

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2004

THURSDAY, APRIL 10, 2003

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

The subcommittee met at 2:37 p.m., in room SD-124, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici and Reid.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SAFETY ADMINISTRATION

STATEMENT OF AMBASSADOR LINTON F. BROOKS, UNDER SECRETARY FOR NUCLEAR SECURITY, ADMINISTRATOR FOR NATIONAL NUCLEAR SECURITY ADMINISTRATION

ACCOMPANIED BY:

ADMIRAL FRANK L. BOWMAN, DEPUTY ADMINISTRATOR FOR NAVAL REACTORS

DR. EVERET H. BECKNER, DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS

KENNETH E. BAKER, DEPUTY ADMINISTRATOR FOR DEFENSE NUCLEAR NONPROLIFERATION

OPENING STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order. Thank you, everyone, for being here, and I apologize for my being late. I had another hearing and I hurried as much as I could.

Senator REID. You are only 7 minutes late. That is not late.

Senator DOMENICI. That is pretty good, yes.

The budget request for NNSA is \$8.834 billion. That is an increase of \$870 million over the current year level, an 11 percent increase. It is containing the following major program elements, one, nuclear weapons activities. The budget request is—excuse me—is \$6.378 billion, an increase of \$642 million, an 8 percent increase. We have, in addition, defense nuclear nonproliferation, naval reactors, and the Office of the Administrator.

First of all, the committee will review the fiscal year 2004 request for the National Nuclear Security Administration, that will include nuclear weapons activities, nuclear nonproliferation programs, and the naval nuclear propulsion program.

In that regard, we will receive testimony from Ambassador Linton Brooks, acting Administrator for NNSA. We thank you for

coming and you are doing an excellent job. We are glad to have you here.

Admiral Frank Bowman, Deputy Administrator for Naval Nuclear Propulsion. Thank you so much, Admiral, and once again our compliments to you for the fine work you are doing.

And Dr. Everet Beckner, Deputy Administrator for Defense Programs. Good to have you.

And Mr. Kenneth E. Baker, acting Deputy Administrator for Defense Nuclear Nonproliferation. Welcome to all of you.

For fiscal year 2004, I have already indicated the budget request is about \$8.8 billion, an increase of 11 percent. By all accounts, this is a good budget, continuing a trend that began last year. The budget is consistent with the 5-year budget program, which we required the NNSA to develop when we passed the Act. The transition to a 5-year budget plan has been challenging, and I am certain that it has been very challenging to all of you here in this room and those who work with you and for you. But I believe it is an important tool in developing strong support for the NNSA budget inside the Office of Management and Budget.

Within the NNSA budget, \$6.38 billion is requested for nuclear weapons activities in 2004. This is an increase of \$462 million, 8 percent, over the current year. For nuclear nonproliferation, the budget request is \$1.34 billion, an increase of \$319 million, 31 percent. The most notable increase within this budget is \$272 million to start construction of the plutonium disposition facilities in South Carolina.

However, I do not believe the budget provides enough funding to do everything that NNSA could be doing to protect us from the dangers of nuclear terrorism. That is a key reason that Senator Reid and I worked to provide an additional \$150 million for nuclear nonproliferation in the Homeland Security supplemental, Senator, and which you even thought we should add to that, Senator Reid.

Finally, the activities of the naval nuclear propulsion program, that budget request is \$768 million. That is an increase of \$66 million. That is an 8 1/2 percent increase. This program continues its tradition of being one of the best run in our national Government.

I look forward to engaging each of our witnesses today and working with you, the members of the subcommittee, to put together the best possible appropriation bill that we can.

I would like to briefly address the situation of the last few months at Los Alamos, in my home State of New Mexico, by saying what others have concluded, that the laboratory has been managed well in a number of key areas, in particular the management of its business and acquisition systems and in performing internal audits and assessments. I should have said "not managed well in those areas." The lab has made some mistakes, and I am engaged with the Secretary and the NNSA as to how best to fix those mistakes.

I will say as an aside, the interim director, Pete Nanos, is doing a great job. Everybody associated with his current tenure, albeit short-lived, seems to be saying the same thing.

But this turbulence during the last several months has encouraged many long-term opponents of the lab and its nuclear weapons mission to come out of the woodwork. Many people seem to be talking about Los Alamos only in a pejorative way. But I do not want

to forget that the laboratory has a great deal of merit on its side. They have done many incredible things in the last 60-year history that have earned them the reputation of being the premier scientific laboratory in the world.

