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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2010

TUESDAY, JUNE 2, 2009

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:18 a.m., in room SD–124, Dirksen Senate Office Building, Hon. Byron L. Dorgan (chairman) presiding.

Present: Senator Dorgan, Feinstein, and Bennett.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF HON. THOMAS P. D'AGOSTINO, UNDER SECRETARY FOR NUCLEAR SECURITY AND ADMINISTRATOR

ACCOMPANIED BY:

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OPENING STATEMENT OF SENATOR BYRON L. DORGAN

Senator DORGAN. We will call the hearing to order. This is the Senate Appropriations Committee Subcommittee on Energy and Water Development.

We appreciate all of you being here. I apologize for being just a bit tardy this morning.

We are here to take testimony from Administrator Thomas D'Agostino of the Department of Energy's National Nuclear Security Administration on the fiscal year 2010 budget request.

Joining Mr. D'Agostino at the witness table to help field questions will be the two NNSA Principal Assistant Deputy Administrators, Brigadier General Harencak—I hope I have that correct, Brigadier General. Welcome to you. And Mr. Ken Baker, Mr. Baker, welcome.

This year's budget request of $9.9 billion for the NNSA is up $815 million, or almost 9 percent, when compared to the fiscal year 2009 appropriation. But almost $600 million of that increase is simply a transfer of the MOX fabrication facility construction project to NNSA. Excluding that shift, NNSA's budget is flat in fiscal year 2010, with only a tangible increase in the Naval Reactors Program.

As we have seen in other parts of the Department of Energy's budget request, there are very few positive changes in the NNSA budget from fiscal year 2009 to fiscal year 2010. In fact, there are numerous program areas where the exact same number is requested in fiscal year 2010 as was requested the previous fiscal year. Whether it is a weapons program budget or the fossil energy program budget, it is hard to imagine that so little is truly in need of change over the coming year, and I assume we will talk about that this morning.

I understand that the Nuclear Posture Review is currently underway and that this will have an impact on our stockpile and perhaps on the complex that supports the stockpile. However, I am not sure this is justification enough for decisions to halt some of the projects or for the lack of actual positive changes in the budget request. The fact is NNSA is going to have a very active future. That is clear when looking at the wide number of areas that we will discuss today.

Through renegotiation of the START Treaty and completion of the NPR, we are likely to be on a path to fewer nuclear weapons in our stockpile. This will require more dismantlement. That requires more funding. However, we will continue to have nuclear weapons for the near future, and that, too, requires funding for stewardship and life extension programs.

Also, the President announced in April his goal of securing vulnerable nuclear material around the world within 4 years. That is a very critical issue that we must address aggressively, and that, too, will cost some funding.

Further, whether because of new treaties or actions by North Korea and others, proliferation and nuclear detection are becoming much more prominent as issues and are also critical issues and, once again, require funding. All of these areas require resources. A flat fiscal year 2010 budget means additional pressures, it seems to me, in the out-years, and that is something we will discuss this morning.

I want to make one final point. The weapons program is primarily focused on issues directly related to the stockpile. But the fact is, a significant infrastructure funded by the weapons programs also benefits other programs, such as science and non-proliferation, both of which are important. The NNSA's computing program has led this Nation to the forefront of computing worldwide.

I know that the announcement about that, that we have computing capabilities now that are not exceeded anywhere in the world, was made with great pride and that was done at our weapons lab. The program not only serves stockpile modeling, but also climate change, non-proliferation modeling, and more.

NNSA computer modeling has contributed significantly to the Intergovernmental Panel on Climate Change. Their non-proliferation program uses computer modeling to better analyze seismic events related to detonation. This fact, I think, seems forgotten in the budget request.

The NNSA's investment in supercomputing has dropped 7 percent since 2006. By comparison, the Department of Energy's Office of Science computing budget has increased 79 percent over the same period.

So we are in a political transition year. The stockpile still requires attention. Proliferation is an ever-increasing concern, and base capabilities still need to be maintained or increased. A flat budget is going to make that a very significant struggle.

I understand, Mr. D'Agostino that you are not ultimately responsible for this budget request, but you have, nonetheless, come here to answer questions about it. We have seen the Office of Management and Budget passbacks that make it clear that OMB has significant control in this area. Although this may not reflect all of your views on all accounts, we will rely on you to explain it today.

I have always appreciated your candor and appreciated working with you, Mr. D'Agostino. I am going to call on Senator Bennett for an opening comment. I do want to mention that we apparently will have either one or two votes, starting at 11 o'clock today, and we will recess for that purpose.

Senator Bennett.

OPENING STATEMENT OF SENATOR ROBERT F. BENNETT

Senator BENNETT. Thank you very much, Mr. Chairman.

And most of the items that I intended to cover in my opening statement you have already covered. The budget is flat, and it is flat in a number of areas that, as you have outlined, need to be looked at and improved. It is reduced—this budget has reduced science funding and non-proliferation R&D by several hundred million dollars. And future funding will continue to erode the capability over time. I find that a very disturbing trend.

I have always been willing to fund R&D, particularly the kind of pure science that we see in the national labs, and your description of the computing power and other things is an accurate portrayal of the challenge that we face.

I support sustaining the test ban moratorium. But if we are going to do that, we have to have a significant investment in our scientific capabilities and the people and the infrastructure that go along to ensure those capabilities so that we can accurately predict the status of our nuclear deterrent. And I don't believe the budget provides adequate funding for the scientific capabilities and falls short in the areas you have described.

So I look forward to working with you, Mr. Chairman, to try to repair this damage that has come. And Mr. D'Agostino, I have been sitting at the same table where you are in previous administrations, and I know the frustrations of making a submission to OMB and being told no less how much you are going to defend when you get to Congress. And we don't ask you to violate your instructions from OMB, but any degree of candor you can share with us would be very much appreciated.

Senator DORGAN. Senator Bennett, thank you.

We will try to get the sound system fixed here, get it turned up just a bit so the audience can hear.

Senator Feinstein, would you like to make a brief opening comment, and then we will go to Mr. D'Agostino?

STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Well, just one quick thing. I had the great pleasure—I guess it was Friday——

Mr. D'AGOSTINO. Yes, ma'am.

Senator FEINSTEIN [continuing]. Friday, of being at Lawrence Livermore to see the beginning—and Mr. D'Agostino was one of the speakers. And to see the beginning of the National Ignition Facility, which you have been helpful with, both of you, over the years. It has been somewhat controversial, but the conversation was so exciting, and that is that it may be possible—"may" is the operative word—to combine fission and fusion to really be able to present a brand-new source of energy, which not only would be cost effective, but would be carbon free.

And it would appear, and I hope—the reason I wanted to come was to ask you more about this—that this might well be the new mission of that lab. And I will just end it. I have watched the labs and really come to wonder if the right thing was done in the privatization of these labs because we have lost a lot of valued employees. And the labs are only good if they have a mission, and the mission has changed. So I want to talk about that a little bit later on.

But thank you very much.

Senator DORGAN. Senator Feinstein, thank you very much.

Mr. D'Agostino, I just alluded to the announcement about the Roadrunner, I believe, at Los Alamos, the most powerful computer in the world. We have great accomplishment at our weapons labs, not dealing just exclusively with weapons. One of my concerns is given the changing of the nature of the Bell Labs over the years and so on, our national laboratories are critically important to this country continuing its edge in science and research and technology.

I am very worried about losing the strength of our scientists at these laboratories. We need to continue funding, and there are many things that can be done in the weapons labs and the science labs that can advance this country's interests. I worry very much about diminished funding and losing some of our best and most capable people.

STATEMENT OF HON. THOMAS P. D'AGOSTINO

So let me call on you for an opening statement, and then we will begin with questions.

Mr. D'AGOSTINO. Well, thanks very much, Chairman Dorgan, and Senator Bennett, Senator Feinstein.

As you know, I am Tom D'Agostino. I am the Administrator here at the National Nuclear Security Administration. I am accompanied by Ken Baker, who runs our non-proliferation program, and Brigadier General Gary Harencak, who runs our defense programs activities and is responsible for maintaining the base capability on nuclear security for our program. And we do appreciate the opportunity to be here today and to talk to you about our programs and to answer your questions.

Also, in the audience, we have some members of our summer student intern program. These are the folks, ultimately, I wanted them to come and see the process at work, the way Government works. These are the folks that will be leading these types of security programs out in the future. We are really proud, fortunate to have them here, and it is exciting to have young folks in the organization to see what we do and to capture, get a little bit of that vision that we saw at the National Ignition Facility, get excited

about the programs, and take us forward. So I'm excited about that.

As you know, we believe NNSA is critical to the security of the United States and our allies. The President's fiscal year 2010 budget request is $9.9 billion. It is an increase, as you said, sir, of about 8.9 percent over the fiscal year 2009 appropriated level. The budget request provides funding to enable the NNSA to leverage science, to promote U.S. national security objectives.

NNSA programs are on the front of the lines of the following national security endeavors: maintaining a safe, secure, and reliable stockpile and capabilities to support that stockpile; accelerating and expanding our efforts here and around the world to reduce the global threat posed by nuclear terrorism, nuclear proliferation, and unsecured materials; providing the United States Navy with safe, militarily effective propulsion systems; and supporting U.S. leadership in science and technology.

As the President has initiated bold steps to put an end to cold war thinking to lead to a new international effort to enhance global security, the 2010 budget request for NNSA is the first step. There are other steps, but this is the first step towards implementation of this new strategy.

For our non-proliferation programs, funding increases are requested to expand and respond quickly to opportunities to reduce global nuclear threats. Increases are also requested, as you said, sir, in the Naval Reactors Program to begin development of reactor and propulsion systems for the next-generation submarine, among other activities.

For the programs in our weapons activities appropriation, the budget strategy is to maintain capabilities and activities at the current level until the strategic direction is established in the upcoming Nuclear Posture Review.

In President Obama's speech in Prague, he indicated his commitment to maintaining a safe, secure, and reliable stockpile while pursuing a vision of a world free from the threat of nuclear weapons. The NNSA maintains the unique knowledge and technical capabilities that are critical to achieving both of these objectives.

Our non-proliferation programs are focused on securing the key ingredient of nuclear weapons, in effect, the weapons usable materials and the related equipment and technologies. Supporting NNSA efforts include the Elimination of Weapons-Grade Plutonium Production Program, which has been working with Russia to shut down Russia's plutonium production reactors, and the Fissile Material Disposition Program, which will provide a disposition path of 34 metric tons each of U.S. and Russian excess plutonium.

The NNSA is a recognized leader on these and other non-proliferation initiatives to prevent proliferators or terrorists from acquiring a nuclear weapon. This includes our activities to secure and reduce weapons-grade nuclear materials at sites worldwide, but also our efforts to detect and intercept WMD-related materials in transit.

In addition, we will also work in 2010 to support the President's call to strengthen the Non-Proliferation Treaty, support the International Atomic Energy Agency, and strengthen international safeguards inspections. To implement this comprehensive strategy, we

will need to expand our cooperation with Russia, pursue new partnerships, and work to secure vulnerable nuclear material around the world in 4 years.

Our Global Threat Reduction Initiative and the International Material Protection and Cooperation Programs will have a major role in this 4-year plan.

NNSA is actively participating in a national debate over our Nation's nuclear security and non-proliferation strategic framework. This debate is not just about the size of the stockpile and warheads. It includes the inescapable obligation to transform our current cold war era nuclear weapons complex into a 21st century nuclear security enterprise that retains the capabilities necessary to meet emerging national security threats.

In a future with fewer warheads, no nuclear tests, tighter controls on materials worldwide, and effective counteraction of nuclear terrorist threats, the science and technology capabilities will play an increased role, not decreased role, in addressing these challenges. We must ensure that our evolving strategic posture and our stockpile, non-proliferation programs, arms control, and counterterrorism programs are melded together in an integrated, comprehensive strategy to protect our country and our allies.

The Department of Defense, as you know, has initiated this Nuclear Posture Review, which is scheduled to culminate in a report later this year. I want to assure the subcommittee that we are active members of that review and we are making sure that science and technology that underpins essential policy decisions is part of that review.

As you know, we have made tremendous progress in reducing the size of our stockpile in recent years. The stockpile will now be less than one quarter of what it was at the end of the cold war, the smallest stockpile in 50 years. These reductions send the right message to the rest of the world that the United States is committed to Article 6 of the Non-Proliferation Treaty, which will help create a positive momentum heading into the 2010 NPT review conference.

Each year since the Stockpile Stewardship Program was developed, we have been able to certify the safety, security, and reliability of the stockpile with no need to conduct underground tests. Since 1993, we have acquired a suite of capabilities determined necessary to maintain an effective stockpile.

Most recently, as Senator Feinstein has mentioned, the National Ignition Facility has come online, and ultimately, we are going to be—our goal in the next few years is to actually apply these tools to address not only the national security problems but maintain the science that we need and to look for other opportunities to address our energy issues out into the future.

But the challenge for stockpile stewardship in the future ultimately is to really make full use of this suite of tools. Following completion of the Nuclear Posture Review, we will prepare a 5-year plan, which recapitalizes our infrastructure, retains our scientific, technical, and engineering expertise, and makes full use of our experiments and supercomputing facilities.

As the subcommittee knows, numerous external reviews have identified the fragile state of our technical expertise and capabili-

ties, and it ultimately resides in our people. It is clear that our people are our most important resource. We need to retain those skills and capabilities and develop the next generation of scientists, engineers, and technicians needed to perform work in non-proliferation, in counterterrorism, and in forensics.

Of course, we need to maintain—these are the same people that are responsible for maintaining our stockpile.

Mr. Chairman and members of the subcommittee, that concludes my statement, and I will be pleased and look forward to taking your questions.

[The statement follows:]

PREPARED STATEMENT OF HON. THOMAS P. D'AGOSTINO

Thank you for the opportunity to discuss our vision for the National Nuclear Security Administration. My remarks today focus on the fiscal year 2010 President's budget request. The budget requested today will allow the National Nuclear Security Administration to continue to achieve the mission expected of it by the President, the Congress, and the American people.

In a recent trip to Prague, President Obama outlined his vision of a world without nuclear weapons. To this end, the United States will take concrete steps towards achieving such a world by reducing the role of nuclear weapons in our national security strategy and urging others to do the same. Until that ultimate goal is achieved, however, the United States will maintain nuclear forces sufficient to deter any adversary, and guarantee that defense to our allies. To support this vision, the National Nuclear Security Administration (NNSA) will continue to:

—Ensure a safe, secure, reliable and effective nuclear weapons stockpile, even if that stockpile is reduced under a START Follow-On Treaty.

—Reduce the threat to the United States posed by the proliferation of nuclear weapons, and related nuclear materials and expertise.

—Provide safe, reliable, militarily-effective propulsion systems to the U.S. Navy.

By pursuing its mission to achieve these ends, and by providing our unique knowledge and support to our partners in national security, the NNSA will continue to meet its current statutory responsibilities while supporting the long-term goal of a world free from the threat of nuclear weapons.

While the President's long-term objectives are clear, the role of the nuclear weapons stockpile and America's deterrence policy are being reviewed as part of the ongoing Nuclear Posture Review. Efforts are underway in the NPR to establish the size and composition of the future stockpile and the means for managing geopolitical or technical risk—NNSA is fully engaged in these activities. Its role is to provide the technical and scientific input to inform policy decisions, and then to enable the implementation of the decisions.

