption to the deinventory effort?

MR. D'AGOSTINO. The LLNL de-inventory effort uses a variety of expertise at the laboratory. This very valuable workforce has supported plutonium operations, including R&D and technology development activities that supported the recently re-established pit manufacturing capability at Los Alamos National Laboratory and are currently supporting technology developments that can improve the efficiency and cost-effectiveness of future plutonium manufacturing activities.

Defense Programs is sustaining projects that support improved efficiency and cost-effectiveness in plutonium operations at Los Alamos while at the same time helping to ensure that these highly skilled and experienced workers are available part-time to support the on-going deinventory efforts. Currently, we see the deinventory efforts being sustained.

Subject to the future availability of funds, it is our intention to maintain a cadre of LLNL plutonium experts, both in research and development and in technology development and demonstration. Defense Programs recognizes that after the deinventory is complete, LLNL will still have significant capabilities to address a variety of plutonium research and technology issues, and will be able to work these projects collaboratively at Los Alamos when the amount of plutonium required for development work exceeds what can be handled at LLNL. The NNSA believes that it is important to maintain an independent capability to do an appropriate level of plutonium work at the Lawrence Livermore National Laboratory (LLNL). In our recently issued Record of Decision based on the Supplemental Programmatic Environmental Impact Statement, we carefully identified the Los Alamos National Laboratory (LANL) as our primary plutonium research and development and production center. It remains our intention to maintain the plutonium core competency at the LLNL. This is subject to the availability of sufficient funding to support both the primary plutonium research and development and production activities at LANL and an independent plutonium capability at LLNL.

Hearing Date: March 17, 2009

FUNDING COMPLEX TRANSFORMATION

MR. CALVERT. How does NNSA propose to fund complex transformation, given what many believe will be a relatively flat budget line?

MR. D'AGOSTINO. We had originally planned to implement transformation within our budget projections, assuming that savings from early transformation actions (e.g., supply chain management improvements, special nuclear material (SNM) consolidation, non-nuclear production transformation at our Kansas City Plant, and test facility consolidation) were available to be reinvested. This approach included paying for transformation through a combination of the following:

- Infrastructure savings through major footprint reductions, replacement of buildings that are long past their economic lifetimes, and updated cost-sharing models for work-for-others customers;
- Reduced overhead costs through contract reforms, improved risk management strategies, greater business practice uniformity, improvements in product assurance processes, and commodity purchase savings through a supply chain management center; and,
- Reductions in staff supporting weapons activities through attrition and possibly through reassignment to other national security missions.

Due to continued flat budgets (20% loss of buying power since 2005), our progress with this plan has been eroded as we have had to use early savings for mission critical requirements.

Hearing Date: March 17, 2009

DOWNSIZED LABORATORY COMPLEX

MR. CALVERT. Will the downsized laboratory complex and workforce be able to support a robust nuclear forensics program? Are the modernizing laboratory capabilities ready to meet the requirements of this pressing challenge?

MR. D'AGOSTINO. The federal government's capabilities in nuclear counterterrorism and nuclear forensics, rest squarely on the DOE national laboratories and the national security enterprise. Many of the analytical techniques applicable to the forensic mission were developed for the nuclear weapons program. Transitioning these legacy methods to contemporary techniques can support the new programmatic goals of technical nuclear forensics.

While the national laboratories do contain significant expertise and resources that are being applied to supporting a robust nuclear forensics program, because the field of nuclear forensics is still in its infancy, it will take time to develop full capabilities in technical nuclear forensics. DOE/NNSA remains a key interagency partner within the federal government for technical nuclear forensics as evidenced both by our continued participation in interagency efforts to advance the state if science in nuclear forensics. We strive to maintain operational readiness for nuclear forensics in the current fiscal environment. We are optimistic that the resident expertise in the national laboratories coupled with a deliberative programmatic transition of nuclear forensics capabilities from the weapons program can assure that DOE/NNSA will fulfill its mission for operational readiness in technical forensics.

Hearing Date: March 17, 2009

SMALL BUSINESS FUNDING FOR THE GLOBAL THREAT REDUCTION INITIATIVE

MR. DAVIS. This committee initiated and approved significant new funding for FY2009 to support the goals and objectives of the Global Threat Reduction Initiative (GTRI). In 2007, NNSA competitively awarded three small business contracts to support the Global Threat Reduction Initiative. To date, the GTRI program has not fully utilized those contracts. Full utilization of the small business contracts will create new jobs and opportunities, which is clearly important in this economy and a focus of this Congress.