From the darkest hours of World War II through the Cold War to today, the laboratory at Los Alamos has typified America's scientific might in a range of activities from the human genome to nuclear weapons. It has always represented the best that the country has. So we will work through these current problems.

Later this year, I intend to conduct hearings on all of the laboratories, their roles, and missions. This will be done wearing another hat, a hat of the Authorizing Committee of—for the Energy and Natural Resources of the United States Senate. Part of that process will include a reevaluation of how we manage all of the laboratories, clarification of the responsibilities that lay with the Secretary, the NNSA, the contractors, such as the University of California, and the lab directors.

In many ways, I fear that the way the DOE manages its labs has become too complex and confused, and I am hopeful that within a year or so with these hearings, in-depth hearings, we will eliminate some of that confusion and come forth with some more simplified approaches.

We ought to find ways to strengthen the management at Los Alamos and other ways that are going to be appropriate in making it better for our future. I do not think we can afford to do anything less.

With that, I yield to my good friend and distinguished Senator from Nevada, Senator Reid.

STATEMENT OF SENATOR HARRY REID

Senator REID. I served on this subcommittee for many years, and following the retirement of Bennett Johnson I have been ranking Democrat and oftentimes the chair of this subcommittee. And the Senator from New Mexico and I have developed a very fine relationship.

And let me say to each of you, this National Nuclear Security Administration is something that I did not favor. I thought it was unnecessary. The Nuclear—the National Nuclear Security Administration is, basically, a product of the mind of Senator Domenici. Other people may have worked with him on this, but basically it was his idea, and he was the reason it went forward. And as I announced last year at this same meeting, I am now a convert. I think it has worked extremely well. We have had good people who have been administering this program, an interesting new program we have here.

So, anyway, Senator Domenici, I appreciate your having done this. You were visionary in being able to do it.

I would also say this: Senator Domenici mentioned the labs. I do not know if the people of this country—the people of the State of New Mexico, are really aware of what has been done by Senator Domenici and these laboratories. But for him, I can remember as a relatively new member of this subcommittee, of him talking with Senator Johnson about the labs, and that the real science being

conducted in this country is in the labs. And some of the greatest scientists in the world are in these laboratories.

So, certainly, the people of New Mexico should be aware of the fact that Senator Domenici has worked so hard and done so much to keep these labs funded, even in trying times to cut back these funds. And there have been fires, and scandals, and all kinds of things, but through it all the labs have come out just fine.

Last year I raised a variety of concerns about the administration's request for this agency. I felt that the requests for the pit production program was short of what was required to meet our milestones for the critical stockpiles stewardship program. Senator Domenici and I worked together last year, as we always do, and raised the budget for pit production high enough to keep the program on track. We were able to keep that additional funding in conference also.

I do not have the same concern this year. Actually, the President's budget has me very pleasantly surprised. I think it is a—this is fine. I see there are no gaping holes in the request. As we move closer to markup, I am sure there will be some modifications or requests here and there, but I do not expect anything as dramatic as the last few years.

That having been said, there are certain things that you have deleted from a variety of programs that have significant member interest, and there will be tremendous pressure on us, and rightfully so, to find—to fund these items within our overall total. Maybe we can find some extra money; but the way things are going, that is doubtful. And with the budget as tight as I expect it to be, we may be forced to accommodate them within the total of the money that we have and you have given us.

Many of the items that you have deleted are programs that have been funded year in and year out and have proved invaluable contributors to our national defense. And so if you see fit to delete them, that does not mean that we will.

I am always concerned and, I guess, it is Federal Government that you have to get used to, is that if it has not been done before, you do not do it. And there are certain things that we have to continually improvise to meet exigencies of a situation that develops, especially in an agency like this.

So, and the last thing that I would like to say, is that even though I know that you have tremendous pressure from OMB, we want you to also understand that we have tremendous brain power down here also. The staff that we have behind us are experts. They do a wonderful job in making sure the legislative branch of Government competes as it should constitutionally with the executive branch of Government. And all of the wisdom of the world is not within the executive branch of Government.

A couple more thoughts before I close. You requested funding for an advanced concepts initiative for nuclear deterrents which seems to expand on funding you sought and received last year. So this is something we have to really be careful on, careful about. We will examine this very closely. The authorizing committee will consider this program in expansional length when they mark up their bill, and we are going to watch to see what comes out of that authorizing committee.