NNSA is advancing our knowledge of the physical; chemical, and materials processes that govern nuclear weapons operation and is applying that knowledge in extending the life of existing weapons systems. We have recently completed construction of the National Ignition Facility at the Lawrence Livermore National Laboratory (LLNL) to explore weapons-critical regimes of high temperature and pressure and will begin our first ignition campaign to improve our scientific understanding of phenomena that could previously only be explored theoretically or in full-scale nuclear testing. The NNSA is also conducting warhead Life Extension Programs to ensure that our country remains secure without the production of new fissile materials, and without conducting underground nuclear tests. On the basis of the most recent assessment by the Directors of our national nuclear weapon laboratories, today's nuclear stockpile remains safe, reliable, and secure. At the same time, we are concerned about increasing challenges in maintaining, for the long term, the safety and reliability of the aging, finely-tuned warheads that were produced in the 1970's and 1980's and are well past their original planned service life.

I am committed to continuing to transform our national laboratories and production plants into a smaller and more cost-effective Nuclear Security Enterprise. However, I am mindful that our design laboratories and production facilities are national assets that support a large number of defense, security, and intelligence activities. As the role of nuclear weapons in our Nation's defense evolves and the threats to national security continue to grow, the focus of this enterprise must also change and place its tremendous intellectual capacity and unique facilities in the service of addressing other challenges related to national defense. We are taking steps to move

in this direction, including functioning as a national science, technology, and systems engineering resource to other agencies with national security responsibilities.

The NNSA fiscal year 2010 congressional budget request will allow continued progress in obtaining the essential goals I have outlined. It will allow us to:

—Continue transforming into a Nuclear Security Enterprise by:
  —Involving the next generation of our Nation's scientific, engineering, and technical professionals in the broad sweep of technical challenges;
  —Operating the National Ignition Facility, allowing the use of innovative technology to provide answers to important scientific questions;
  —Shrinking the cold war complex by preparing buildings for decommissioning and decontamination, and replacing these antiquated facilities with modern and efficient facilities; as well as disposing of excess real property through demolition, transfer and the preparation of process-contaminated facilities for transfer to the Department of Energy (DOE) Office of Environmental Management (EM) for final disposition;
  —Initiating a Site Stewardship program to ensure that NNSA increases the use of renewable and efficient energy, and reduces the number of locations with security Category I/II Special Nuclear Materials, including the removal of these materials from the Lawrence Livermore National Laboratory by the end of 2012; and
  —Reducing security, safety and environmental risks by consolidating and disposing of excess nuclear materials wherever possible.
—Support the development and implementation of arms control, nonproliferation, and civil nuclear energy agreements by:
  —Providing technical and policy support to U.S. delegations negotiating arms control, nonproliferation, and peaceful nuclear energy cooperation agreements;
  —Developing the technologies and approaches needed to verify compliance with negotiated treaties and agreements; and
  —Providing training and technical support to the International Atomic Energy Agency.
—Support U.S. commitments through construction of the Mixed Oxide Fuel Fabrication Facility and Waste Solidification Building to provide a disposition pathway for excess U.S. fissile materials, and to help Russia implement its reciprocal commitments.
—Continue our successful programs to secure and/or eliminate vulnerable nuclear and radioactive material in other countries, enhance nuclear/radiological material detection capabilities at borders, airports, and seaports, and strengthen nonproliferation practices and standards worldwide.
—Embark on the design and development of an advanced reactor core and propulsion plant supporting the timely replacement of the OHIO Class Submarine.
—Overhaul of the land-based prototype reactor plant used to test advanced materials and techniques in a realistic operating environment prior to their inclusion in propulsion plants.
—Honor the commitments made to those who won the cold war by ensuring their pensions are secure in times of financial uncertainty.

Today, I'd like to testify on our efforts in Weapons Activities, Defense Nuclear Nonproliferation, and Naval Reactors.

WEAPONS ACTIVITIES OVERVIEW

The NNSA will ensure that our nuclear stockpile remains safe, secure and effective to deter any adversary, and provide a defense umbrella to our allies. At the same time, NNSA will continue to pursue a modern more flexible Nuclear Security Enterprise that is significantly smaller than the Cold War complex, but is able to address a variety of stockpile scenarios.

As I have committed to you previously, NNSA continues to retire and dismantle nuclear weapons. By 2012 our stockpile will be one-quarter of the size it was at the end of the cold war. As the United States prepares for the 2010 Review Conference of the Nuclear Non-Proliferation Treaty, this fact alone should emphasize the commitment we make to both our Nation and to the world.

As a full partner in the Nuclear Posture Review, the NNSA is working with the Departments of Defense and State to establish the plans, policies, and programs that will govern the future posture of our nuclear forces and supporting infrastructure. The recently issued report of the Bipartisan Congressional Commission on the Strategic Posture of the United States will help guide these efforts. These reviews will assist the U.S. Congress and the administration in clearly defining our future direction.

As the NPR proceeds, NNSA continues to carry out a number of activities in support of the stockpile including warhead surveillance, assessment, replacement of limited life components in existing weapon systems, and dismantlements. We are also continuing the W76 Life Extension Program and a feasibility study with the Air Force for a Life Extension Program for some models of the B61 gravity bomb. There are also activities planned in the six campaigns and the studies needed for Annual Assessment of the stockpile.

The NNSA will also continue transforming the Nuclear Security Enterprise into a modern, smaller, and more flexible complex. The NNSA inherited a system of laboratories and production plants designed to produce large volumes of weapons and designs needed to counter Soviet aggression. We have initiated a major effort to right-size the enterprise to meet the new, anticipated requirements. The NNSA is consolidating Category I and II Special Nuclear Materials; removing these items from selected sites and providing safe, secure storage for this material.

In fiscal year 2010, we will be reducing our infrastructure footprint through the deactivation and decommissioning of buildings such as Buildings 9206 and 9201 at Y–12. We will also plan for the future infrastructure through continuing design of the Uranium Processing Facility at Y–12, the Pit Disassembly and Conversion Facility at the Savannah River Site, and the Chemistry and Metallurgy Research Replacement Facility at the Los Alamos National Laboratory, and begin the process of planning for an orderly migration of missions to a smaller and more flexible facility at the Kansas City Plant.

The NNSA has received assistance in our ability to alter our infrastructure in the form of an increase in the General Plant Projects limit. We are pleased with the decision to increase the ceiling on General Plant Projects from $5 million to $10 million. We believe that this aids in the maintenance and repair of the enduring enterprise. Following on this increase, the NNSA is submitting a legislative proposal to similarly increase the design cost limit for these construction projects from $600,000 to $1,500,000. We seek your support for the proposal.

But while NNSA is reducing its footprint, and while the total number of warheads in the stockpile continues to decline, there are capabilities that must be preserved. Not only are these capabilities needed to support the maintenance of any stockpile, but they are also needed to support the Nuclear Security Enterprise's initiatives in nonproliferation, nuclear counterterrorism, nuclear forensics, and nuclear incident response. It's important to note that the enterprise does not scale linearly with the size of the stockpile; and the need for baseline functional capabilities is not eliminated with cessation of research into new designs and the cessation of any production of new weapons systems. These capabilities are needed whether we have a few warheads, or a few thousand.

Although NNSA did not receive any funds directly from the American Recovery and Reinvestment Act, we are assisting other parts of the Department in implementing their plans for stimulus work at the NNSA sites and stand ready to do more.

As NNSA prepares for the future, we must focus on the retention of our scientific, technical, and engineering personnel throughout the complex. Without experienced scientific, technical, and engineering personnel, NNSA cannot succeed at its mission. Throughout the cold war we were able to attract the Nation's brightest scientists, engineers, and technical professionals by providing challenges, facilities, and opportunities that were unique, were on the forefront of science, and that allowed them to put their talents to work to serve their country. Today we are transitioning our emphasis to a broader nuclear security mission, but our need to attract the best scientists, engineers and technical professionals remains. By developing new scientific tools such as the National Ignition Facility, new challenges such as the detection of smuggled uranium and plutonium, and the modernization of facilities such as the Chemistry and Metallurgy Research Replacement Facility, we can continue to attract bright technical minds who wish to serve their country. We believe that our response to the spectrum of threats to national security is not only the right steps for us to take to make the Nation more secure, but also will provide a significant set of technical areas that will motivate young scientists to join us in our mission.

The challenges are huge and meeting them calls upon both basic science and applied technology. Approximately 70 years ago, Hans Bethe advanced the state of science with his critical work explaining the physical processes governing the life cycles of stars. Today the National Ignition Facility (NIF) stands on the threshold of producing stellar conditions in the laboratory. By moving the enterprise forward in advancing the boundaries of science, we will continue to attract our Nation's brightest minds to our scientific endeavors. In fiscal year 2009, two significant technological milestones were achieved; crossing the one mega joule threshold with NIF

and the one petaflop threshold in the Advanced Simulation and Computing Campaign.

DEFENSE NUCLEAR NONPROLIFERATION OVERVIEW

As part of the President's comprehensive strategy to address the international nuclear threat, the President also called for strengthening the Nuclear Nonproliferation Treaty, accelerating our efforts to secure vulnerable nuclear materials around the world, and increasing our work to detect, deter, and eliminate illicit trafficking of nuclear materials. The NNSA Nuclear Security Enterprise is actively engaged in these and other nonproliferation missions and will provide the technical expertise to ensure they are successful.

The movement of funding for the Mixed Oxide Fuel Fabrication Facility and the Waste Solidification Building into the Fissile Materials Disposition budget is the largest change in the fiscal year 2010 Congressional Budget for Defense Nuclear Nonproliferation program. These critical facilities provide the nonproliferation programs a disposition pathway for at least 34 metric tons of surplus U.S. weapons grade plutonium. I'm pleased to report that the United States and Russia have agreed on a revised Russian program to dispose of Russia's 34 metric tons of their surplus weapons plutonium. These changes will be codified in a Protocol that will amend the 2000 U.S.-Russian Plutonium Management and Disposition Agreement, and we expect to sign the Protocol this summer. In light of President Obama's recent statements in Prague and London, I am particularly pleased that the U.S. and Russian plutonium disposition programs are coming together at this time. As a result of these efforts, the United States and Russia will ultimately dispose of enough weapons plutonium for at least 17,000 nuclear weapons.

I should note also that with this budget request, we are submitting our last request for funding to eliminate the production of weapons-grade plutonium production in Russia by December 2010, through the shutdown of Russia's last weapons-grade plutonium production reactor in Zheleznogorsk.

The NNSA directly supports President Obama's goal to accelerate efforts to secure all vulnerable nuclear material from around the world within 4 years, including the expansion and acceleration of our existing efforts. The NNSA is the key agency supporting the administration's goal of minimizing the use of highly-enriched uranium (HEU) in the civil nuclear sector through our program to shutdown entirely or convert HEU fueled research reactors to the use of low-enriched uranium (LEU) fuel. In fiscal year 2010, we will direct significant funding to the Global Threat Reduction Initiative (GTRI) mission to eliminate and protect vulnerable nuclear and radiological materials located at civilian sites worldwide.

In fiscal year 2010, we will also improve the physical security of nuclear material, as well as facilitate the development and implementation of material control and accountability procedures, and train personnel, to protect a total of 73 nuclear sites throughout Russia and the former Soviet republics. The NNSA will fulfill the administration's goal of securing nuclear weapons-usable material by ensuring that the material possessed by the Russian Navy, the Russian Ministry of Defense, Rosatom and Russian civilian sites is secured.

But improving the security of weapons-usable material at its source is only the start. We must also develop a Second Line of Defense in order to anticipate the possibility that nuclear weapons-usable material could be smuggled out and transported across international borders. And in fact, we know that illicit trafficking in nuclear and other radioactive materials continues, especially in Eastern Europe, the Caucasus, and Central Asia. In response to the President's charge to do more to combat nuclear trafficking, we will install additional radiation detection equipment at 42 foreign sites across Europe, Asia, and North America, and provide detection equipment in 15 additional ports where cargo is loaded for shipment to the United States.

This work started several years ago. Technology advances and foreign personnel turnover have occurred since NNSA first began securing sites and borders in foreign countries. Funds will be used not only to perform new installations and train personnel at new sites, but will also be used to upgrade older equipment at existing sites, and to provide refresher training to foreign security professionals.

Additionally, in fiscal year 2010, NNSA will expand and accelerate its Next Generation Safeguards Initiative (NGSI), adding $15 million to revitalize the U.S. technical and human capital base necessary to strengthen the international safeguards system and the International Atomic Energy Agency, in line with President Obama's charge in Prague. The NGSI complements related NNSA priorities to reduce proliferation risks associated with growing international interest in the use of nuclear power; to expand export control training and outreach; to develop and im-

plement reliable fuel services as an alternative to the further spread of enrichment and reprocessing capabilities; and—consistent with the President's call for progress towards a world without nuclear weapons—to provide technical support for negotiations of the START follow-on agreement, Comprehensive Nuclear Test-Ban Treaty, and a verifiable Fissile Material Cutoff Treaty.

NAVAL REACTORS OVERVIEW

The NNSA also contributes to national security through the Naval Reactors Program. This program ensures that the nuclear propulsion plants aboard our Navy's warships remain safe and reliable for their complete service lives. Over 40 percent of the Navy's major combatants are nuclear-powered. All of the Nation's aircraft carriers, attack submarines, guided missile submarines, and ballistic missile submarines enjoy the significant operational advantage afforded by nuclear power, including speed, endurance, and enhanced combat payload. Through NNSAs efforts, nuclear-powered warships are on station where American interests are threatened, and ready to conduct sustained combat operations.

For over 60 years, the Naval Reactors program has had complete responsibility for all aspects of Naval Nuclear Propulsion. The Naval Nuclear Propulsion Program currently supports 82 active nuclear-powered warships and 103 operating reactors. This represents 8 propulsion plant designs, in seven classes of ships, as well as a training platform.

Naval Reactors funding supports safe and reliable operation of the Nation's Nuclear Fleet. This includes providing rigorous oversight, analysis of plant performance and conditions, as well as addressing emergent operational issues and technology obsolescence for 71 submarines, 11 aircraft carriers and four research and development and training platforms. This funding also supports new plant design projects (i.e., reactor plant for the GERALD R. FORD-class aircraft carrier and alternative lower-cost core for VIRGINIA-class submarines), as well as ensuring proper storage of naval spent nuclear fuel, prudent recapitalization of aging facilities, and remediation of environmental liabilities.

The OHIO-class SSBNs, which are the most survivable leg of the U.S. Strategic Forces, are approaching the end of their service lives. The Navy recently completed studies for a follow-on replacement to the OHIO-class and is funding the commencement of design work in fiscal year 2010. NNSA funding in fiscal year 2010 supports reactor core and propulsion plant design and development efforts to support this replacement.

Since 1978, the land-based prototype reactor plant (S8G) has provided an essential capability to test required changes or improvements to components and systems prior to installation in operational ships. The prototype has also provided required, high-quality training for new sailors preparing to operate the Nation's nuclear-powered vessels. This land-based prototype will run out of fuel and require a refueling overhaul starting in 2018. This overhaul and the resultant opportunity to test advanced materials and manufacturing techniques in a caustic operating environment will significantly mitigate risk in the OHIO Replacement reactor plant design. To support the refueling overhaul schedule, concept studies and systems design and development efforts will begin in 2010.