Given that Congress has provided significant new funding, what is your plan for the program to fully utilize those small business contracts in FY2009 and FY2010?

MR. D'AGOSTINO. The Global Threat Reduction Initiative (GTRI) is grateful for the Committee's appropriation to enable acceleration of its important threat reduction work. GTRI has several direct contract vehicles with U.S. private industry that can be used to create new jobs in the United States and expand threat reduction efforts. The GTRI Indefinite Delivery/Indefinite Quantity (IDIQ) base contract, awarded in April 2007, is one of those vehicles.

To date, the three small business teams have competed with each other and have been awarded 15 task orders worth $5.8 million. The funds have been awarded for important threat reduction projects such as: feasibility assessments; National Environmental Policy Act (NEPA) analyses; recoveries of large, U.S. irradiators for domestic radiological security; assessments and training for global nuclear and radiological protection efforts; removal of radioisotopic thermoelectric generators; and return of U.S.-origin HEU spent fuel from foreign countries.

GTRI is mindful of the importance of small business contracts for the health of the U.S. economy. During the remainder of FY 2009, GTRI plans to award additional task orders worth another $6 million, doubling all IDIQ awards to date to over $12 million. These tasks will support: two additional high-priority U.S.-origin spent highly-enriched uranium fuel shipments from Turkey and South Africa; and important protection assessments and security upgrades in Romania and seven countries in Africa.

Hearing Date: March 17, 2009

WEDNESDAY, APRIL 22, 2009.

MEMBER REQUESTS

Mr. VISCLOSKY [presiding]. Good morning. We are here this morning to take testimony from members of the House on issues related to the Energy and Water Subcommittee's jurisdiction. I am happy to be here today to learn more about the challenges members are facing at home.

It is my belief and hope that the testimony provided by members that have taken the time and trouble to be with us today to talk about their interests and the needs of their respective districts will assist our subcommittee in crafting a bill that is responsive both to the national needs and the needs of local communities. With these comments, I would like to yield to our ranking member, Mr. Frelinghuysen, for any opening comments he might have.

Mr. FRELINGHUYSEN. Mr. Chairman, I would like to thank you for providing this opportunity to our colleagues. And it is a pleasure to welcome Mr. Kanjorski here to this morning's hearing. Thank you.

Mr. VISCLOSKY. I would now like to recognize my classmate, Mr. Kanjorski, who has held up a lot better than I have over these intervening years.

WEDNESDAY, APRIL 22, 2009.

11TH DISTRICT OF PENNSYLVANIA

WITNESS

HON. PAUL E. KANJORSKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. KANJORSKI. Thank you, Peter. Thank you for that compliment. No truth to it, but I still thank you for it.

Gentlemen, I come because of three particular projects that are located in my congressional district, but I have actually requested six earmarks, if you will, three of which I won't talk to. The three I will are primary and most important.

First and foremost is the Wyoming Valley Levee Raising Project. It is one of the oldest flood control projects east of the Mississippi. It really is the second or third project after a 1972 Agnes Flood along the Susquehanna River where, in the vicinity of the city of Wilkes-Barre, over $1 billion worth of damage occurred, and that would have been equivalent today of more than $4 billion in damage. And it uprooted 25,000 residents from their homes and cost the loss of 60,000 jobs at the time of the flood.

This project is now nearing completion, but unfortunately was not funded in the last year or two of appropriations, and as a result it has come to sort of a standstill. And what we are looking for is that it be reappropriated by the Congress, and I have written a letter to the Office of Management and Budget to insert the same in President Obama's 2010 budget.

What we are requesting for this year is $12.64 million, and that will allow us the opportunity to move the project significantly on,

but it still won't complete the project. There are a number of years of additional funding that is necessary.

The second project I want to talk to you about is the Scranton Flood Control Project; that is along the Lackawanna River. And Scranton City is also in my district. It is the most populous city, and the Lackawanna River runs right through Scranton City.

And what has come about here is that as a result of Katrina the standards have changed, and as a result many more additional costs are going to be incurred in order to complete the Lackawanna County Scranton City Flood Control Project, and what we are doing there is requesting $10.57 million to complete the work on that river in the year 1910.