I would also like to make sure that you give us all you can on this 18-month test readiness posture. It is something important for the country and the world, and we would hope that you would give us the benefit of your thoughts in that regard.

Mr. Chairman, I am going—as I have indicated to you, I am going to have to leave in a little bit. So I would ask your permission to submit written questions and that the witnesses get these back to us within 2 weeks.

Senator DOMENICI. We will do that, and if the witnesses will respond within 2 weeks. Thank you very much for your kind remarks and for your overall assessment.

We will start with you, Mr. Ambassador. You have heard so many nice words, maybe you do not even have to testify. Maybe you can just sit there and smile.

STATEMENT OF LINTON F. BROOKS

Ambassador BROOKS. Well, Mr. Chairman, actually I am gratified to know that we are thinking of the same things, because you gave much of my statement. So I will abbreviate it even further.

Thank you, Mr. Chairman and Senator Reid, for the opportunity to appear. This is my first appearance as the acting Administrator, and I want to start by thanking the subcommittee and the members on both sides of the aisle with their strong support for our important national security responsibilities. I have provided a detailed written statement which I would like to summarize quite briefly before turning to my colleagues.

NNSA has several complementary missions. We are supposed to, above all, provide a safe, secure, and reliable nuclear deterrent. In doing so, we are supposed to implement the President's decisions on the Nuclear Posture Review. We are supposed to reduce the threat of the proliferation of weapons of mass destruction. We are supposed to maintain a robust security posture. We are supposed to reinvest in the nuclear weapons infrastructure, support the nuclear propulsion needs of the Navy. And we are supposed to do this in an efficient way by supporting the President's management agenda.

As you noted, the budget represents an 11-percent growth over last year and is consistent with the Future-Years Nuclear Security Program that we have submitted. I share your assessment that that has been an extremely valuable tool, and I look forward to it being even more valuable in the years ahead in enforcing sound planning and good fiscal discipline.

My colleagues will be talking about the details, but I would like to give a very brief overview and then talk about some broad areas.

The funds we are requesting for weapons activities will enable us to implement the Nuclear Posture Review. They will allow us to restore and maintain operational capabilities and keep a robust science and technology infrastructure. We are on schedule to produce, later this spring, the first certifiable plutonium pit in this country since the closure of Rocky Flats in 1989. And Los Alamos is on track to manufacture a certifiable pit for the stockpile by 2007.

As Senator Reid mentioned, we are taking steps to reduce our nuclear test readiness to 18 months. That is an important initiative

of the President's Nuclear Posture Review to which we are fully committed. Both the fiscal year 2003 and 2004 budgets support this transition, which will take us about 3 years.

This budget also includes \$21 million for advanced concepts work. That is small in terms of the overall budget, but it is important in policy terms. It includes \$15 million for the Robust Nuclear Earth Penetrator. That system development work will begin later this month following the submission of a report to the Congress which the Defense Department submitted in mid-March. In addition, there is \$6 million for advanced concepts work which we intend to use in conjunction with the Department of Defense to revitalize the intellectual capital and to think about what options might be necessary, and I need to emphasize "might be necessary," in the future.

The Nuclear Posture Review the President approved last year gives a responsive infrastructure equal priority with offensive strike and defense. We implement that in two particular ways: the Readiness in Technical Base and Facilities, which is an account that will be with us forever and is intended to operate and maintain the facilities needed for stockpile stewardship; and the Facilities and Infrastructure Recapitalization Program, which is, basically, a get-well program that should be completed in about a decade.

These programs work together to restore, revitalize, and rebuild the weapons complex. They are fixing the backlog in deferred maintenance, and I believe they are absolutely crucial and hope the committee will continue to support them.

As the chairman mentioned, we are requesting a 30-percent increase in Defense Nuclear Nonproliferation funds. Much of our program is the same as last year. The largest dollar increase is for the MOX Fuel Fabrication Facility. Russia has agreed to use the same design, and, therefore, both of us should be able to begin construction in 2004. The other increases in nonproliferation support the beginning of a program to purchase additional highly-enriched uranium from the Russian Federation, thus taking it permanently out of risk for proliferation, to strengthen safeguards, and then for one or two other minor initiatives.