The Expended Core Facility, located at the Naval Reactors Facility on the Idaho National Laboratory, is the central location for Naval spent nuclear fuel receipt, inspection, dissection, packaging for dry storage, and temporary storage, as well as detailed examination of spent cores and irradiation specimens. Continuous, efficient operation of this facility is vital to ensure the United States can support fuel handling operations in our shipyards conducting construction, repair, and restoration of nuclear ships. The existing facility and related infrastructure is over 50 years old and requires recapitalization. The mission need for recapitalizing this capability has been approved and conceptual design efforts begin in 2010.

The Program continues to explore and develop potentially advanced technologies that could deliver a compellingly better energy source for nuclear ships. For example, using a supercritical carbon dioxide energy conversion as a replacement for the traditional steam cycle is envisioned to be significantly smaller for the same power output, simpler, more automated, and more affordable. Leveraging existing university, industry, and Nuclear Security Enterprise scientific and engineering work in this technology, conceptual development and small-scale testing is underway to support eventual megawatt-scale testing and prototyping.

Acquisition of a new surface combatant (i.e., cruiser) in support of new ballistic missile defense and anti-air warfare mission requirements are currently under evaluation by the Navy. Based on these mission requirements, this new ship will potentially require higher energy capacity and output than is currently available from

traditional fossil fueled power plants. Further, the National Defense Authorization Act (NDAA) for 2008 authorizes the Navy to construct all future major combatant vessels with integrated nuclear power systems unless this requirement is waived by the Secretary of Defense. The Navy is currently analyzing alternative shipboard systems that will determine final power plant requirements. Should the Navy decide to pursue a nuclear-powered cruiser in its current long-range shipbuilding plan, DOE-cognizant reactor core and propulsion plant design and development will be required.

The value of nuclear power for naval propulsion is well recognized and the demand for its inherent capabilities remains strong. By taking every opportunity for economies in our work and business practices, we have made a concerted effort to meet the Navy's demand for new propulsion plant designs while assuring the safe and reliable operation and maintenance of the existing fleet. However, the need to deal with a formidable collection of new challenges coupled with the Program's aging infrastructure and environmental legacies requires a fortified level of resource commitment.

NNSA Future-Years Nuclear Security Program

The NNSA fiscal year 2010 congressional budget request is $9.9 billion, a total of $815.4 million above the fiscal year 2009 appropriations. Of the 8.9 percent increase, about 7 percent is attributable to the re-location of funding for the Mixed Oxide Fuel Fabrication facility project back to NNSA in the Defense nuclear Nonproliferation appropriation.

The NNSA budget justification contains information for 5 years as required by section 3253 of Public Law 106–065, entitled Future-Years Nuclear Security Program (FYNSP). The fiscal year 2010–2014 FYNSP projects $50.4 billion for NNSA programs through 2014. The principal increases from the fiscal year 2009–2013 FYNSP are: the transfer of funding for the Mixed Oxide (MOX) Fuel Fabrication Facility project back from the Office of Nuclear Energy to NNSA; the multi-year initiative to further enhance global nuclear nonproliferation efforts; and some of the increase required to support the development of the new generation submarine reactor replacement. For Weapons Activities, the outyear projections reflect only a continuation of current capabilities, pending upcoming strategic nuclear policy decisions. The fiscal year 2011–2015 budget process is expected to present a fully integrated Future Years Nuclear Security Program budget aligned with the new strategic direction and program requirements for all of the NNSA programs.

NNSA Budget Summary by Appropriation and Program

Weapons Activities Appropriation

The Weapons Activities appropriation funds five NNSA program organizations. (There are six subheadings below. Combining "Site Stewardship" and "Infrastructure and Environment" would reduce the count to five and mirror the NNSA structure.) The fiscal year 2010 congressional budget request is $6.4 billion for Weapons Activities, essentially level with fiscal year 2009 appropriation.

Defense Programs

The fiscal year 2010 congressional budget request for Defense Programs is $5.0 billion, a decrease of 1.1 percent from the fiscal year 2009 appropriation that is primarily attributable to transitioning the Pit Disassembly and Conversion Facility and the Waste Solidification Building to other programs. The outyear projections for Defense Programs reflect a continuation of current programs and services pending further national nuclear policy direction expected during 2009.

Within the President's Budget request level, the NNSA will continue all programs to meet the immediate needs of the stockpile, stockpile surveillance, annual assessment, and Life Extension Programs (LEP). As directed by the Nuclear Weapons Council, a feasibility and cost study was initiated in September, 2008, to investigate the replacement of aging non-nuclear components in the family of B61 bombs, and to study the potential incorporation of modern safety and security features in these systems. Included in the program are efforts to complete the B61 Phase 6.2/6.2A refurbishment study evaluating end-of-life components, aging, reliability, and surety improvement options. The decrease within the Directed Stockpile Work (DSW) request is attributable mainly to the relocation of the funding for the Pit Disassembly and Conversion Facility (PDCF) to Readiness in Technical Base and Facilities (RTBF) and the Waste Solidification Building (WSB) to Defense Nuclear Nonproliferation.

The Campaign activities for Science, Engineering, Inertial Confinement Fusion and Advanced Simulation and Computing maintain the fiscal year 2009 funding level throughout the FYNSP. The Science Campaign consolidates a new subprogram

called "Academic Alliances" that encompasses the funding for university grants, alliances, and the joint program with Science. The Engineering campaign increases emphasis on Enhanced Surveillance and Systems Engineering Technology in the fiscal year 2010 congressional budget request. The Inertial Confinement Fusion Ignition and High Yield Campaign is requested at $437 million, and in fiscal year 2010, the emphasis shifts away from NIF assembly and toward Facility Operations as the program continues to refine requirements and prepare for the first ignition experiments in 2010. The fiscal year 2010 congressional budget request for the Advanced Simulation and Computing Campaign provides growth in physics and engineering models as support shifts away from hardware procurements and system software.

The Readiness Campaign funds the development and deployment of modern manufacturing capabilities to produce materials and components in compliance with weapon design and performance requirements and in accordance with Life Extension Program and refurbishment schedules. In fiscal year 2010, the Readiness Campaign will focus on supporting the Tritium Readiness activities and high priority projects to deliver new or enhanced processes, technologies, and capabilities to meet the current needs of the stockpile. The reduction in Tritium Readiness was planned, and is due to the cyclical nature of production.

The Readiness in Technical Base and Facilities request is $62 million above the fiscal year 2009 appropriations. The increase is attributable to additional funding provided to mitigate increased pension costs at the M&O contractor sites. Within the request for operating expenses, an increase is included for the Kansas City Plant supporting the work for the move to a new, smaller facility. Funding for construction projects is requested at $203 million to sustain ongoing construction and design efforts. The location of funding for the PDCF project has been changed from DSW to RTBF. One new construction project is requested: the Nuclear Facilities Risk Reduction Project at Y–12 will provide maintenance to sustain uranium related capabilities at Building 9212.

The Secure Transportation Asset program is requested at $234.9 million, an increase of 9.6 percent over the fiscal year 2009 appropriation. The STA program plans to acquire a total of three transport category aircraft. One 737-type aircraft will be purchased each year—starting in fiscal year 2010, fiscal year 2011, and fiscal year 2012 to replace the aging aircraft. In addition to the aircraft purchases, the remaining increase will be used for training and equipment.

Nuclear Counterterrorism Incident Response (NCTIR)/Emergency Operations

The NCTIR program responds to and mitigates nuclear and radiological incidents worldwide as the U.S. Government's primary capability for radiological and nuclear emergency response. The fiscal year 2010 congressional budget request for these activities is $221.9 million, an increase of 3 percent over fiscal year 2009 appropriations. The increase reflects funding growth in three specific areas of the program—International Emergency Management and Cooperation, Emergency Response, and Render Safe Stabilization Operations. These initiatives support increased efforts to address serious emergency management programs in priority countries, while continuing and completing ongoing programs with the International Atomic Energy Agency (IAEA) and other international partners and countries; scientific breakthroughs for Render Safe Stabilization Operations and the Technical Integration programs and continued implementation of National Technical Nuclear Forensics for pre- and post-detonation phases and the Stabilization aspect of nuclear emergencies through development of first generation stabilization equipment including training and maintenance programs to selected teams nationwide in support of better emergency response capability.

Infrastructure and Environment

This organization is responsible for the Facilities and Infrastructure Recapitalization Program, (FIRP) and the new Site Stewardship Program which encompasses Environmental Projects and Operations (EPO) that provides for Long-Term Stewardship (LTS) at NNSA sites after remediation is completed by the DOE Office of Environmental Management, Nuclear Materials Integration, Stewardship Planning which contains a renewable energy efficiency project; and may ultimately include deactivation and demolition activities.

The fiscal year 2010 congressional budget request for FIRP is $154.9 million, an increase of 5 percent above fiscal year 2009. This provides funding for recapitalization, infrastructure planning and construction. The increase supports continued progress in restoring the condition of mission critical facilities and infrastructure across the Nuclear Security Enterprise to an acceptable condition. The program's original goals established in fiscal year 2003 include: elimination of $1.2 billion of deferred maintenance, achieving a Facility Condition Index (FCI) of 5 percent, and

elimination of 3 million gsf of excess facilities. The original $1.2 billion deferred maintenance buydown goal is based on the requirement to meet the FIRP commitment of 5 percent FCI for all facilities. The program's deferred maintenance goal was adjusted in fiscal year 2007 to eliminate $900 million of deferred maintenance by fiscal year 2013 as a result of transformation decisions that reduced facility deferred maintenance requirements. The principle assumption governing FIRP is that the program will be funded only through fiscal year 2013.

The fiscal year 2010 congressional budget request for Facilities and Infrastructure Recapitalization is $154.9 million, an increase of 5 percent above fiscal year 2009. This provides funding for recapitalization, infrastructure planning and construction. The increase supports continued progress in restoring the condition of mission essential facilities and infrastructure across the Nuclear Security Enterprise to an acceptable condition.

The fiscal year 2010 congressional budget request for the new GPRA Unit, Site Stewardship, is $90.4 million. The goal of the Site Stewardship Program is to ensure environmental compliance and energy and operational efficiency throughout the Nuclear Security Enterprise, while modernizing, streamlining, consolidating, and sustaining the stewardship and vitality of the sites as they transition within NNSA's plans for transformation. The Site Stewardship program will institute and maintain a robust operational framework at the NNSA Government-owned, contractor-operated sites that encompass responsibility for achieving the NNSA mission. This new GPRA Unit will encompass activities currently under Environmental Projects and Operations (EPO) and will include new subprogram elements Nuclear Materials Integration (NMI) and Stewardship Planning. In the I&E organization only EPO was funded (as a separate GPRA unit) in fiscal year 2008 and fiscal year 2009 and is reflected as such for those 2 years since this is a non-comparable budget submission. The Environmental Programs and Operations increases 7 percent over the fiscal year 2009 appropriation to address ongoing and new regulatory-driven Long Term Stewardship activities at NNSA sites where Environmental Management activities have been completed. Nuclear Materials Integration provides focused attention on the consolidation and disposition of specific NNSA special nuclear materials. Current activities include the de-inventory of security Category I and II Special Nuclear Material (SNM) from LLNL and also the consolidation and disposal of inactive actinides at other sites. Funds for these material consolidation and disposal activities are being transferred from Defense Programs to Infrastructure and Environment in fiscal year 2010.

The majority of the requested fiscal year 2010 funding increase of $28 million is in Stewardship Planning for an operating expense-funded project, the Pantex Renewable Energy Project (PREP) at the Pantex Plant, that will create a more flexible, more reliable, and environmentally friendly source of renewable energy that supports DOE/NNSA operating goals and missions. The PREP will generate surplus electrical energy, reduce greenhouse gas emissions at local power plants, enhance energy security, and create jobs. This modular, operating expense-funded project will play a key role in satisfying NNSA's renewable energy objectives consistent with DOE Order 430.2B, Departmental Energy, Renewable Energy and Transportation Management.

Defense Nuclear Security

The fiscal year 2010 congressional budget request for Defense Nuclear Security is $749.0 million to support the base program and on sustaining the NNSA sites 2003 Design Basis Threat baseline operations, and begin initial steps to implement the Department's new Graded Security Protection (GSP) policy. During fiscal year 2010, the program will focus on eliminating or mitigating identified vulnerabilities across the Nuclear Security Enterprise. Funding for one new construction start is requested for the Security Improvements Project (SIP). The SIP will install a new security system to manage and integrate personnel security and access control systems at the Y–12 National Security Complex.

Starting in fiscal year 2009, there is no longer an "offset" in this account or the Departmental Administration Appropriation for the security charges associated with reimbursable work. In the fiscal year 2010 congressional budget request, mission-driven activities will continue to be fully funded with direct appropriations, but security required for Work for Others will be covered as part of full cost recovery for these projects. Institutional security activities will continue to be funded by indirect or general and administrative costs at each site.

Cyber Security

The Cyber Security program will sustain the NNSA infrastructure and upgrade elements that will counter cyber threats from external and internal attacks using the latest available technologies.

The fiscal year 2010 congressional budget request for Cyber Security is $122.5 million, an increase of 1 percent over the fiscal year 2009 appropriations. The Cyber Security program is in the process of a major 5-year effort focused on revitalization, certification, accreditation and training across the NNSA enterprise. Revitalization enables NNSA to respond to its highest priorities and to address current and future risks; certification and accreditation assure proper documentation of risks and justification of associated operations for systems at all sites; and, education and awareness provides training for Federal and contractor personnel to meet expanding skill requirements of NNSA cyber security and information environments.

Defense Nuclear Nonproliferation (DNN) Appropriation

The DNN program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD). Our programs address the threat that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production or technology, or WMD capabilities, by securing or eliminating vulnerable stockpiles of weapon-usable materials, technology, and expertise in Russia and other countries of concern.

The fiscal year 2010 congressional budget request for the DNN appropriation totals $2.1 billion. The most significant fiscal year 2010 and out-year increases relate to the request to move the funding for the MOX Fuel Fabrication Facility project and the WSB back to NNSA's DNN Programs. The NNSA has funded the MOX Fuel Fabrication Facility project and the WSB baseline increases within the requested funding for fiscal year 2010 and the outyears. Other increases include International Materials Protection and Cooperation (INMP&C) and Nonproliferation and International Security (NIS), both of which increase 38 percent over the fiscal year 2009 levels.

Funding in the INMP&C fiscal year 2010 congressional budget request of $552.3 million is an increase of 38 percent over the fiscal year 2009 appropriated level. This increase is the first step in fulfilling President Obama's promise during his Prague address that the United States will expand its partnership with Russia and pursue new partnerships to eliminate or secure vulnerable nuclear materials. This budget provides for sustainability support to Russian warhead and material sites with completed INMP&C upgrades, INMP&C upgrades to areas/buildings agreed to after the Bratislava Summit and the projects to assist the Russian Federation and other partner countries in establishing the necessary infrastructure to sustain effective MPC&A operations. In addition, the budget provides for the Second Line of Defense program and the installation of radiation detection equipment at 43 foreign sites and 15 Megaports.