The last project that I am asking for consideration on is the Bloomsburg Flood Control Project. It is really just the beginning project needing money for design. It has been authorized in prior years, and we are requesting there $375,000 to continue with the design of the flood control project in fiscal year 2010.

This sounds like an awful lot of money, but I guess I would have to be honest and say my district is literally the flood district of Pennsylvania, and particularly of northeastern United States, because we seem to—after every rain of almost any sort, we get some impact, either in Scranton, Wilkes-Barre, or Bloomsburg. It is just a continuous thing.

I apologize for it, but that is the reality. I got stuck with the lowlands, and as a result, for my 25 years in Congress, every year I have had to ask for appropriations of these sorts, and we have been running on it.

But they are essential. They have saved a lot of lives, and numerous amounts of property, and these flood control projects allow us to pursue economic development. Without them, this area would really be totally devastated.

So I ask the indulgence of the committee to go with us, continue, and with that I would like permission to insert my full statement into the record to cover the contingency of this testimony.

[The information follows:]

STATEMENT OF CONGRESSMAN PAUL E. KANJORSKI
COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
APRIL 22, 2009

As the Subcommittee on Energy and Water Development considers Members' fiscal year 2010 Appropriations requests, I want to take this opportunity to discuss several critical flood control projects in my Congressional District. I appreciate the opportunity to testify before the Subcommittee and I would like to thank each Member for their previous support of projects in my District. While I am only providing additional information on three projects, all of the requests that I have submitted have considerable merit and I urge you to give them full and fair consideration.

The first project I am requesting funding for in fiscal year 2010 is the Wyoming Valley Levee Raising Project. As you may know, the Susquehanna River is one of the most flood prone rivers in the country. In 1972, Hurricane Agnes caused massive flooding in the Susquehanna River devastating residents, homes and businesses in Northeastern Pennsylvania and causing over $1 billion in damages ($4 billion by today's standards). Over 25,000 homes and nearly 3,000 businesses were damaged or ruined and more than 60,000 residents were left without employment.

In response, when Congress passed the Water Resources Development Act of 1986, it authorized the Wyoming Valley Levee Raising Project. Over the past twenty years, I have worked to secure funding to complete this project.

Structurally speaking, the goal of this project is to protect 50 communities in 5 counties in a 60-mile stretch along the Susquehanna River from another Hurricane Agnes-level flood. The flood control system itself is actually four contiguous existing federal projects functioning as one large flood control system protecting the Wyoming Valley, including the City of Wilkes-Barre, which is one of the largest cities in my Congressional District. In total, the levees alone extend for approximately 15 miles. All told, the Wyoming Valley Levee Raising Project is one of the largest flood control projects in the country.

Furthermore, the U.S. Army Corps of Engineers recently determined that Solomon Creek, a neighboring waterway in the City of Wilkes-Barre, is hydrologically linked to the Wyoming Valley Levee Raising Project. At my request, Solomon Creek was included in the Water Resources Development Act of 2007 and officially became part of the existing authorization. The addition of Solomon Creek has increased the overall project cost by more than $50 million.

From fiscal year 1995 to fiscal year 2005, the Wyoming Valley Levee Raising Project was included as a line item in the President's budget. Unfortunately, in 2006, the Bush Administration removed this project from the President's budget. The decision to remove this

regionally important project from the President's budget has significantly slowed its progress. As a result, I have written to Office of Management and Budget Director Orszag requesting that this project be included in the President's fiscal year 2010 budget.

For fiscal year 2010, I am respectfully requesting $12.64 million for the Wyoming Valley Levee Raising Project in the Energy and Water Development appropriations bill. It is my understanding that the requested funds will be used for continued construction of concrete spillways and continuation of the necessary design work for flood protection at Solomon Creek. The existing authorization is sufficient to meet this request.

The second project I am requesting funding for is the Scranton Flood Control Project. The Lackawanna River runs through the City of Scranton, which is the most populous city in my Congressional District. The City of Scranton and its surrounding communities became part of my Congressional District in 2002 and the Scranton Flood Control Project was already underway. This project will provide 100-year flood protection for the areas hardest hit by flooding.