Last year, NNSA assumed responsibility for a production that will shut down the last three plutonium production reactors in the Russian Federation. We are about to compete for the contractor to actually carry that out. The contractor will be selected from a group of contractors with extensive experience both in fossil fuel plant construction, which we are going to build to replace these reactors, and in working in Russia.

Admiral Bowman will talk about the Naval Reactors program.

Senator DOMENICI. Mr. Ambassador, would you just hold for a second?

Ambassador BROOKS. Certainly, sir.

Senator DOMENICI. I have to see my constituents here just for a second. If I do not see them, nobody else will.

Okay. Thank you, Mr. Ambassador. Please proceed.

Ambassador BROOKS. In fiscal year 2004, Naval Reactors will support 103 reactors and 82 nuclear-powered warships, including the first-of-a-class reactor when U.S.S. *Virginia* goes to sea.

Naval Reactors will continue to design and develop the reactor for the new transformational carrier. And the budget increase will allow beginning the development of the so-called transformational technology core, which will achieve a substantial increase in core energy and result in greater operational ability and flexibility. In addition, the Naval Reactor budget increase will allow maintenance and replacement of some of the program's 50-plus-year-old infrastructure.

Key to ensuring the health and safety of all our activities is safeguards and security. The program focuses on protection of people, nuclear weapons, information, special nuclear material, and infrastructure.

Immediately following September 11, 2001, my predecessor initiated an increase in our security posture. And as a result of that, I am satisfied with the level of security complex-wide. Now, most of that increase was in physical protection, and what that means is more guards. As we look to the future, physical protection is going to be more complicated and costly. So in 2004 we will begin a modest research and development effort to try and understand how technology might improve security while reducing the demands on physical security force, staffing, and overtime.

Finally, the budget requests \$348 million for the Federal workforce. This will provide our direction and oversight of operations. Naval Reactors and our secure transportation assets activities are separately budgeted.

Our budget reflects declining staffing increases, but it also includes about \$16 million for re-engineering and relocation costs necessary to bring about the new organizational model, which I will mention in a moment.

Before turning to my colleagues, I would like to mention some of the management challenges that we have been facing and some of the successes we have had. The most obvious challenge you have already referred to, Mr. Chairman, and that has been the management issues at Los Alamos National Laboratory.

It is important to put those challenges in context. There has been no suggestion of any diminution in the high quality of the science. There has been no suggestion of any problems with security. There has been no suggestion of any problems with safety. But there have been significant weaknesses in business practices. As soon as we learned of them, Secretary Abraham and I insisted the University of California, which manages the laboratory, take corrective action. And generally, I am satisfied—that is not true. I am pleased with the corrective action taken to date. The University has been vigorous, and I share your assessment that the interim laboratory director is doing a superb job.

In addition to what we have done in Los Alamos, we have compiled a comprehensive set of lessons learned to share that with all of our sites to avoid similar problems in other areas.

On a more optimistic note, I believe we are making good progress in meeting the intent of the Congress in creating the National Nuclear Security Administration. On December 20 of last year, I implemented the revised management approach we reported to the Congress last year. We eliminated a layer of management. We shifted the locus of Federal oversight to eight site offices. We con-

solidated all business and administrative support into a single service center to be physically consolidated next year.

These changes, along with other workload reduction initiatives, should allow us to reduce the Federal workforce by about 20 percent by the end of next year in all areas except secure transportation asset, nonproliferation, naval reactors, and emergency operations.

I mentioned in the beginning of my remarks that we are mindful of the President's management agenda. With an emphasis on our new planning, programming, budgeting, and evaluation process, we are trying to take a long view, budget with firm resource envelopes, and then manage to those budgets. Our process was modeled after the Department of Defense, but tailored to our needs. It will take several budget cycles before we get all the benefit this system will use, and I am very pleased with our progress.

I am also pleased with our participation in the administration's Performance Assessment Rating Tool (PART). This year the Office of Management and Budget evaluated four programs that encompass about 20 percent of our total funding. Two of those programs, the advanced computing initiative and the nuclear material protection and cooperation, were rated in the top 5 percent of all programs government-wide, and they were the two highest rated programs in the Department of Energy. We will be incorporating PART assessment for all of our programs as part of our own internal evaluation cycle, starting with the fiscal year 2005 budget we will begin working on this summer.