The fiscal year 2010 congressional budget request for the NIS program is $207.2 million, an increase of 38 percent over the fiscal year 2009 appropriations. This supports the Next Generation Safeguards Initiative (NGSI), which aims to strengthen the international safeguards system and revitalize the U.S. technical base and the human capital that supports it; as well as nuclear disablement, dismantlement, and verification activities in North Korea; policy and technical support for U.S. efforts to address proliferation by Iran, North Korea and proliferation networks; and the implementation of nuclear arms reduction and associated agreements.

The fiscal year 2010 congressional budget request for the Global Threat Reduction Initiative (GTRI) is $353.5 million, a 10.5 percent reduction from the fiscal year 2009 appropriations. Most of this decrease results from the completion of the Kazakhstan Spent Fuel work in CY 2010. The fiscal year 2010 congressional budget request of $24.5 million for the Elimination of Weapons Grade Plutonium Production (EWGPP) is the final increment of U.S. funding needed for this program. The significant reduction in the budget reflects close-out and completion of the construction activities for the Zheleznogorsk Project.

The Nonproliferation and Verification R&D program is requested at $297.3 million, a decrease from the fiscal year 2009 level. This decrease reflects both an unrequested congressional addition in 2009 and NNSA's funding in 2009 of the total required in 2009 and 2010 for the Physical Sciences building in Washington State. The $297.3 million is sufficient to support long-term R&D leading to detection systems for strengthening U.S. capabilities to respond to current and projected threats to national and homeland security posed by the proliferation of nuclear weapons and diversion of special nuclear material. Almost a third of this funding is for production of operational nuclear detonation detection sensors to support the Nation's oper-

ational nuclear detonation detection and reporting infrastructure through joint programs with DOD.

The President's Request for Fissile Materials Disposition is $701.9 million, reflecting the transfer of funding for the MOX Fuel Fabrication Facility project and WSB projects back to this program. In addition to these U.S. plutonium disposition activities, the program supports three other principal elements: efforts to dispose of U.S. HEU declared surplus to defense needs primarily by down-blending it into low enriched uranium; technical analyses and support to negotiations among the United States, Russia, and the International Atomic Energy Agency on monitoring and inspection regimes required by a 2000 U.S.-Russia plutonium disposition agreement; and limited support for the early disposition of Russia's plutonium in that country's BN–600 reactor including U.S. technical support to oversee work in Russia for early disposition of Russian weapon-grade plutonium in fast reactors. The United States and Russia began negotiations on amendments to the 2000 Agreement in 2008, and expect to complete the negotiations this summer.

Naval Reactors Appropriation

The NNSA's Naval Reactors program continues to provide the U.S. Navy with safe, military effective nuclear propulsion plants and ensure their continued safe and reliable operation. The fiscal year 2010 congressional budget request for Naval Reactors is $1,003.1 million, an increase of 21 percent over the fiscal year 2009 appropriations.

This increase provides additional funding to initiate the new mission work for the design and delivery of a new reactor core and propulsion plant to support the next-generation submarine design, and refueling of the S8G Prototype, one of two land-based reactor plant prototypes that serve as a testing platform for nuclear technology. Significant outyear funding is required for both of these activities. A portion of the fiscal year 2010 increase will also support Naval Reactors pension responsibilities.

Office of the Administrator Appropriation

This appropriation provides corporate direction, Federal personnel, and resources necessary to plan, manage, and oversee the operation of the NNSA. It provides funding for all Federal NNSA staff in Headquarters and field locations except those supporting Naval Reactors and the Secure Transportation Asset agents and transportation staff.

The fiscal year 2010 congressional budget request of $420.8 million reflects a decrease of $18.4 million that is attributable to Congressionally-directed projects funded in fiscal year 2009. Staffing increases in fiscal year 2010 by 28 full time equivalents (FTEs) from 1,942 to 1,970 reflecting functional transfers and growth to accommodate mission program increases. The projected staffing level for fiscal year 2010 is 1,970 and is maintained throughout the outyear period. The Historically Black Colleges/Hispanic Serving Institutions programs will continue through fiscal year 2010 on grants made by appropriations provided in fiscal year 2009 and through program funding. The fiscal year 2010 congressional budget request includes $4.1 million for the Massie Chairs and related activities only.

Senator DORGAN. Mr. D'Agostino, thank you very much. I appreciate very much your appearance and the appearance of Brigadier General Harencak and Ken Baker as well.

Let me just make a quick comment first. I noted that an OMB document earlier this year called for a study of moving the NNSA out of the Department of Energy and into the Department of Defense. It reminds me that bad ideas have unlimited shelf life here in the Nation's capital, and also that bad ideas are bipartisan.

This is a bad idea that has been debated and long ago discarded. So if you get a chance to talk to OMB, would you suggest that they close the cover of that book and move on?

Mr. D'AGOSTINO. Yes, sir. I will be glad to.

FUTURE OF THE LOS ALAMOS NEUTRON SCIENCE CENTER

Senator DORGAN. Thank you very much.

I understand that the budget proposal that you are here to discuss proposes eliminating funding for the refurbishing of what is

called the Los Alamos Neutron Science Center, or the LANSCE facility. We have an OMB passback calling for canceling this project. So perhaps it was not your decision, but there is no funding for LANSCE refurbishment in the 2010 request, though it was provided $19 million in last year's request.

I am told that there is no other classified facility capable of the scientific research being conducted at LANSCE. I am told to replace the LANSCE facility or to make another facility, such as SNS, at Oak Ridge classified would be more expensive than refurbishment.

So, a couple of questions, do you believe that LANSCE is important to the Stockpile Stewardship Program?

Mr. D'AGOSTINO. Yes, I do, sir.

Senator DORGAN. Considering the age of the stockpile and nonproliferation treaties, do you think keeping the LANSCE facility operating in the future will be important for the country?

Mr. D'AGOSTINO. Absolutely. I think it will be useful to help us in neutron cross-section measurement, which is what it is doing right now, and to exploring what we call proton radiography, which is a different way of examining what is actually going on inside very dense materials, and to do the nuclear science and material science work. We think the country needs that in the future.

Senator DORGAN. Without refurbishment, how long is the LANSCE expected to be an effective facility?

Mr. D'AGOSTINO. That is a tough question to answer. Most of what we are doing right now is accepting risk if we don't refurbish the facility, risk that the accelerator pieces are going to get to a point where they will age out. Already some of the components are hard to replace.

So what we are in right now is a maintenance mode, keeping it working. In fact, that is our plan out into the future—keeping the facility working out into the future. My goal is to revisit this discussion or revisit the question because I do think, in the long run, what we do with LANSCE ultimately has to be integrated with the bigger picture on science and the technology that we need to maintain out in the future.

And so, my goal would be to essentially make sure it keeps operating, one; keep doing the experiments that we need, two; and three, figure out, make sure that we have an integrated picture post NPR, once the NPR is done, that figures out how science and technology fits in.

SCIENCE FUNDING TRENDS

Senator DORGAN. Well, at this point, we are not talking about the Reliable Replacement Weapon, or the RRW program, but we are talking about stockpile stewardship, which I understand is increasingly reliant on science. So the question is, given the heavy reliance on science for stockpile stewardship and reliability, how do we reconcile flat funding in the area of science?

Mr. D'AGOSTINO. What we did, as a result of a number of changes that have happened over the last 3 months, frankly, I have decided that it was much more important to make sure that we stem and stop the decrease in our science programs that was happening, as you noted in your remarks earlier. And so, what we did

is some reallocation, quite frankly, in the last few months, about $130 million worth to stop the decrease where science was going, and then—what I would call stop the bleeding, and then start getting in on the repair side.

So where are we right now, it is my plan, at least, this is the low point on science is stopping the decrease, and then we are going to need to be reinvesting out into the future, fiscal year 2011 budgets and the like.

You will notice, sir, and as you have said, the numbers are exactly the same. And you said, was that coincidence or what? It is not—what are the chances of having an exact same out-year number? And its chances are zero. And the reality is I have submitted to you or to Congress—the President has submitted to you essentially a program that says this is a 1-year look. The administration has just come in, established some very aggressive and some broad goals that it wants to implement in the nuclear security arena.

And because of that, some of these programs, the idea of securing materials worldwide in 4 years; as you mentioned, this Comprehensive Test Ban Treaty piece; fissile material cutoff piece; the new START Treaty; the dismantlements; those require a fair amount of detailed program planning that we are doing right now. And we didn't have time to reflect that appropriately in the out-year budget request. So you will see these strange-looking numbers, and that is why.

NUCLEAR NON-PROLIFERATION

Senator DORGAN. Given what has happened in the world in recent days, weeks, months, it seems to me that the issue of nuclear non-proliferation is unbelievably important. It is something people don't talk about in coffee shops. I understand that. It is not part of the contemporary debate on talk shows. But it is unbelievably important.

It appears that that account is flat-funded, and the President announced his goal to secure all nuclear material around the world by 2012. As I understand it, a team of officials was sent to Moscow some weeks ago to begin negotiations for replacing the START Treaty. Last week, North Korea, we think, set off their second nuclear weapon in 3 years.

With such increased emphasis on the need for nuclear test monitoring, verification research and those kinds of activities in the nuclear non-proliferation budget, how is it that the research and verification is reduced significantly? I mean does that square with anything that I just described or with anything that you believe?

Mr. D'AGOSTINO. I will explain how it squares. I do believe out into the future, you will be seeing a fairly different program from us. But let me start off with the following, if I could. You mentioned North Korea. And I would like, Mr. Baker, if you could, to talk to some of the details on the research and development program.

The intelligence analysts that this country has used over the last—well, certainly very aggressively over the last 10 days or so, but obviously, in the previous years, that analyze what is happening in the world, both nuclear smuggling, proliferation of not just materials, but components, missile technology, and the like.

Most of those experts ultimately come, as you are probably aware, from this program, and they start off at the base. They start off in the General's program, and they end up being supportive to the intelligence agencies and the like.

So we know what we know because of those folks. Ken Baker can talk about the research and development program and why the budget changes the way it does.

Mr. BAKER. I agree with you, Senator. It is a very dangerous world out there, probably more so than ever, even when we were back in the cold war, in my opinion.

The research and development program has been reduced. The reason why it has been reduced this year, we had an $85 million plus-up last year over the President's budget, and we have finished the work at the Pacific Northwest laboratory, which was something like $40 million. That program is down. It is critical to us. It will be critical in the CTBT. It will be critical in START.

It is a very important program, and again, I think you will see in the next years, as we work this 4-year plan, that budgets will increase in the future.

Senator DORGAN. Senator Bennett?

Senator BENNETT. Thank you, Mr. Chairman.

And I would like to follow up on the line of questioning you have already begun.

IMPACT OF FLAT-FUNDING ON WEAPONS AND NON-PROLIFERATION PROGRAMS

Mr. D'Agostino, you say funding is level, but, in fact, there are internal demands that make the amount of money that actually—to use an analogy that we have out in the West, the amount of water that actually gets to the end of the ditch is smaller than the overall numbers would indicate. I am talking about the pension shortfalls.

It is my understanding that you have to make up some of the pension shortfalls of your contractors. Is that correct?

Mr. D'AGOSTINO. That is correct, Senator.

Senator BENNETT. All right. The numbers I have say that the contributions paid to DOE contractors in their pension plans from 2008—2003 to 2008 was $330 million, and you expect to pay $1.5 billion per year over the next 5 years, with the peak contribution years estimated to come in 2012 and 2013 at just under $2 billion per year.

Now if you are going to deduct most of the savings out of the operating budget and delay facility closures and preventive maintenance and consolidation of special nuclear materials, obviously the top-line number is deceiving. So I think the trend is simply unsustainable. It will have a devastating impact on the weapons and non-proliferation program, and I want to know what the Department has considered, actions being taken to mitigate this problem over the next 5 years.

Mr. D'AGOSTINO. Yes, sir. You are absolutely right. With those kinds of numbers with no changes, that is an unsustainable path. It is an unsustainable program. But I will tell you what the Department has done at this point. And what the Department, I say the administration has done, quite frankly.

One is when we first started this year, we were faced with this immediate problem. So we looked in just fiscal year 2009 at areas where programs weren't spending, we didn't see the expenditure rate, things had gotten slow to start, and we figured out what could shift back a little bit. And we also made some adjustments to our overhead rates to get through fiscal year 2009. Otherwise, we would have been in the process of sending out literally tens of thousands of letters to all of our employees saying that their pension fund is underfunded.

So that took care of fiscal year 2009. And for fiscal year 2010, which is the current budget, we have received an increase. The total liability is on the order of close to $300 million that we were potentially expecting in 2010. So what we received is an increase of about $122 million in order to address specifically the pension shortfall in our fiscal year 2010 budget. That leaves, of course, $160 million of uncertainty.

The way the pension process works, and I apologize for giving the long answer, is every January we go off and take a look at where we are, kind of a snapshot look. And that sets the trend for the upcoming year. This past January, we thought next year would be worse, and that is why we have come up with $122 million.

We don't know what January is going to look like. So what we have taken is a big step in the right direction toward addressing our 2010 shortfall with the understanding that the financial situation will be different in January. It might be worse. It might be better. But we wanted to at least approach the solution with the backup plan to make some adjustments to our indirect rates. That kind of will spread the problem a little bit more broadly.

So it is a dynamic problem, we look at it on a monthly basis. And this is, unfortunately, we are in a situation where we are going to be looking at it on this regular basis out into the future. But in the end, it is going to require, I believe, increases to top lines if we continue to see the past performance.

Senator BENNETT. That is the point I wanted to make and want to have clear on the record, that, at some point, the top line has to go up, or everything else suffers from it. We are in a fool's paradise if we say, "Oh, we are keeping the funding level," when, effectively, we are not for these reasons.

Mr. D'AGOSTINO. Yes, sir.

RESEARCH INTEGRATION BETWEEN THE DEPARTMENT OF ENERGY AND NATIONAL NUCLEAR SECURITY ADMINISTRATION

Senator BENNETT. Now let us talk about the need for scientific leadership within NNSA. I think we need to consider a new position within NNSA to steward and cultivate scientific research.

Such an individual could help raise awareness of both weapon science and non-weapon science that goes on at the labs and work to integrate research among the DOE and NNSA labs. And the grand challenge of energy security and climate change science are of such complexity that this work, I think, should be shared with all the labs. I had reference made to that when I was out in the labs, when you were kind enough to give that tour.

So I am considering a modification to the NNSA Act to create a new position within NNSA that would report directly to you, and

it would—this position would lead the NNSA science program and work with the rest of the Department to integrate the national security capabilities with those in basic applied programs within DOE. Can you give me your reaction to that idea?

Mr. D'AGOSTINO. Yes, sir. Though not part of the NNSA Act, I think consistent—particularly after our trip that we took about a year and a half ago sir, we talked about the importance of science. Dr. Dave Crandall, who used to run the Research, Development, and Simulation Program in the weapons program, I brought him up to advise me. He doesn't have an official role, if you will, as you have described, from an authority standpoint. But in effect, he is doing some of that work as a chief scientist.