The city and its surrounding communities have experienced major flooding during almost every major rain event since 1942. The damage caused over the years has hampered economic development, discouraged businesses from locating to the area and caused the value of homes to drop significantly. A project valued at nearly $100 million to renovate a blighted former lace factory into apartment units, a healthcare facility and commercial businesses has been delayed by the lack of flood protection.

When I requested funding for this project in fiscal year 2009, it was my understanding that it would be completed by 2010. The new rules and regulations the U.S. Army Corps of Engineers adopted after Hurricane Katrina have increased the cost of the Scranton Flood Control Project significantly. The increase of Operational and Management easements and replacement of free board determinations with risk and uncertainty analyses have added millions of dollars to the overall project cost.

Hurricane Katrina was no doubt a devastating storm but from my perspective, applying a one-size-fits-all approach to flood control projects will only hurt residents seeking flood protection. If the new Corps rules and regulations are applied throughout the country, it will disproportionately impact small and rural communities. The City of Scranton is a financially distressed city and without additional support from the federal government to meet the new requirements, the city may never receive the flood protection it rightly deserves.

For fiscal year 2010, I am respectfully requesting $10.571 million in the Energy and Water Development appropriations bill for the Scranton Flood Control Project. It is my understanding that the requested funds will be used to complete general project construction and modify existing structures to meet new Corps rules and regulations. The existing authorization is sufficient to meet this request.

Finally, I am asking that the Subcommittee include funding for the Bloomsburg Flood Control Project. For over sixty years, the people of Bloomsburg, Pennsylvania, have been

seeking assistance from the federal government to protect their homes from flooding. The Susquehanna River forms the southern boundary of the Town of Bloomsburg and is the most prominent drainage feature, draining an area of 10,576 square miles. Fishing Creek forms the northern and western boundaries of the Town and drains an area of 385 square miles. Because of its location against these two waterways, the Town of Bloomsburg, with a population of only 12,000 people, is subject to severe flooding from both the Susquehanna River as well as Fishing Creek.

More than 400 homes and 7 companies employing 1,200 people are affected by periodic flooding. Not only have recent floods caused millions of dollars in damage, but they have also curtailed future economic investment by the Town's two largest employers. Both companies have threatened to leave the area if flood protection is not provided in the foreseeable future. This project is strongly supported by the Town of Bloomsburg, the local businesses and homeowners, the Columbia County Commissioners, the local State Representative and State Senator and the Pennsylvania Department of Environmental Protection.

For fiscal year 2010, I am respectfully requesting $375,000 in the Energy and Water Development appropriations bill for the Bloomsburg Flood Control Project. It is my understanding that the funds would be used to initiate the design plans and specifications.

In closing, I would again like to thank each Member of the Subcommittee for their support of projects in my Congressional District. I look forward to working with the Subcommittee as the House considers appropriations for fiscal year 2010.

Mr. VISCLOSKY. Without objection, so ordered. And certainly nothing to apologize about. And you do, I think, summarize very succinctly the reasons these projects are so necessary—one, to save lives, because if someone loses their life you can't return it to them or their family.

In the first instance, to protect their property, but also to, hopefully, by removing them from flood plains, enhance the value of their property and enhance the surrounding properties for economic development, because many of these communities, I assume, also have been devastated because of the collapse of manufacturing in this country and need every chance that they have.

Call just a couple—I mean, we are still waiting to get a list back from the Army Corps ourselves on the supplemental, and also waiting to get back because we still, as you know, do not yet have the administration's budget for 2010. Justifications and capabilities—have you had any communications with the Corps, and do you have any impression from those communications, if I could ask?

Mr. KANJORSKI. From the local Baltimore Corps, these are the indications of the monies they will need for this coming year. We have a letter out to OMB; we haven't, to my knowledge, received any confirmation whether this is going to be included or not in the President's budget.

But if I may answer that with one other fact or two—and I know the committee has been wrestling with this—many years ago we had sufficient funds in here to do some of this work, and the Corps, like they did to a lot of members of Congress, requested that they didn't necessarily have to use those funds in those given years and asked the right to allocate them to other projects and say, "Don't worry. We will reallocate them back when we need them."

Well, they haven't reallocated them back, and now they tell us they can't.

Mr. VISCLOSKY. Right.