In conclusion, Mr. Chairman, I am confident we are headed in the right direction. Our budget request will support continuing our progress in protecting and certifying our deterrent, reducing the global danger from proliferation, and enhancing the force projection capabilities of the U.S. nuclear Navy. It will enable us to continue to maintain the safety and security of the NNSA complex, and, above all, I believe it will meet the national security needs of the United States for the coming century.

PREPARED STATEMENT

Mr. Chairman, this concludes my statement. My colleagues and I will be ready to answer your questions after they have had the opportunity to present their own statements.

Senator DOMENICI. Thank you very much, Mr. Ambassador.

[The statement follows:]

PREPARED STATEMENT OF LINTON F. BROOKS

Thank you for the opportunity to appear today to discuss the Fiscal Year 2004 President's Budget Request for the National Nuclear Security Administration. This is my first appearance before this Subcommittee as the Acting Administrator of NNSA, and I want to thank all of the Members for their strong support of our important national security responsibilities. I would like to begin my testimony here today by providing an overview of the NNSA mission requirements followed by the highlights of our budget request.

OVERVIEW

The NNSA, comprised of Defense Programs, the Defense Nuclear Nonproliferation Program, and the Naval Reactors Program, has several complementary mission requirements:

- Provide a safe, secure and reliable nuclear deterrent and implement the President's decisions on the Nuclear Posture Review (NPR) recommendations.
- Reduce the threat posed by the proliferation of weapons of mass destruction and continue to support the Global War on Terrorism through aggressive nuclear nonproliferation programs.
- Maintain a robust security posture at NNSA facilities.
- Revitalize the nuclear weapons complex infrastructure.
- Support the nuclear propulsion needs of the U.S. Navy.
- Support the President's Management Agenda for more effective government.

The fiscal year 2004 budget request totals \$8.8 billion, an increase of \$878 million, about 11 percent, over the enacted fiscal year 2003 budget. The request is consistent with the planned program levels in the Future-Years Nuclear Security Program recently submitted to the Congress. This substantial increase reflects the Administration's commitment to sustain a stable and effective long term national security program through the NNSA, as well as our obligation to our citizens to conduct this program safely, securely, and in an environmentally acceptable manner.

We are building on recent accomplishments. Although there is a large increase in this year's budget request, there is no single new initiative driving this growth. Rather, we are continuing plans and programs already set in motion, and adjusting to the guidance in the Nuclear Posture Review. We are moving beyond the talking and planning phase of many programs conceived in the 1990's.

This budget supports the Stockpile Stewardship Program, which continues to successfully certify to the President the safety and reliability of the nuclear weapons stockpile without underground nuclear testing. It includes funds to begin a modest Advanced Concepts initiative to provide nuclear deterrence options, begin the transition to a 18-month test readiness posture, continue to revitalize the facilities and infrastructure that are the bedrock of the weapons complex, and push the outer limits of scientific, modeling, and computing ability to apply new experimental capabilities to the processes of maintaining and certifying the stockpile. It supports our efforts to manufacture certifiable pits and to produce tritium.

In the area of reducing global nuclear danger, this budget request for the Defense Nuclear Nonproliferation Program reflects the President's and Secretary Abraham's emphasis on reducing proliferation threats, including the Global Partnership formed at the Kananaskis Summit in June 2002. The fiscal year 2004 request contains funds to support attacking the problem globally, to improve the physical security of nuclear material, to consolidate and reduce that material, and to end its production. It also continues efforts to prevent illicit trafficking of nuclear materials, to improve our ability to detect proliferation, and to stem the "Brain Drain" of weapons experienced scientists from Russia.

Under this budget, the Naval Reactors Program will initiate the design and development of a new reactor that will utilize advanced materials to achieve a substantial increase in core energy. The result will be greater ship operational ability and flexibility to meet increasing national security demands.

BUDGET SUMMARY TABLES

The fiscal year 2003 estimates in the fiscal year 2004 budget documents transmitted to the Congress reflect the President's fiscal year 2003 Budget Request because final fiscal year 2003 appropriations were not enacted until February 20, 2003. The Future-Years National Security Program tables tie to the President's Budget Request. The table below summarizes the enacted funding levels by appropriation. The fiscal year 2003 appropriations estimates are made comparable to the fiscal year 2004 President's Budget Request by eliminating fiscal year 2003 appropriations being transferred to the Department of Homeland Security and to the Department of Energy's Office of Security (for COOP/COG activities). The fiscal year 2003 totals detailed in the table below also reflect applications of the general reductions and the government-wide, across the board reduction of 0.65 percent enacted in the final fiscal year 2003 appropriations.