I think the idea of having a named position is a good idea. It is very consistent with our drive to not so much focus just on nuclear weapons science, but to focus on nuclear security science, which will address non-proliferation, counterterrorism, forensics, and then, more broadly, work with the rest of the Department, the Office of Science, to draw those links together and show how these computers and these people can address global problems.

So I am very favorably disposed to your suggestion, sir.

Senator BENNETT. All right. Well, I am glad you are using Dr. Crandall. But he has no budget authority and no mission responsibility.

Mr. D'AGOSTINO. Right.

Senator BENNETT. And so, I will be talking to you about how we might proceed on that.

Mr. D'AGOSTINO. Yes, sir.

Senator BENNETT. Thank you, Mr. Chairman.

Senator DORGAN. Senator Feinstein?

Senator FEINSTEIN. Thank you very much, Mr. Chairman. I trust this mike is not working.

Senator DORGAN. Turn it on and speak directly into it, if you would?

Senator FEINSTEIN. Hello? It is working.

NUCLEAR POSTURE REVIEW, WEAPONS TREATY NEGOTIATION, AND STOCKPILE REDUCTION

Mr. D'Agostino, it is my understanding, and the chairman touched on this, that you are involved in two efforts. One is the negotiation for a new nuclear weapons treaty with Russia, and the other is the Nuclear Posture Review that is due out the early part of 2010.

It has been reported that this new treaty could set a new ceiling of 1,500 operationally deployed nuclear warheads for each nation, down from 1,700 to 2,200 under the Moscow treaty. Is that, in effect, true?

Mr. D'AGOSTINO. There are a lot of numbers. The short answer is we haven't closed on the details. There are a lot of numbers being bantered around. The President has made it very clear that he wants a number lower than the 1,700 to 2,200 number.

Where we are right now in the Nuclear Posture Review, which is the kind of committee of people that will be briefing the National Security Council and, ultimately, the President, quite frankly, in the next relatively short period of time, we are in the discussion

phase of examining the policy. What is the policy that the Nation wants to carry forward into the future? And what size of stockpile is needed to maintain that policy strongly?

There is a 1,500 number floating around out there. There are some lower numbers. There are some higher numbers, and I would rather not try to make a commitment right now.

Senator FEINSTEIN. Yes, all right. Well, that is fine. I am for the lowest possible number, as you know.

Mr. D'AGOSTINO. Yes, ma'am.

Senator FEINSTEIN. I think the buildup of huge nuclear weapons, 90 percent of which are owned by Russia and the United States, really endangers the world and really opens us up to all kinds of problems. So you know my views on this subject well.

Mr. D'AGOSTINO. Yes, ma'am.

COSTS AND RESULTS OF NUCLEAR LABORATORY PRIVATIZATION

Senator FEINSTEIN. What is the total loss of employees at our nuclear labs since the privatization?

Mr. D'AGOSTINO. We have lost—as I have looked at the numbers going back in time for the last 3 or 4 years or so, the NNSA overall has changed, if you will, about 1,500—I will get to your answer. But overall, about 1,500 folks a year or so out of the 32,000, which we started off with, have been coming out.

Senator FEINSTEIN. Well, what is the total? I know it is over 2,000 at Los Alamos alone.

Mr. D'AGOSTINO. Yes, it is. The total is probably between 3,000 and 3,500, give or take. It depends if we are counting not full-time lab employees, but temporary lab employees. But, in essence, it is in the thousands. It is a fairly significant number. It is a number that was about 2,500 or so last year when we talked to you, talked to the subcommittee here last year.

It is a number that, for the most part, the lab directors have focused on driving these changes not with their scientists or engineers, though they have had to get into that some. But most of these reductions have happened as a result of administrative personnel being more efficient, quite frankly. And George Miller has got some good examples.

Senator FEINSTEIN. I am not talking necessarily about any one particular lab. I can tell you this. When I visited Los Alamos, the most significant thing I took away from it was the lack of people in that facility.

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN. And I am concerned by it. And I remember the budget last year and the year before when you have these enormous fees to run these labs and those fees have been paid by cutting employees. And I think that is just a fact.

Now the question comes, what does this do to the mission? And I am very concerned about it because I think the mission is subtly changing, the mission of the labs. I think the privatization is toward pushing things into the private sector, and the purpose of these labs is really to do some of the most advanced work that keeps this Nation ahead of others. And I am very worried about it and not at all sure that it is the right thing to have done.

So let me ask you this question. Since the privatization, what would you name as the three big achievements produced by privatization?

Mr. D'AGOSTINO. What I would say the first achievement is on security. We have seen some huge improvements in security at both of the laboratories since privatization.

Senator FEINSTEIN. Okay, granted. And that is where the university was weak, and that has been picked up, and the security has improved. What else?

Mr. D'AGOSTINO. The other area is in management systems. Frankly, Los Alamos, for example, spread out over 43 square miles, was, in essence, a balkanized set of smaller laboratories, each operating slightly different procedures and procurement processes. It was very inefficient and caused problems.

So the new management has drawn the lab together much more tightly and has driven——

Senator FEINSTEIN. Okay, and a third?

Mr. D'AGOSTINO. And has driven——

Senator FEINSTEIN. My time is going to—it is up, so a third?

Mr. D'AGOSTINO. Oh, okay. The third area I would see is focus. We have seen the kind of responsiveness to driving change and just as you described it very clearly, mission change. I would look at mission change to shifting from a cold war mission focus to a future world mission focus. I have seen movement on both of those laboratories and, in fact, working together, the two laboratories working together on establishing a new mission that I haven't seen in previous years.

And I have worked in this program for a number of years and, quite frankly, am very impressed with the focus that Norm Pattiz has driven, as the Board of Governors, into making sure that there is responsiveness to the Government there. I recognize that there are downsides, too, ma'am, as well, as we talked about.

Senator FEINSTEIN. Well, I just—in one sentence. I would agree that there have been administrative changes, security changes, and that is good—at a tremendous price.

And I am still—and maybe there is focus, but what I want to see is, what is the increased productivity in terms of benefit to the Nation? Candidly, I haven't seen it. So if it is there, I would hope you would advise me of it as time goes on.

Mr. D'AGOSTINO. I would like to do that, and I would actually like to take that for the record, if I could, and then provide that in writing?

Senator FEINSTEIN. I would be happy if you would do that.

Senator DORGAN. Well, before the Senator from California leaves, we have had testimony from some laboratory directors about the substantial increased cost of the contracts to supervise these laboratories. We have also had some testimony about how these costs have ratcheted up, up, way up in a very dramatic fashion, and that eats into the ability to retain the scientists.

I would like to understand this. I understand your answer that there have been some benefits, and I accept that security and other things. But it is also the case, isn't it, that the substantial increase in costs of these contracts to manage these laboratories by the private sector have increased? Could you send us some analysis of the

weapons labs so that we can understand what those increases have been?

Mr. D'AGOSTINO. I would like to do that, Senator. I think that would be great. Or I could answer it now? It depends on how much time you have, sir.

LASER-POWERED FUSION ENERGY

Senator DORGAN. Well, I want to ask Senator Feinstein to ask a few questions about the fission/fusion observation she saw because I am also interested in that. If you have time and you want to ask those questions, let me yield to you so that we can hear that discussion.

Senator FEINSTEIN. All right. The place is amazing. I have never seen anything like it. It truly looks like Star Wars. And the fact that you can get all of these lasers concentrating on this little tiny target of hydrogen encased in this gold pellet that goes "boom" and pushes out all of this energy. Now this just in my layperson's first blush is truly amazing.

I think a purpose of the lab—or of this program, obviously, is to see that our nuclear weapons are safe without testing, and the assumption is that it will be able to do it. But the promise for the future is so great in terms of nuclear science and what nuclear science might produce as we develop the green economy. I mean, that is kind of the way I see it, but you may differ with that, Mr. D'Agostino?

Mr. D'AGOSTINO. No, ma'am. You have actually characterized it quite well. The three main purposes, first of all, the primary purpose is to support the deterrent. And frankly, I call it building that core group of varsity science team people that we need to address the non-proliferation problems that the country faces, the forensics and intelligence analysis that the country needs. That is number one.

Number two, obviously, is advance the basic science. And number three, you have hit on it, is this idea that there is the opportunity to bring fusion into the picture to address a carbon-free kind of energy environment.

So what I would say on the third element, which, of course, is kind of nirvana in some respects, and we will describe it that way, is the first step is to get to ignition. And we can't get to fusion without ignition. So our focus, our eyes will be focused in 2010 on getting a first credible ignition experiment and then seeing where that goes.

The laboratory clearly has some proposals in that area on what the next step might be. I love the enthusiasm of the scientists and engineers there. It is captivating. It is energizing. I also want them to be pragmatic and realistic because I need to come and tell you what we believe we need in order to have an effective program.

I believe it is time to start thinking about the next step, but it is not time to start figuring out, start pouring concrete because we are not quite there yet. So the first step is to do the ignition experiments, get success on fusion here on Earth. It has never been done before. It is a real tough problem.

As Ed Moses said, Mother Nature is a tough person to deal with, and that reality is there. But it is quite exciting about what the future may hold.

Senator FEINSTEIN. Tom Friedman visited the lab last month and wrote a column, and he said if this thing works, it is a "holy cow" game changer. And that is the fusion, and I guess eventually fission then, that is to keep the waste down, right?

Mr. D'AGOSTINO. The idea is fusion will release a tremendous—yes, ma'am. The fusion will release a tremendous amount of X-rays and neutrons that can ultimately be used to burn up, in effect, waste to these actinides and deal with what they call a fusion/fission hybrid. It is this idea of taking——

Senator DORGAN. But pure fusion consumes its waste, doesn't it?

Mr. D'AGOSTINO. Pure fusion only generates helium, which is the helium gas. So it is not a problem. So, in effect, it doesn't really generate the kind of waste we see from fission, which generates these highly radioactive wastes. But what it does do, sir, is generate these neutrons and X-rays that can go help us burn up these materials that we would like to get rid of, ultimately.

Senator DORGAN. As you can tell, we have a very strong scientific background here.

Mr. D'AGOSTINO. You did very well, sir.

Senator DORGAN. The cloture vote just started, just an observation. I toured a lab the other day. It reminded me when you talked about lasers. Lasers are used for so many things. I toured a lab the other day in which they are using sophisticated computer technology and lasers to target female mosquitoes. Those are the ones that bite.

Senator FEINSTEIN. As all species.

Senator DORGAN. I couldn't have said that. But at any rate, they can target over a 100-yard area all the mosquitoes and target the female mosquitoes, destroy the mosquitoes with lasers. It is pretty extraordinary, part of what they are trying to do is deal with malaria and other issues.

At any rate, again, Mr. D'Agostino, we have a cloture vote that has started. What I would like to do is I have other questions, and I want to send you a list of questions and ask that you would respond for the record as we begin to get down the road here and evaluate what we might want to do on the appropriations side.

I do want to say to you that I think this subcommittee has an advantage in working with you, and we appreciate you and your colleagues who have joined you today, the work that you are doing. These are challenging times, and I think a lot of the discussion has been about Earth-penetrating, bunker-buster weapons, or RRW, or a whole ranging of things over recent years.

Life extension programs and stockpile stewardship are critically important, but now, especially now, the issue of non-proliferation and nuclear intelligence and those things, we are going to rely on your agency in a very significant way. And we need to have the best people there. We need to have adequate funding. In many ways, our future depends on that.

ADDITIONAL COMMITTEE QUESTIONS

So let me thank you and your colleagues for being here, and we will be submitting additional questions for the record.

Mr. D'AGOSTINO. Thank you, sir. And thank you, Senator Feinstein. I appreciate it.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

NUCLEAR WEAPONS

Question. As you know, Congress, on a clear bi-partisan basis, eliminated all funding for the Reliable Replacement Warhead program in fiscal year 2008 and fiscal year 2009. I am pleased that the administration has requested no funding for this program in its fiscal year 2010 budget request. This is good news.

What factors led the administration to request no funding?

Answer. The decision to terminate the RRW program was a Presidential decision and is fully supported by NNSA. NNSA will continue to assess the requirements to maintain our aging nuclear deterrent. While doing so, NNSA will ensure that all weapon activities designed to ensure the longevity of that deterrent are properly integrated with the overall nuclear security strategy being formulated in the Nuclear Posture Review.

Question. In your testimony, you state: ". . . we are concerned about increasing challenges in maintaining, for the long term, the safety and reliability of the aging, finely tuned warheads that were produced in the 1970s and 1980s and are well past their original planned service life".

Are you leaving the door open for reviving RRW at a later date? Can we say that the program is dead?

Answer. The RRW program has been terminated and will not be revived. We will by necessity have to address critical stockpile challenges through the Life Extension Program (LEP), such as the need to enhance weapon safety and security, address aging systems that have a low performance margin to failure, or use exotic and hazardous materials.

Question. The administration has begun to negotiate a new nuclear weapons treaty with Russia with the goal of concluding an agreement by the end of the year. A new Nuclear Posture review is also due by the end of the year and I am pleased that the National Nuclear Security Administration is actively engaged in both efforts.

How will the Nuclear Posture Review influence the size of the reductions in each nation's stockpile?

Answer. The NPR made it an early priority to accomplish the analysis necessary to support the START Follow-on treaty negotiations, which President Obama and President Medvedev directed should be completed before START expires in December 2009. This analysis has concluded that maintaining a nuclear triad with a bilaterally verifiable reduced number of operationally deployed strategic nuclear weapons and accountable strategic delivery vehicles would enhance our national security objectives and continue to provide extended deterrence to allies and friends. As a result, President Obama reached a Joint Understanding with President Medvedev in July, stating that ". . . each party will reduce and limit strategic offensive arms so that 7 years after entry into force of the treaty and thereafter, the limits will be in the range of 500–1,100 for strategic delivery vehicles, and in the range of 1,500–1,675 for their associated warheads. The specific numbers to be recorded in the treaty for these limits will be agreed through further negotiations." Strategies for augmentation forces and non-strategic weapons are still under review by the NPR team. For more information on pre-decisional Nuclear Posture Review topics, please contact:

NOTE.—Source: Dr. Bradley Roberts, Deputy Assistant to the Secretary of Defense for Nuclear and Missile Defense Policy Co-Director, 2009 Nuclear Posture Review.

Question. It has been reported that the new treaty could set a new ceiling of 1,500 operationally deployed nuclear warheads for each nation, down from 1,700 to 2,200 set by the Moscow Treaty.

Is that your understanding? Can we go lower?

Answer. NNSA will maintain the stockpile the President deems necessary to support our national security. In July, President Obama reached a Joint Understanding

with President Medvedev, stating that ". . . each party will reduce and limit strategic offensive arms so that 7 years after entry into force of the treaty and thereafter, the limits will be in the range of 500–1,100 for strategic delivery vehicles, and in the range of 1,500–1,675 for their associated warheads. The specific numbers to be recorded in the treaty for these limits will be agreed through further negotiations." The NPR is continuing analysis of alternative strategic approaches beyond the immediate confines of the START Follow-on negotiations to frame options for strategic nuclear decisions for the next 5–10 years. This analysis includes investigating possible future security environments in which relations with Russia dramatically improve, as well as implications if the START Follow-on treaty does not enter into force or if reset of the U.S.-Russian relationship does not continue.