Mr. KANJORSKI. And I don't sympathize with the fact that they can't, because I think that it is smart that we constrain what they can do with appropriated money. But as a result, many millions of dollars were actually lost that have been appropriated to this project that really went to other projects. So maybe this is a chance to make up that difference, whatever it is.

But we are moving pretty close. We are at the last phase—probably in the last 10 to 15 percent of the project costs. And in a way, particularly in the Wilkes-Barre project and in the Scranton project, it would be almost foolhardy for us not to finish it, because if a devastating flood came somewhat near Agnes, it would still spill over and do all the damage that the flood control project would protect when it is finished.

I mean, the Wilkes-Barre project is a 350-year prevention project. And I have seen it prevent two floods in the last 4 years that would have caused well in excess of $5 billion in damage, except for the presence of this flood control project.

So I just throw that out for testimony, that, you know, if anyone raises a question of the success of flood control projects and whether they are worthwhile or not, there isn't anybody in northeastern Pennsylvania who couldn't happily testify just how successful and how important they are with our own personal experiences.

Mr. VISCLOSKY. All right.

Mr. FRELINGHUYSEN. Thank you for your testimony. I am a believer like you and the chairman.

Members of Congress know their own districts, and certainly there has been an outflow due to Katrina and other crises, and we always hope that things will come back to our districts to address these longstanding problems. So certainly we are supportive and appreciate your being here.

Mr. KANJORSKI. I appreciate it, and I know with the experience of the Chairman and the Ranking Member of this committee all these years we will look for a positive response. Thank you.

Mr. VISCLOSKY. Thank you, Mr. Kanjorski.

Ms. Watson.

WEDNESDAY, APRIL 22, 2009.

33RD DISTRICT OF CALIFORNIA

WITNESS

HON. DIANE WATSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. WATSON. Mr. Chairman, Ranking Member, thank you for allowing me to testify before your subcommittee on my top three priorities for fiscal year 2010 appropriations requests for my 33rd congressional district. And I sincerely hope that today's testimony will encourage the subcommittee to fund these worthy projects at their requested level.

The first project submitted, which I would like to mention today, is the $3 million in continued federal funding for USC's—that is the University of Southern California—Methanol Economy Initiative. This program represents a pioneering research project with the potential to benefit the entire nation.

The Methanol Economy Initiative at USC, under the leadership of Nobel Prize winning chemist, Professor George Olaf, is developing chemistry to produce and use methanol as a renewable source of energy that can decrease our dependence on fossil fuels while also reducing the concentration of atmospheric carbon dioxide. Chemically converting natural gas into methanol creates an excellent fuel for internal combustion engines and an even more efficient fuel in fuel cells.

Methanol can also be converted to dimethylol ether as excellent diesel fuel and a cleaner substitute for natural gas in liquefied petroleum. Because it is a liquid at ambient temperatures, methanol can be readily stored and transported using existing infrastructure.

In addition to serving as a renewable fuel, methanol can be used to replace petroleum as a starting material for the manufacturing of virtually all hydrocarbon projects such as plastics, pharmaceuticals, and other synthetic materials. This project also seeks to efficiently produce methanol by recycling carbon dioxide from the atmosphere.

This innovative research would create a new process for recycling carbon dioxide into fuels and synthetic materials with the double impact of eliminating carbon dioxide from the atmosphere while si-

multaneously lessening our dependence on oil, gas, and coal. The work of the Methanol Economy Initiative will help the United States achieve its goal of a more sustainable and secure energy future.

This research offers the promise of a renewable energy source that can be easily transported and stored for commercial use while also creating a new process for removing and reusing carbon dioxide from the atmosphere. The green future we seek will not come as a result of a single solution, but a combination of many paths of research and innovation coming together to reshape the way we live and fuel our lives.

The Methanol Economy Initiative received similar funding in 2008, 2009, and represents one of the many promising research projects that will help us realize a more sustainable and secure energy future.

The second request submitted would grant $500,000 for the Solar Street Lighting Project in the city of Culver City, which I also represent. Culver City, in recent years, has become a pioneer in implementing green technology. The city's new Solar Street Lighting Project is the next step in making Culver City more environmentally benign.

The solar street lights would complete LEED-certified buildings that would be developed in the city. The project aims to revitalize a portion of a main thoroughfare, Washington Boulevard, by drawing new commercial office and housing units to a green technology community.

The project involves replacing 98 existing street lights with solar powered light-emitting diode units, or LED. The solar powered lights can use the bountiful California sunlight to reduce Culver City's utility bill by using solar energy to charge batteries.

The LED bulbs last longer and are brighter than traditional bulbs, making them economically viable. These street lights do not use the grid electricity and, most importantly, can remain operational during power outages.

And the third project I submitted would grant $1 million to the city of Los Angeles for the Street Lighting Fixture Energy Efficiency Retrofit Project. As part of an effort to make Los Angeles greener, cleaner, and healthier, the city of Los Angeles plans to replace 2,000 existing street lights in the 33rd congressional district with light-emitting diodes, or the LED fixtures.

The LED fixtures still consume a minimum of 40 percent less energy than the existing fixtures. Also, the LED fixtures have a lifespan of two to three times that of the existing fixtures and require less maintenance.

The fixtures also produce a while light versus the yellow and orange light produced by existing fixtures. Typically, white light is preferred by communities and law enforcement agencies because it gives greater visibility and color rendition. These solid state fixtures also allow for better control of the light distribution, which can reduce light trespass and pollution.

With the conversion to LED light fixtures, the city of Los Angeles would reduce carbon imprint in the environment by approximately 600 tons per year, and the city would save $143,000 in utility costs.

And Mr. Chairman, I want to thank you and the ranking member for giving us this time before your committee, and I would hope that you would look in a positive way upon and consider these three top projects that we request for fiscal year 2010.

[The information follows:]

Mr. VISCLOSKY. Ms. Watson, thank you very much for going to the trouble of appearing today and making the request, one from an energy perspective, saving your local community's dollars. And as you point out on the methanol research, the committee has found value in that, obviously, the last several years. And I say that as a Notre Dame grad, so obviously there has been a great deal of justification—talking about University of South Carolina there for a minute or not. We appreciate your hard work and diligence on behalf of your constituents.

Ms. WATSON. And I want you to know, I am a UCLA graduate, way across town; I represent USC. And I am proud of both universities, and particularly USC, for being so innovative.

And we are using the expertise of our Nobel Peace Prize professor, and we are very, very pleased with the result that we are getting. This would be the third year of this initiative. Thank you very much for having this.

Mr. VISCLOSKY. You should be.

Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. Thank you very much for your sunny California disposition as well as the primer on methanol. I was unaware of this initiative and appreciate your bringing it to the committee's attention. And good luck.

Ms. WATSON. Thank you.

Mr. FRELINGHUYSEN. Thank you very much.

Ms. WATSON. I appreciate your time.

Chairman Bart Gordon
House Committee on Science and Technology

Written Testimony to the
Subcommittee on Energy and Water
House Committee on Appropriations
April 3, 2009

I am submitting this statement today to urge the Subcommittee to continue its commitment to the Advanced Research Projects Agency for Energy (ARPA-E) at the Department of Energy. I want to thank the Subcommittee for providing $15 million in crucial, start-up funding for ARPA-E in the Fiscal Year 2009 Omnibus Appropriations bill, and for providing $400 million in the *American Recovery and Reinvestment Act* to enable this program to become fully operational.

Diminishing global energy supplies, the rising cost of energy to consumers, and the looming threat of global climate change have reinforced the need for transformational, science-based energy solutions that can be deployed in the marketplace. I know the members of this Subcommittee share my belief that incremental change will not be enough to solve our current energy crisis and that we must take aggressive and unprecedented steps to promote innovative approaches to energy technology development.

In 2007, Congress passed the *America COMPETES Act* by a bipartisan vote of 367-57 in the House and by unanimous consent in the Senate. The *America COMPETES Act* implemented the recommendations of the 2005 National Academies report, *Rising Above the Gathering Storm*. In addition to a wide range of recommendations for boosting the global competitiveness of the U.S., the *Gathering Storm* report called on the federal government to create a new energy research agency within the Department of Energy modeled loosely after the successful Defense Advanced Research Projects Agency (DARPA) within the Department of Defense. The report called for ARPA-E to "sponsor creative, out-of-the-box, transformational, generic energy research in those areas where industry itself cannot or will not undertake such sponsorships...and where success could provide dramatic benefits for the Nation." The program has been enthusiastically accepted by members of the energy community, and has gained the support of President Obama, Secretary Chu, and Speaker Pelosi.