NUCLEAR NONPROLIFERATION EFFORTS

Question. I firmly believe that ratification of the Comprehensive Test Ban Treaty is critical to reclaiming U.S. leadership in the nuclear nonproliferation field and bringing us closer to a world free of nuclear weapons. Does the National Nuclear Security Administration support ratification of the Comprehensive Test Ban Treaty?

Answer. NNSA certainly supports the administration's decision to seek ratification of the CTBT. We are confident that the science-based Stockpile Stewardship program, when linked with weapon system surveillance and life extension programs, will assure weapon safety, security, and effectiveness. The same high level of technical expertise and relevant experience that NNSA applies to stockpile management without underground testing also allows NNSA to play a leading role in: (1) preventing other states from evading the Treaty; (2) supporting the establishment, sustainment, and operation of the International Monitoring System, the CTBT On-Site Inspection regime, and other elements of the CTBT verification system; and (3) sustaining and improving U.S. National Technical Means to ensure viable independent treaty verification.

Question. I applaud your commitment to supporting President Obama's goal of securing all vulnerable nuclear materials from around the world within 4 years. What do you need from Congress to meet this goal? What programs will be involved? What are the key challenges?

Answer. The President's April 5, 2009, Prague speech outlined an ambitious strategy to address the international nuclear threat, including measures to reduce and eventually eliminate existing nuclear arsenals, halt proliferation of nuclear weapons to additional states, and prevent terrorists from acquiring nuclear weapons or materials. As part of this strategy, the President announced a new American effort, working with our international partners, to secure vulnerable nuclear materials around the world within 4 years. NNSA will play a key role in these efforts, together with our colleagues at the Departments of State, Defense, and other key U.S. interagency and international partners.

NNSA's Defense Nuclear Nonproliferation office already partners with over 120 countries to address global nuclear proliferation and nuclear terrorism threats. However, contributing fully to the President's goal to secure all vulnerable nuclear material worldwide within 4 years will require expanding our cooperation with Russia and other key countries, pursuing new partnerships to secure materials, and strengthening nuclear security standards, practices, and international safeguards. The administration is working to identify priorities for expanding and accelerating U.S. nonproliferation and nuclear security efforts overseas with available resources. Key challenges in contributing NNSA workscope to help achieve the administration's nuclear security vision relate to obtaining the necessary agreements from sovereign countries for this cooperation, as well as the need for related legal agreements and, in a few cases, new technological tools.

WEAPONS LABS

Question. A few years ago, the U.S. Government privatized the DOE weapons labs, including Lawrence Livermore National Lab in California. Soon after, it became clear that the decision had changed the economy situation at the lab. With a need to pay both taxes and produce a profit, the lab made significant cutbacks in employment, from 5,872 to 5,715 employees.

Now a few years into this process, what do you see as the benefits of privatizing this lab? Please be as specific as possible. Do you believe these benefits still outweigh the costs?

Answer. Lawrence Livermore National Security, LLC (LLNS) took over management of the Lawrence Livermore National Laboratory (LLNL) from the University of California (UC) in October, 2007. It is true that moving from a contractor that is a non-profit educational institution to a for-profit entity costs the Government

more in taxes and management fee. At the same time, since LLNS took over the management of LLNL, the Laboratory's operating budget has declined. The combination of these factors has presented the LLNS management team with many challenges. Despite these challenges, LLNS has maintained UC's record of outstanding performance in the mission and scientific areas of work performed for the Government and non-Government sponsors.

At this point in the 7-year base contract term, it is still too early to have realized significant benefits from the contract change. However, from NNSA's first annual performance evaluation report completed on LLNS in fiscal year 2008, we have seen some marked improvements and accomplishments in the following areas of activity:

Mission:

—Developed 1st generation 3D energy balance model for weapons physics

—Executed National Ignition Facility project within scope, schedule, and budget

—Accomplished significant computing advancements

—Executed the TriPod strategy to provide a future common tri-lab software system

—Exceeded goals for removal of special nuclear material

—Sustained world leading science despite staff reductions

—Advancements in nonproliferation and threat reduction technical capabilities

Operations:

—Accelerated safety compliance requirement submissions for all nuclear facilities

—Improved security protection without mission impact

Business and Institutional Management:

—Simplified the cost model and upgraded financial systems

—Successfully executed a challenging workforce restructuring plan

—Made significant progress in standing up a new contractor assurance system

—Implemented numerous cost reduction initiatives

—Contributions of Parent organizations assessments to improvements

Again, this was LLNS's first year accomplishments. We are currently evaluating their second year performance results (fiscal year 2009) and have observed further improvements. Based on our overall observations, we fully expect that there will be widespread improved results throughout the Laboratory in all areas of mission, operations and business/institutional management as the LLNS management team fully implements the changes it needs in order to become a more effective and efficient organization. As this occurs, the Government should begin to see the more significant benefits it hoped to realize from the contract change.

Question. On May 23, 130 former employees of Lawrence Livermore National Laboratory filed suit against the lab alleging age discrimination during layoffs last May.

I understand you may not be able to comment about this case, but what steps have you taken to ensure that labs are getting and retaining the best people, regardless of gender, age, or ethnicity?

Answer. To entice university students to join NNSA, numerous intern-like programs that offer extensive training and on-the-job experiences are underway to recruit contractor employees including the Sandia Nuclear Weapons Intern Program that provides graduate level training in nuclear security enterprise operations and Department of Defense interfaces, the Nonproliferation Graduate Program for practical application in nuclear technologies and nonproliferation, and numerous postdoctoral fellowship, grants and intern opportunities. These intern programs educate university students about the mission of NNSA and offer training and hands-on educational opportunities that aren't often found in the private sector.

To retain the best employees, the NNSA National Laboratories offer employees opportunities to participate in cutting edge science through the Laboratory Directed Research and Development program and via the Work for Others programs. There are also many prospects for employees to undertake detail assignments, job swaps, perform in acting management capacities, and education reimbursement and training opportunities. The goal is to provide challenging, career enhancing opportunities to entice experienced and expert employees to stay within the NNSA to retain skill sets that take years and years to develop.

QUESTIONS SUBMITTED BY SENATOR JON TESTER

Question. In addition to strengthening the administration's ability to secure vulnerable nuclear stockpiles in Russia, will budget increases for programs like the Nuclear Materials Protection and Cooperation help secure weapons in other nations? If so, which ones and how are the resources allocated within the agency?

Answer. Yes, the budget increases will allow our MPC&A program to partner with countries beyond Russia to help secure vulnerable nuclear materials. As with our

work with Russia, this cooperation is tailored to an individual country's needs and can consist of security best practices sharing, provision of equipment, and related training. We would be able to offer a detailed briefing, as appropriate, regarding these other priorities.

Question. In your opinion, Administrator D'Agostino, how far do the budget increases for securing vulnerable nuclear weapons and civilian stockpile go to do the job? What are the long-term budget needs going to be for the United States to help secure all of the most vulnerable stockpiles globally?

Answer. Vulnerable nuclear fissile materials include highly enriched uranium (HEU) and plutonium whose physical protection is not on par with international standards (e.g., the IAEA guidelines published in INFCIRC/225/rev.4) or is otherwise judged to be at risk due to the particular threat environment in the country. Consistent with the President's April 5, 2009, speech in Prague, the administration is working to identify priorities for expanding and accelerating U.S. nonproliferation and nuclear security efforts to address these vulnerable nuclear materials overseas. NNSA fully supports the President's fiscal year 2010 budget request for nonproliferation and nuclear security work overseas as it allows us to address the highest priorities in achieving the President's unprecedented global nuclear security vision. In terms of the long-term budget needs for addressing vulnerable nuclear materials worldwide in 4 years, the administration will continue efforts to identify remaining priorities and requirements.

QUESTIONS SUBMITTED BY SENATOR ROBERT F. BENNETT

NOT ALL SCIENCE FUNDING IS EQUAL—ESPECIALLY AT THE WEAPONS LABS

Question. Mr. D'Agostino, I am troubled by the disparity in funding for applied and fundamental scientific research provided by DOE Office of Science labs versus the NNSA labs. Clearly, the cancellation of the Los Alamos Neutron Science Center (LANSCE) Refurbishment is the most glaring example of the selectiveness of the research funding in the budget. The LANSCE facility is the scientific cornerstone of Los Alamos, serving both classified and unclassified work and supporting over 500 users annually.

How do you explain the failure in the budget to link the DOE and NNSA science?

Answer. The DOE Office of Science budget is devoted to supporting basic science facilities, personnel, and grants that will impact broad missions. The NNSA budget has a technically broad but specific mission and must balance the fundamental and applied science required for stockpile stewardship with the equally important work required for directly maintaining the stockpile, and all of the associated infrastructure, security, and environmental compliance for the nuclear weapons complex. With increasing costs and flat or decreasing budgets, we have consequently had to balance investments in research needed to address future concerns in order to address immediate stockpile issues and aging infrastructure.

Question. What do you see as the scientific future for Los Alamos LANSCE?

Answer. The principal Stockpile Stewardship (SSP) experiments at LANSCE involve conducting measurements of nuclear data for use in improving the accuracy of the simulation of nuclear weapon detonations and proton radiography of high explosive driven materials. While some of these capabilities exist, in part, at other facilities it would be necessary to make significant investments at several facilities in order to conduct the SSP relevant experiments currently performed at LANSCE. The ability to perform classified experiments, experiments that utilize high explosives, and stockpile relevant materials all in one place is a unique aspect of LANSCE. The Office of Science continues to use LANSCE for isotope production, neutron scattering, and materials science and we expect this work to continue for the foreseeable future.

Question. What are your plans for conducting this work after the accelerator is gone?

Answer. We do not plan to close the accelerator. While we plan to continue to operate the accelerator for the foreseeable future, it isn't really possible to know how long the accelerator will be able to operate without refurbishment. The decision on whether to re-invest in the infrastructure at LANSCE will be deferred until after fiscal year 2010. All of the individual components are in principle repairable indefinitely, assuming parts are available, but in practice we expect that the reliability of the facility will decay without further investment. Without aspects of the refurbishment in some form yet to be determined, we are accepting increased risk of major component failures affecting continued operations.

STRATEGIC POSTURE COMMISSION—INVESTMENT IN INFRASTRUCTURE

Question. Mr. D'Agostino, the bipartisan consensus of the Perry/Schlesinger Strategic Posture Commission Report was that total disarmament is unlikely in the foreseeable future. As such, the Commission recommends the NNSA undertake a focused investment strategy to ensure a capability is in place to respond to unforeseen military challenges and maintain the extended deterrent for our allies.

The foundation of that capability is the completion of the CMR-Replacement facility (Los Alamos) and the UPF Facility at Y–12 (Oak Ridge, TN). These facilities replace 1950's era facilities that are not protective of worker health and safety, and the Defense Nuclear Facilities Safety Board recommends they should be closed as soon as possible.

Given the unique responsibility of each facility and likelihood that the United States and Russia won't agree to eliminate their respective stockpiles when do you anticipate making a decision on the fate of these facilities and what are the decision drivers for this decision?

Answer. Our recently submitted fiscal year 2010 budget reflects a transition year for Weapons Account Activities while we complete the administration's Nuclear Posture Review (NPR). We are presently continuing design work for CMR-Replacement and UPF but have not included future construction funding pending recommendations from the NPR. I anticipate the fiscal year 2011 budget to be submitted to Congress in February 2010 will reflect our decision approach relative to these two major nuclear facilities.

We recognize the need to replace the existing 1950's era facilities as rapidly as practical. The drivers for our decision will include the specific recommendations in the NPR and our judgment on how to best balance the competing needs of our enterprise given the available resources. We must achieve the correct balance between sustaining our science and technology base, refurbishing or modernizing our stockpile, and recapitalizing major facilities that would include constructing the CMR-Replacement and UPF.

Question. Recent press articles reported that the budget request is not adequate to sustain the existing design teams and would force layoffs. Do you believe this budget request would result in layoffs and contribute to further project delays at either of these facilities?

Answer. Yes. The proposed fiscal year 2010 funding plan will result in lower staffing levels for the design teams for CMRR and UPF than previously planned. The delay in funding pending the strategic decisions of the Nuclear Posture Review (NPR) and related considerations will make completion of both projects later than originally planned. The administration plans to make decisions about these two projects in the broader context of the NPR.

Question. Your budget will delay the completion of the RLUOB by 1 year based on this budget estimate. How much more funding is needed to complete this facility including acquisition of equipment and installation to maintain the current schedule of 2010?

Answer. The RLUOB will complete construction in September 2009 and be equipped and made ready during 2010–2012, with the schedule controlled by equipment delivery. The costs of acquisition and installation of the RLUOB equipment and related scope to bring the facility up to operations are currently estimated at about $199 million, of which approximately $36 million has been appropriated already. The President's budget request plus previously appropriated funds adequately support RLUOB and its equipment.

Question. How much is needed to fund a new start on UPF and CMR–R?

Answer. NNSA does not contemplate a "new start" for either project in fiscal year 2010 because the designs are not yet complete. The fiscal year 2010 funding request will allow both projects to make some design progress and avoid the need for a restart. The funding levels in fiscal year 2010 balance sustaining continuity of the projects with minimizing commitment of resources until after completion of the Nuclear Posture Review.

Question. The Defense Nuclear Facilities Safety Board also stated unequivocally that NNSA needs to get out of both the CMR and Y–12 facilities. As a result of the delays created by the budget request, what will you tell the Defense Board, the scientists, and staff working in the old facilities that fall below the required structural and health and safety standards?

Answer. The CMR facility at Los Alamos and the uranium processing facilities (9212/9215) at Y–12 are old, past-end-of-life facilities. Although these facilities are about 60 years old, we are maintaining and operating these facilities in a safe and secure manner. Over the past decade, we initiated actions and took proactive steps to reduce the hazards at these facilities. For example, improvement of facility safety

systems, reduction of nuclear material inventories, implementation of new safety controls, etc., were some of the actions taken to enhance both the public and worker safety. This approach, however, does not fix the root problem of end-of-life infrastructure and is a temporary approach. Additional infrastructure investments will be needed to continue to safely operate these facilities until replacement facilities become available.

Until replacement facilities are available for both CMR and Y–12 facilities, we will continue to safely operate and maintain the existing facilities but at increasing costs, and manage increasing program vulnerability and safety risk. At CMR, risk reduction steps are being implemented through the CMR Facility Consolidation and Risk Mitigation Program. At Y–12, risk mitigation activities will be implemented through investment in the Facility Risk Reduction Program. In the absence of a decision on replacement facilities, dedicated commitment for increased operations funding would be required to continue to safely operate these facilities.

TRANSFERRING THE TRITIUM MISSION IS A WASTE OF TAXPAYER DOLLARS

Question. Mr. D'Agostino, last year, an independent study of the proposed transfer of the tritium R&D and design missions found that there was "no programmatic or economic justification for closing down the LANL tritium R&D facility and reestablishing the capabilities at the Savannah River tritium site."

It is my understanding that the NNSA's Navy and Air Force customers are not convinced this transfer makes sense and find no justification for the move.

Also, General Smolen, who was your deputy at the NNSA, recently stated in the press that "There's really not any huge cost savings one way or another." He went on to say that the reason behind the decision was related to work-load leveling.