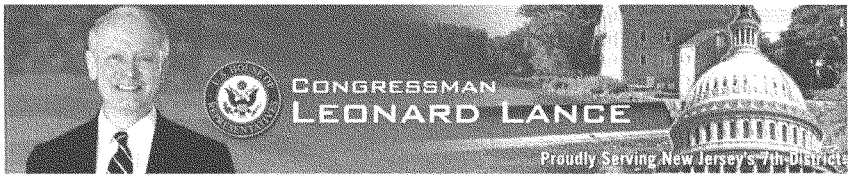
Experts agree that in order for ARPA-E to be successful, it must be funded at a level that matches both the magnitude of the energy challenge and the high costs of energy research and technology demonstration. Despite being a relatively small organization with minimal overhead,

ARPA-E will be most successful with a sustained commitment of significant financial resources that will enable it to carry out multiple projects at one time. The *Gathering Storm* report calls for ARPA-E to be funded at $300 million in the first year, and quickly escalate to at least $1 billion in funding within five years. As ARPA-E proves itself to be an integral part of our country's clean energy future, I am confident that it will justify funding at the maximum levels prescribed in the *Gathering Storm* report.

As I am sure you are aware, the funding provided to ARPA-E in the *American Recovery and Reinvestment Act* creates a unique situation. In general, the programs funded in the recovery package were existing programs within existing government agencies. In contrast, ARPA-E is a new program in a new agency and does not currently have in place the organizational structure and personnel required to get funding out the door. I recognize and appreciate that it will take the Department of Energy some time to get ARPA-E up and running using the $15 million provided in the Fiscal Year 2009 Omnibus Appropriations bill. I believe the $400 million provided in the *American Recovery and Reinvestment Act* will allow ARPA-E to become fully operational in Fiscal Year 2010 and provides the program with an appropriate foundation of funding in its first year.

I am respectfully requesting that the Subcommittee include language in the report to accompany the Fiscal Year 2010 Energy and Water Appropriations bill to clarify this unique situation. It is my hope that this report language will make clear that the $400 million provided in the *American Recovery and Reinvestment Act* is what is required for this new program to become fully operational and attain the goals Congress has laid out for it in Fiscal Year 2010, and that the decision not to include additional funds for Fiscal Year 2010 does not suggest a lack of commitment to this new program by the Committee.

Once again, I appreciate the Subcommittee's commitment to this groundbreaking new agency by providing vital start-up funding in the Fiscal Year 2009 Omnibus Appropriations bill and by supplying $400 million in necessary operational funding for Fiscal Year 2010 in the *American Recovery and Reinvestment Act*. I look forward to working with the Subcommittee to ensure that ARPA-E continues to receive the funding that it needs to accomplish its mission and to revolutionize how the United States develops new energy technologies.



SUBMITTED TESTIMONY TO THE
HOUSE ENERGY AND WATER APPROPRIATIONS SUBCOMMITTEE

APRIL 22, 2009

AGENCY: US ARMY CORPS OF ENGINEERS
PROGRAM: CONSTRUCTION
AMOUNT OF FUNDING: $23 MILLION

Chairman Visclosky, Ranking member Frelinghuysen and members of the House Energy and Water appropriations subcommittee.

I want to thank you for the opportunity to testify in support my project requests for fiscal year 2010. I can assure you that all of my energy and water requests are worthy of Committee support and I look forwarding to working with you and your staff to see that they receive your utmost consideration.

One project in particular that I would like to bring to the attention of members of the Committee is the last phase of the Bound Brook portion of the Green Brook Flood Control Project in Bound Brook, Somerset County, New Jersey.

This area lies on a natural flood plain of the Raritan River at its juncture with the Green Brook River. The Green Brook Basin, which includes the Borough of Bound Brook, is continually subject to severe and life-threatening flooding that causes hundreds of millions of dollars in damage.

To address this flooding problem, the U.S. Army Corps of Engineers (USAGE) has proposed the last phase of the Green Brook Flood Control Project, which entails numerous flood walls, levees, channel diversions, widening projects and retention basins throughout the Green Brook Basin.