As you are undoubtedly aware, the Senate included language in the supplemental stopping the transfer until an independent analysis can be performed of this decision and we can better understand the NNSA's rationale for this costly and unjustified decision.

What was the rationale for the NNSA ignoring the TechSource study recommendation which advised against moving the tritium missions?

Answer. We do not believe the TechSource study advised against moving the tritium missions as much as it stated that such a move should have a programmatic or economic justification, considering the importance of the GTS mission. The TechSource study provided useful recommendations for mitigating risks during the transition, and these have been incorporated into our implementation planning.

Question. Do you support General Smolen's argument that work-load leveling was the rationale for this decision?

Answer. Work-load leveling may be a benefit of this transition, however there are two other significant benefits. The first has to do with the potential for Sandia to provide a more integrated system architecture, incorporating GTS into the other non-nuclear subsystems. The second is that, as time goes on, it may no longer be possible to maintain a critical mass of technology staffs at multiple locations. While it may be possible to support two design agencies today, and to support two R&D centers that load and handle bulk quantities of tritium, we anticipate that future downsizing of the enterprise will force us to choose to have only one DA and one tritium R&D center of excellence. It seems prudent to plan ahead for this eventuality rather than to cope with it after the opportune time for transition has past. With the Savannah River Site having been established as the Tritium Center of Excellence, closer coordination of the R&D enterprise with the production facility is expected to be an advantageous initiative.

Question. Will the tritium GTS mission be impacted by the Nuclear Posture Review?

Answer. The likely outcome of the NPR is expected to lend further support to the GTS transition decision. Projected future workloads do not support keeping highly specialized technical expertise at multiple sites, and more leveraging of talent will be required to support system needs. The mechanical and materials knowledge will need to be applied across multiple component sets. As the NPR relates to stockpile size, our expectation is that the GTS DA and tritium R&D missions and workloads will not be significantly affected. Considering the range of probable recommendations, we will still need to support GTS technologies that are currently deployed, and to make further improvements to the reliability, safety, and surety of GTS units in the future. Reductions in the quantities of systems deployed or developed will not result in proportional reductions in the need for GTS field support or development but may constrain the resource base available to support these missions.

Question. Dr. Seymour Sack sent a letter to Mr. D'Agostino on Feb 8, 2008 to which a response was sent. Can you please forward a copy of Dr. Sack's letter re-

garding transfer of the tritium gas transfer system to my office or the Senate Security Office if it is classified?

Answer. Yes. We did receive Dr. Sack's letter addressing his concerns with our decision process. We will provide a copy of Dr. Sack's letter as well as our response.

DOES THIS ADMINISTRATION SUPPORT IMPROVED WEAPONS USE-DENIAL STRATEGIES?

Question. Given the importance of the B61 to sustaining a safe, secure and reliable nuclear deterrent for the United States and its allies, the NNSA has made a decision to proceed with the B61 Life Extension Program. I have two concerns with your budget request. The first, it fails to provide sufficient funding to support a full feasibility study of both nuclear and non-nuclear parts as requested by the Air Force. Second, it fails to evaluate the option to integrate state-of-the-art use control devices. I believe it is important that the weapons we do retain have the best safety and security features built into them.

Does the administration support adding more state-of-the-art safety and security features to our nuclear weapons systems like the B61?

Answer. NNSA is committed to improving the surety (safety, security and use control) of the nuclear weapons stockpile at each insertion opportunity. This commitment meets the national imperative to ensure an adversary, either a nation or terrorist, never obtains a functional U.S. nuclear weapon. U.S. Presidents have consistently articulated this imperative through directive or policy such the National Security Presidential Directive 28 and more recently articulated by our President in the speech he delivered in Prague, April 2009.

As directed by the Nuclear Weapons Council, the Phase 6.2 life extension study for the B61 Mods 3, 4, 7, and 10 bombs began in September 2008, and we are evaluating, within existing funding constraints, the inclusion of state-of-the-art surety features in both the non-nuclear and nuclear systems during the study.

Question. How much more would it cost to expand the feasibility study to include adding safety and surety features to the physics package?

Answer. The NWC has directed a study including improving surety of the nuclear explosive package (NEP). NNSA estimates that an additional $30 million in fiscal year 2010 would be needed to fully support the addition of the nuclear scope to the study. This includes the study of options to add improved safety, security and use control to the NEP. This additional scope and resources are needed to complete the feasibility study in fiscal year 2010 and align the program to achieve a first production unit by 2017. Alignment between the NNSA and DOD is essential to providing the needed capability.

Question. Since this is an Air Force weapon, can you tell me what their preference would be regarding the expansion of this study to include the physics package?

Answer. During an April 2009 senior-level review, the Air Force and other DOD representatives made it clear that it is a priority for NNSA to include the NEP in the B61 life extension study. In addition, senior Air Force officials have communicated with the Secretary of Energy, the NNSA Administrator, and congressional staff their strong endorsement of adding enhanced safety and security features within the nuclear explosive package.

ADVANCED COMPUTING

Question. Supercomputing is another success of Stockpile Stewardship. You have the fastest computer in the world, and NNSA has achieved modeling and simulation capabilities that many thought impossible.

The Defense Science Board conducted a study of the Advanced Computing program and was very complimentary of the achievements in this program to develop a predictive and simulation capability and drive innovation in the advanced computing architecture.

The Defense Science Board study concluded that the existing budgets are inadequate to achieve the milestones established by the NNSA.

Can you please provide the subcommittee with a list of the current milestones and the status of each and what impact the budget request will have on each milestone?

Answer. Computer simulation underpins our ability to certify weapons in the absence of testing, as well as meet our broad national security responsibilities. ASC planning is based in part on the urgency of developing predictive tools while experts still reside in the complex. The "milestones" in the ASC Roadmap (2006) to which the Defense Science Board (DSB) report refers are actually stretch goals along the pathway set forth in four focus areas necessary to meet national security simulation needs. These target goals include, for example, developing science-based replacements for (ad hoc models) Knobs #1–4 in the 2009–2016 timeframe, attaining a 100x petascale computing capability in 2016, an exascale computing capability in 2018,

and a 50 percent improvement in setup-to-solution time for significant finding investigation (SFI) simulations. The knob-removal goals are key stockpile stewardship objectives and have been incorporated into the Predictive Capability Framework (PCF) that integrates activities of the NNSA simulation, science and engineering campaigns. The target date for achieving these stretch goals may change depending on funding or as more insight is gained about the problems.

The NNSA has decided to keep the 2010 budget for science level with 2009 pending outcome from the Quadrennial Defense Review (QDR) and the Nuclear Posture Review (NPR). To some degree, the declining funding that the DSB reviewed has been stemmed. However, their question about how the ASC program intends to meet roadmap stretch goals in a timely fashion, such as achieving exascale computing by 2018 to support stockpile stewardship, remains a legitimate concern.

Question. What is your plan for developing the next generation of computers and how is this effort specifically being coordinated with the Office of Science?

Answer. There has been an ongoing R&D partnership between ASC and DOE Office of Science's Argonne National Laboratory (ANL) to develop advanced supercomputers based on the BlueGene P/Q architecture. However, this level of collaboration and associated funding will not achieve exascale computing. Developing the next generation of (exascale) computers will be a significant challenge, more difficult than the first effort under ASCI to develop a 100 teraFlop computational capability. Machines at the exascale will require radically new ways of thinking about computer architectures and ways to program applications.

We recognize that this is a challenge beyond the scope of ASC alone within current funding projections, and that it will require a Government-wide solution. To this end we have taken the first steps to establish a collaboration with the Office of Science to make exascale computing a reality. This joint collaboration was announced at the June 2009 Scientific Discovery through Advanced Computing (SciDAC) Conference in San Diego, CA, and a steering group has been formed. The first task for the steering group is to report to the ASCR and ASC programs the scope of what needs to be done to achieve exascale computing. Once identified, the scope could require focused investments for a period of time to be successful. The programs' intent is to work together through shared investments towards a common goal of achieving exascale computing by the end of the next decade.

Question. And, what is your plan for ensuring that the sophisticated computer codes and models that you have in place now will be able to be run on these new generations of supercomputers?

Answer. Generally, our modern-multiphysics codes are continuously updated. Portions of the codes that can best take advantage of the new architectures are modified to do so. Writing code can take years to achieve, and must be well planned and synchronized with evolving technologies. Consequently, ASC must be intimately involved with the technology frontier. Our approach ensures that the power of the supercomputers is available to users of the existing code base; it provides a reliable but very modest improvement in code and model performance. By adopting this incremental approach, risk that our codes and models will not be available is minimized.

This approach will likely not be sufficient as we approach exascale computing. But, at this time it is premature to project what will be needed to move our codes to an, as yet, unknown architecture. Our planning will be synchronized with architectural designs as they mature. At that time we will make the traditional tradeoffs between advancing the current codes, freezing development until transitioning is complete, or accelerating the transition by expanding the work scope. While we generally have not had to rely on expanding work scope in the recent past, this scenario is more likely as we approach exascale, which will dictate the need for additional funding for a limited term initiative in future years.

Question. Can you please provide the subcommittee with a project data sheet on for the Zia and Sequoia machines, including cost, schedule, and mission justification?

PART 1—ZIA

Answer: The DOE NNSA ASC Program requires a production capability computing system in 2010 to run extensive, high-fidelity integral calculations of high-priority applications within the Complex to support the national Stockpile Stewardship Program. The Zia capability system will replace the ASC Purple system for existing simulation codes as the next national user facility for computing across the tri-labs. This system will provide a capability class resource to the ASC simulation community for the 2010–2015 timeframe.

Zia has a 3-year schedule, with delivery of the platform scheduled for Q3 fiscal year 2010 and assume the national user facility workload by the beginning of fiscal year 2011. The funding profile for Zia is as follows: fiscal year 2008—$0; fiscal year 2009—$15 million in budget, $0 spent with project at CD–1; fiscal year 2010—$42.36 million; fiscal year 2011—$14.6 million.

PART 2—SEQUOIA

Answer: The Sequoia mission need is to run both high-fidelity science calculations and three-dimensional uncertainty quantification (UQ) calculations. In addition, Sequoia is an advanced architecture system that will push the state of the art on the road to exascale computing. It will provide the processing power necessary to run the most resolved calculations required by the weapons codes as they will exist between 2011 and 2016.

The scope of this project covers acquisition of Sequoia computational resources and related I/O infrastructure, platform vendor build contract, platform vendor development and engineering (D&E) contract, and an I/O infrastructure D&E contract. In addition to the 2011 system delivery, the Sequoia contract will provide a smaller, but significant, initial delivery (ID) environment beginning in 2008 to permit the necessary scaling and code development to ensure effective use of the final platform.

Sequoia has an extended 5-year schedule, with delivery of the final system scheduled for Q1 fiscal year 2012. The Future Years Nuclear Security Plan (FYNSP) funding profile for Sequoia is as follows: fiscal year 2008—$15 million; fiscal year 2009—$54 million in budget, $42 million spent; fiscal year 2010—$14.5 million; fiscal year 2011—$38.7 million; fiscal year 2012—$51.8 million; fiscal year 2013—$43.0 million.

CUT TO NONPROLIFERATION AND DETECTION RESEARCH AND DEVELOPMENT

Question. Mr. D'Agostino, the budget request cuts the nuclear detection R&D budget by $66 million. This funding is critical to maintaining the technological advances to detect and monitor clandestine nuclear program or to catch smuggling of nuclear materials. In light of the activities in North Korea and Iran, it seems this funding reduction should be reconsidered.

What is the rationale for this reduction?

The apparent "reduction" of $66 million comes from comparing the fiscal year 2010 budget request with a fiscal year 2009 appropriation that was significantly higher than the fiscal year 2009 budget request. The administration's fiscal year 2010 budget request is greater than the fiscal year 2009 request.

Question. Recent reports, including the Strategic Posture Review and the Council of Foreign Policy, recommended increased funding for forensic research and attribution. Can you please describe how this program is investing in our forensic and attribution capabilities and what long term investments in NNSA facilities aside from the 300 Area at PNNL where this program is building our capabilities?

Answer. NNSA investments include purchase of specific scientific instrumentation for the NNSA laboratories to advance research in post-detonation forensics analytical methods (some examples include: laser fluorination isotope ratio mass spectrometer (LLNL); Cameca secondary ion mass spectrometer (SIMS–LANL); Los Alamos Sferic array (measures ground EMP)). In addition to these activities funded by the NN R&D program, NNSA funds national technical nuclear forensics work through the Nuclear Counterterrorism and Incident Response program at about $10 million annually.

Question. NNSA facilities provide significant and varied research and discovery capabilities for different users and mission need. Each of these facilities is costly to maintain and staff. Can you please tell the subcommittee how much of the annual Nonproliferation and Detection R&D budget contributes to operations funding at our national labs in both real dollar amount and as a percentage of facility operations.

Answer. NNSA's Defense Nuclear Nonproliferation (DNN), Office of Nonproliferation and Verification R&D funding is presented as a percentage of estimated overall NNSA fiscal year 2009 funding to the listed DOE/NNSA labs. The following table is provided.

FISCAL YEAR 2009 APPROPRIATIONS—ALLOCATED BY SITE

[Estimates in whole dollars]

Reporting Entity	Nonproliferation and Verification R&D	Percent of NNSA Site Funding
Ames National Laboratory	$236,000	100.0
Argonne National Laboratory	3,275,000	6.8
Brookhaven Science Association (BNL)	2,171,000	5.1
BWXT Pantex	35,000	<0.01
BWXT Y–12	2,226,000	0.3
NNSA–HQ (including SBIR)	11,043,129	13.2
Idaho National Lab	4,595,000	2.3
Kansas City Plant	35,000	<0.01
Lawrence Berkley National Lab	5,376,000	94.9
Lawrence Livermore National Lab	43,184,671	4.2
Los Alamos National Lab	88,231,445	6.0
NNSA-Service Center (incl. University grants)	16,622,605	1.9
NSTech	10,538,000	3.9
Oak Ridge National Lab	25,306,746	18.6
Pacific North West Lab	42,257,800	19.5
PNSO/PNNL Construction	18,460,000	98.8
Sandia National Lab	73,144,604	6.7
Savannah River Nuclear Solutions	17,054,000	6.2
TOTALS	363,792,000	4.9

Question. What are the long term technology challenges this program is working to solve and what are the top research priorities in this budget?

Answer. The top research priorities in this budget are divided into two areas. Roughly 60 percent of the budget will focus on developing technologies and methods to detect foreign uranium-235 production activities, plutonium production activities, special nuclear material movement and on developing Global Nuclear Safeguards technologies. The other 40 percent of the budget will focus on improving the Nation's ability to detect nuclear detonations by building the Nation's operational treaty monitoring space sensors, developing the regional geophysical capabilities to enable the Nation's ground-based treaty monitoring networks, and advancing technology in post-detonation nuclear forensics.

HIGHLY ENRICHED URANIUM IN RUSSIA

Question. Mr. D'Agostino, your testimony and pronouncements of the administration have clearly made nonproliferation a top priority including the goal of minimizing the use of highly-enriched uranium in the civilian nuclear sector. I am supportive of those goals, although I am concerned about the vast amount of undeclared reserves of Highly Enriched Uranium (HEU) held by Russia, which is outside of the scope of the existing program.

Reports vary, but it is quite possible that Russian HEU stockpiles make up the largest inventory of weapon-usable material held in the world today.

When President Obama travels to Russia this July to sign the Plutonium Material and Disposition Agreement, will he press Russian President Medvedev to declare the size and makeup of the Russian HEU reserves and press for additional down blending of that material, whether it is used in Russia or sold internationally?

Answer. Nonproliferation, and specifically, eliminating stocks of excess fissile material are key priorities of this administration. Coming to agreement on the terms of the Plutonium Management and Disposition Agreement is one important step in this effort. The President also has committed to seek further weapons reductions under a START Follow-On Treaty and to open negotiations for a Fissile Material Cut-off Treaty. Given the critical success of the DOE/NNSA HEU Transparency Program over the past 15 years to verify the disposition of over 368 metric tons of the planned 500 metric tons of Russian HEU, we would welcome the possibility of down blending additional excess Russian HEU. This HEU Transparency effort has been one of our most successful bilateral nonproliferation efforts with Russia yet in the area of tangibly eliminating weapons-derived material. However, to date the Russians have been unwilling to consider an extension beyond the 2013 end date of this program. DOE/NNSA would certainly welcome the continuation of this important effort if Russia declares additional amounts of excess HEU beyond the initial 500 metric tons in the HEU Agreement.

Question. Your budget proposes additional investment to secure weapons-grade material in Russia. Wouldn't you prefer that this material be down blended to eliminate any further threats?

Answer. We would prefer that excess material be downblended; we are already working with the Russians to downblend HEU under the Material Consolidation and Conversion project that is not of weapons origin and that has been declared excess by the Russians. We think this activity would be a way to help Russia eliminate the risks associated with this and all nuclear material, as well as avoid the associated long-term security costs. However, some Russian sites require weapons-useable HEU for their operations. In those cases, our joint intent is to protect the material as well as possible. Central storage facilities with modern security systems are a good way to improve material security.

CYBER SECURITY

Question. Mr. D'Agostino, I find it curious that the DOE Office of Electricity Transmission Delivery and Reliability received $50 million in additional funding for cyber security research and development, yet the NNSA, which has seen a tremendous increase in cyber attacks of the past years, and recently in the last several months, received no additional funding increases.

How do you explain this funding disparity?

Answer. Funding for all programs within DOE, to include NNSA is determined by the Secretary of Energy through a very prescriptive process. NNSA's cyber security requirements are first presented by the NNSA CIO to the NNSA Administrator. The Administrator, after determining the highest priority needs for NNSA, makes the final recommendation to the Secretary who makes the final corporate decision.

Question. Are you confident that the NNSA has adequate cyber protections in place to protect our national security secrets?

Answer. The threats to the national security information and classified system within the NNSA computing environment are constantly changing and represent risks to our operations. However with the technology enhancement (i.e. EnCase Enterprise) and process improvements (NNSA Policy (NAP)) NNSA have invested in over past 2 years, I believe that we have minimized the threats to the NNSA computing environment and national security information and are operating at an acceptable level of risk. NNSA's cyber security systems have benefited by external independent oversight programs, such as HSS, with activities such as network penetration testing and reviews of security plans and strategies. The Department and NNSA senior leadership will continue to monitor the threats to our computing assets along with the accompanying risks in order to make necessary changes and provide an appropriate level of protection.

SECURITY

Question. Mr. D'Agostino, several NNSA sites have suggested that funding of safeguards and security is inadequate to support the mission. Do you have any security concerns with any NNSA site or do you believe any of the NNSA sites lack sufficient funding?

Answer. The fiscal year 2010 budget request is adequate to support the core security mission and maintain the program within acceptable risk levels. At the request level, NNSA sites will be able to sustain the security baseline program and support NNSA Enterprise-wide efforts to consolidate high-security assets and reduce the overall security footprint. In fiscal year 2010, the NNSA security program will focus on improving the effectiveness and efficiency of security operations through standardization and consistency of security program implementation, and upgrades to the security systems infrastructure so as to enable the sites to maintain performance of the security mission at the same or reduced funding levels in the out-years. To this end, we are investing in improved performance assurance programs at each site, with emphasis on Federal manager oversight, and have undertaken a new initiative (Zero-Based Security Review) with the objectives of establishing clear performance expectations, and issuing consistent policy implementing guidance. NNSA sites are, and must remain, among the most well-protected facilities in the world.

NAVAL REACTORS

Question. Mr. D'Agostino, your budget proposes to move forward on an Ohio Class submarine replacement. At the same time, you have frozen progress on CMR–R and UPF and other facilities pending the outcome of the NPR.

Why not wait on the new submarine platform until the NPR is complete?

Answer. The President has reaffirmed the need to maintain a strong deterrent for the foreseeable future. To ensure there is no gap in strategic coverage when the

OHIO Class SSBNs begin to retire in 2027, we need to start concept design studies for the OHIO Class Replacement in fiscal year 2010. There are key technical and schedule drivers that require the fiscal year 2010 start so design and technology can mature to support a fiscal year 2019 ship construction schedule. Early design studies answer questions that will arise from the NPR deliberations. The design parameters under consideration are aimed at accommodating any conceivable conclusion of the NPR. The NPR will not determine the design of the submarine, but rather the number of weapons and targets. A reduction in weapons may result in fewer missile tubes per submarine; however, the total number of submarines is primarily derived from the number required at sea at any given time to provide a survivable deterrent in the regions we need to cover.

Question. How is this investment different than that of a one-of-a-kind facility such as CMR–R and UPF, both of which are necessary in order to maintain the deterrent?

Answer. There are more investment similarities than differences between the Ohio Class Replacement project and the CMR–R and UPF projects required to modernize the NNSA nuclear infrastructure. All are needed to sustain essential capabilities for the long-term and the details of NPR conclusions will not have significant impact on early design activities. Early design work is needed for all three in order to most efficiently plan for sustaining capabilities. The investment in the OHIO Class Replacement project differs from that in the CMR–R and UPF projects only in the maturity of its design. While the OHIO Class Replacement project will be starting its conceptual design in fiscal year 2010, the CMR–R and UPF projects are both currently in latter stages of preliminary design. The previous answer pointed out how OHIO Class Replacement design at its current maturity is independent of the NPR's conclusions. Although more mature, the designs of both the CMR–R and UPF projects are primarily driven by the need to maintain essential capabilities that are expected to provide an adequate capacity merely by the existence of the capability. Thus, CMR–R and UPF sizes and capacities are independent of the NPR's conclusions at expected future stockpile size ranges.

PENSION SHORTFALLS

Question. Mr. D'Agostino, The stock market down turn over the past year has significantly reduced the DOE contractor pension value. In order to make up the shortfall, contractors are required to adjust their program charges (known as the indirect rate). According to figures prepared by the Department, the average total contributions paid to DOE contractor pension plans from 2003 to 2008 was $330 million. In the future, DOE expects to pay on average $1.5 billion per year over the next 5 years. The peak contribution years are estimated to come in 2012 and 2013 at just under $2 billion per year. The lion share of the contributions coming from NNSA and Environmental Cleanup sites.

Based on this 2010 budget request, it appears that the NNSA is facing a pension shortfall of $411 million, of which $200 million was not budgeted for and will further reduce mission funding. It is my understanding that NNSA plans to deduct most of the savings out of the operating budget and delay facility closures and preventative maintenance and the consolidation of special nuclear materials.

This trend is simply unsustainable and will have a devastating impact on the weapons and nonproliferation program. Has the Department considered the program impacts on to scientific research, operations and employment levels? What actions are being taken to mitigate this problem over the next 5 years?

Answer. Because the pension payments for the Defined Benefit plans are a function of economic conditions, the number of retirees to receive benefits, and largely address legacy promises of benefits, we are very limited in what we can do now to mitigate the problem indicated by the analysis. Except for a few collective bargaining unit Plans, the NNSA M&O contractors have closed their defined benefit programs to new entrants in favor of defined contributions (401K) type of retirement plans. As a result, there is little to be done to reduce costs in the DB arena, instead NNSA and its M&O contractors are seeking ways to better address future payments.

The pension plans of DOE's M&O contractors have suffered losses in asset value similar to those in the private sector as a result of the business downtown in the past 12 months. Overall, their plans are in relatively good shape compared to the rest of industry, however, the recession coupled with new Pension Protection Act requirements has resulted in funding shortfalls for some of plans.

Additionally, our M&O contractors continue to experience fluctuations in pension liabilities, and the increased liabilities coupled with the decrease in Plan assets has resulted in a significant increase in the required contributions to pension plans at

some of our sites. NNSA is monitoring the situation to understand the projected shortfalls, and to mitigate the resulting impact on all of our mission program activities, operations and employment levels. NNSA will exercise all flexibility available during budget execution to manage site and program impacts by incentivizing operating efficiencies at the M&O contractors, by reallocating available funding to affected contractors through reprogramming of remainder funding from completed projects and programs; and by deferring or canceling lower priority activities. However, the current projections for 2011 through 2013 of about $1 billion shortfall annually in budgeted dollars, which are likely to be required to reimburse our laboratory and plant contractors for their payments to defined benefit pension plans, are beyond the ability of the NNSA to handle through increased efficiencies and limited reprogramming from remainders in project funding. If economic improvements do not materialize to mitigate these cost increases, NNSA may well be required to drastically cut back, and in some cases abandon, planned activities at our Sites resulting in the potential for significant workforce restructurings.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

Question. The President's budget request shows no construction funding for the Uranium Processing Facility (UPF) until 2013 which puts the project 3–4 years behind schedule.

If UPF is delayed beyond its currently planned operational date of 2018, is it reasonable to assume that the Y–12 enriched uranium facilities can remain safe and reliable beyond 2018?

Answer. The President's budget request included $54,478,000 for Project Engineering and Design of UPF in order to advance the project's design, in accordance with the requirements of DOE Order 413.3A. NNSA will take the steps necessary to maintain the Y–12 enriched uranium facilities safe and reliable until UPF becomes operational. Concrete measures are being taken to reduce risk at Y–12. For instance, the Nuclear Facility Risk Reduction Project, a multi-year effort funding maintenance and limited improvements, will address the safety and reliability of uranium facilities until UPF can be built to replace those facilities. While sufficient capacity exists today, the risk of extended shutdown is unacceptably high and safety of operations remains a major concern. The Uranium Processing Facility (UPF) must be built to alleviate the risk of shutdown, reduce costs, and provide a safe working environment for our nuclear security workers. Construction of this facility is mission critical and will take at least 7 years to complete. Each year NNSA is required to take measures to mitigate the growing risks is another year longer the Nation runs the risk of losing its uranium processing capability, with a commensurate impact on its nuclear deterrent and its ability to supply the Navy with fuel.

Question. How long would it take for the UPF to pay for itself in reduced annual costs?

Answer. Based on the current preliminary project estimates, UPF's payback period is approximately 10 to 15 years. The UPF project's contribution to safety of the Y–12 site and of the public is, however, the overriding justification of the project—even if the actual payback period is found to be longer, it would not have been acceptable to continue operations in the current facilities.

Question. What is the condition of Building 9212, where the uranium enrichment work currently takes place? Is this facility viable for long-term enriched uranium mission capability?

Answer. Building 9212 is not suitable for performing long-term enriched uranium services. The enriched uranium services need to be transferred to a facility that can support long-term sustainability and meet modern industrial and nuclear safety standards. The enriched uranium services are being conducted in Building 9212, pending availability of UPF. NNSA will take the steps necessary to maintain the Y–12 enriched uranium facilities safe and reliable until UPF becomes operational. Our current uranium infrastructure is obsolete, costly, and decrepit. The risk of extended shutdown is unacceptably high, and worker safety continues to be a major concern.

Question. If there were no new nuclear weapons production or life extension, would UPF still be needed?

Answer. Yes, UPF sustains capabilities that are needed as long as the Nation has an inventory of HEU. UPF is essential to dismantling weapons to support arms controls initiatives, supporting the Naval Nuclear Reactors Program, for down-blending excess enriched uranium for non-proliferation purposes, and ultimately for power and research reactors (i.e., Accelerator Test Facility and High Flux Isotope Reactor). UPF is needed to support all stockpile activities involving the processing of Highly

Enriched Uranium (HEU), including the surveillance and dismantlement programs. Many studies conducted on the UPF design, including the recently issued Dr. Everet Beckner/TechSource Study, concluded that approximately 75 percent of the UPF is required even if no new weapon is ever built and noted that continued operations of the current facilities at Y–12 past 2020, in particular the 9212 building, would require accepting an appreciably increased safety risk.

Question. Who has reviewed the capabilities and size of the UPF facility?

Answer. The capabilities and size of UPF have been assessed both internal and external to NNSA over the past few years. First, the Y–12 project team and NNSA Headquarters led a review of UPF that included subject matter experts from across the nuclear security enterprise, including the national laboratories. Second, NNSA conducted a joint review of UPF with technical assistance provided by the United Kingdom's Aldermaston Weapons Establishment. Third and most recently, NNSA chartered an independent external review committee headed up by former Deputy Administrator for Defense Programs, Dr. Everet Beckner. As stated by Dr. Beckner in his team's final report: "Based upon our review, as will be demonstrated in the following report, I am now convinced that given the requirements as defined, a substantial change of size of the facility is not warranted at this time and the project should move forward without further delay."

Question. Can the enriched uranium mission be performed anywhere other than Y–12?

Answer. No, the uranium enrichment mission can not be accomplished at other sites without additional funding. UPF (and the facilities it replaces) are part of an integrated manufacturing operation that includes the soon-to-be-completed Highly Enriched Uranium Manufacturing Facility (HEUMF) and the non-nuclear operations of the Y–12 site. It is possible for portions of the enriched uranium mission to be met in new facilities at two alternative sites, the Savannah River Site (downblending, sweetening, reuse of material) and the Pantex Plant (surveillance, disassembly), but with differing schedules, costs, and risk levels, and with the replication at some level of the capabilities of other parts of Y–12's integrated operation. An Integrated Project Team (IPT) conducted an analysis evaluating these alternative sites and produced a report on Uranium Mission Transformation in July 2008. As part of this effort, NNSA asked the Office of the Secretary of Defense (OSD) Cost Analysis Investment Group (CAIG) to act as an independent advisor to the IPT for this comparative business case analysis. The total operations and transportation costs were lower for Y–12 than the other alternatives. A new, fully trained, and qualified workforce would also have to be established if the mission were to be performed elsewhere. Overall, the comparative risk and costs are lower for Y–12 than the alternative sites considered. The IPT concluded that the uranium mission should be retained at Y–12.

Question. Your office has been studying how best to compete the NNSA production contracts (Y-12, Pantex, and Kansas City Plant) that are expiring next year. Recently your spokesman indicated the NNSA leadership would review the work of the team, who provided analysis for this decision, over the coming months. Given you are in the window where a decision needs to be made soon if new contracts are to be put in place, can you be more specific on schedule for this action.

Answer. The acquisition strategy is in the final review process and we expect a decision in the near future. The extend/compete decisions will require Secretarial approval.

SUBCOMMITTEE RECESS

Senator DORGAN. This hearing is recessed.

[Whereupon, at 11:08 a.m., Tuesday, June 2, the subcommittee was recessed, to reconvene subject to the call of the Chair.]