The Green Brook Flood Control Project has a history of support within the Energy and Water Subcommittee. To date more than $58 million has been appropriated by Congress for the project. I want to thank the members of the Committee - including my New Jersey colleague Congressman Frelinghuysen - for their past support of this very important flood control project.

The project also has the strong support of local and state officials in New Jersey, and I am pleased that the President's recent budget to Congress included $10 million for the Green Brook Flood Control Project.

Mr. Chairman and members of the Committee, I personally toured the Green Brook site in February with Army Corps officials and assure you that this project is a wise expenditure of taxpayer dollars. The project is vital to protecting the residents of Bound Brook and the taxpayers of New Jersey.

I urge the Committee's continued support for the project and respectfully request $23 million in funding for the Green Brook Flood Control Project.

Thank you for your consideration.

Statement of Rep. Frank Pallone
House Subcommittee on Energy and Water Development

Hearing on: Fiscal Year 2010 Appropriations Requests
Wednesday, April 22, 2009

I would first like to thank Chairman Visclosky and Ranking Member Frelinghuysen for holding this important hearing. It is incredibly important that members are given the opportunity to advocate for critical infrastructure projects within their districts.

There are 28 navigation, flood protection and ecosystem restoration projects approved within my district, all of which I believe are worthy projects.

However, my Fiscal Year 2010 Appropriations project requests reflect the immediate needs of my district. They focus on projects ranging from routine maintenance dredging to complex storm damage reduction systems.

The most pressing need in my district is beach replenishment. I have advocated for beach replenishment to be funded through the $4.6 billion authorized to the U.S. Army Corps of Engineers (Army Corps) in the American Recovery and Reinvestment Act (Recovery Act). However, it is not clear whether the Office of Management and Budget (OMB) will allow shovel-ready beach replenishment construction on the Army Corps' list of eligible projects to receive funding through the Recovery Act.

It would be a major concern for coastal communities if OMB decides not to fund beach replenishment through the Recovery Act or continues the faulty Bush Administration policy of not funding construction starts or any new feasibility studies for shore protection.

Each appropriation cycle, members have to fight for funding to continue shore protection projects that are already federally authorized. These projects should be funded through the regular budget process and I am hopeful that the new administration will reverse the Bush Administration policy as soon as possible.

Beach replenishment projects are an effective way to help our economy recover. It will create thousands of good paying jobs and help protect and promote tourism economies in coastal areas. A 2002 study commissioned by OMB estimates that for a single typical beach replenishment project, $88.1 million is spent within the beach region. This creates almost 2,000 full-time jobs, with an estimated $25.5 million in wages and salaries.

Beach replenishment is also critical to protecting our communities against major weather disasters. Without a well-maintained beach to act as a levee, residents, businesses and infrastructure are in constant danger of flood damage. Out of 18 states along the U.S. Gulf and Atlantic coasts, $6.8 trillion of insured property is vulnerable to hurricanes. The nation realizes this risk when hurricanes strike and individuals, businesses, and communities suffer. American taxpayers, through the federal government, bear the costs associated with indemnifying uninsured victims of natural disasters and rebuilding critical infrastructure. Beach replenishment is essential to protecting coastal property from the threat of devastating storms.

One of the most important projects I am advocating for is the Sandy Hook to Barnegat Inlet Beach Erosion Control Project in New Jersey. I am requesting $5 million to continue beach

replenishment and storm damage protection for highly populated communities and infrastructure located along 21 miles of shoreline from the Township of Sea Bright to the Manasquan Inlet, NJ. This area is incredibly important to the coastal economy of New Jersey and replenishment is needed to protect homes, businesses, and infrastructure from storm damage.

Once again, I would like to thank the Chairman and the Ranking Member for holding this hearing and for their leadership on this important issue. I look forward to working with my colleagues on protecting New Jersey's, and our nation's, coastal communities for years to come.

WITNESSES

	Page
Aloise, Eugene	51
Beckner, Everet	153
Breul, Jonathan	51
Coyle, Philip	153
D'Agostino, Thomas	153
Eggenberger, A.G	153
Garwin, Richard	153
Gordon, Hon. Bart	294
Kanjorski, Hon. P.E	285
Kolb, Ingrid	51
Lance, Hon. Leonard	296
Pallone, Hon. Frank	298
Van Antwerp, Lieutenant General Robert	1
Watson, Hon. Diane	291