The outyear budget estimates and associated programmatic information for NNSA programs are contained in the Future-Years Nuclear Security Program document I forwarded to the Congress in February.

FISCAL YEAR 2004 NNSA PRESIDENT'S BUDGET REQUEST

[Dollars in millions]

	Fiscal Year 2002 Com- parable Ap- propriation	Fiscal Year 2003 Comp Request	Fiscal Year 2003 Comp Approps	Fiscal Year 2004 Request	\$ Change	Percent Change
Weapons Activities	\$5,542	\$5,846	\$5,895	\$6,378	\$483	8.2
Defense Nuclear Nonproliferation	¹ 1,048	1,028	^{2 3} 1,022	1,340	318	31.1
Naval Reactors	688	707	702	768	66	9.4
Office of the Administrator	307	329	^{3 4} 321	348	27	8.4
Total	7,585	7,909	7,940	8,835	895	11.3

¹ Does not include \$10 million appropriated as part of the fiscal year 2002 supplemental (Public Law 107-206) for Domestic Sealed Sources Recovery in the Environmental Management Program.

² Does not include funding appropriated for programs transferred to the Department of Homeland Security.

³ Does not include \$9.125 million requested to be transferred in fiscal year 2002 from Defense Nuclear Nonproliferation to the Office of the Administrator. This transfer was approved early in fiscal year 2003.

⁴ Does not include funding appropriated for activities transferred to Homeland Security, or to Office of Security for COOP/COG.

NNSA OUTYEAR BUDGET REQUESTS—FUTURE-YEARS NUCLEAR SECURITY PROGRAM

[Dollars in millions]

	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009
Weapons Activities	\$6,378	\$6,661	\$6,961	\$7,277	\$7,518	\$7,651
Defense Nuclear Nonproliferation	1,340	1,356	1,371	1,389	1,322	1,346
Naval Reactors	768	808	795	811	819	834
Office of the Administrator	348	337	344	353	355	362
Total	8,835	9,162	9,471	9,830	10,014	10,193

NUCLEAR FORCES AND THE NUCLEAR POSTURE REVIEW

Before going into Weapons Activities Stockpile Stewardship Program, I will discuss the NNSA's response to the broader policy framework set out in the Nuclear Posture Review (NPR) and its implementation.

As the NPR has articulated, the 21st century presents the prospect of a national security environment in which threats may evolve more quickly, be more variable in nature, and be less predictable than in the past. In this broad threat environment, nuclear weapons will play a reduced role in the overall United States security posture—a point reinforced in the NPR. At the same time, the NPR reaffirmed that, for the foreseeable future, nuclear forces linked with an advanced conventional strike and integrated with the capabilities offered by the other two legs of the New Triad will continue to be an essential element of national security by strengthening our overall abilities to reassure allies of U.S. commitments, dissuade arms competition from potential adversaries, and deter threats to the United States, its overseas forces, allies, and friends.

The NPR offered a basic reassessment of the role of nuclear forces and their contribution toward meeting these defense policy goals. It established the need for a capabilities-based force, a dramatic departure from the threat-based rationale for the nuclear force of the past. This change, in combination with the judgment to no longer plan our forces as if Russia presented an immediate threat to the United States, was the basis for dramatic reductions codified in the Moscow Treaty in the level of operationally-deployed strategic nuclear forces. Over the next decade, the number of deployed warheads will be cut by approximately two-thirds from today's level.

To meet the challenges of an uncertain and unpredictable threat environment, and in seeking to mitigate any dangers associated with dramatically reduced nuclear forces, the nuclear weapons enterprise must be able to respond rapidly and decisively. This is the idea behind the third leg of the New Triad. That is, by providing means to respond to new, unexpected, or emerging threats in a timely manner, the R&D and industrial infrastructure needed to develop, build, and maintain nuclear offensive forces and defensive systems (of which the nuclear enterprise is a key component) is itself a principal tool for achieving our overall defense strategy. This concept, and its endorsement by the NPR, has had enormous implications for NNSA in helping to gain strong support for its programs from DOD and others.

We are pressing ahead with efforts to reverse the deterioration of the nuclear weapons infrastructure, restore lost production capabilities and modernize others in order to meet the stockpile refurbishment plan. We are actively assessing the NPR's implications in a number of other related areas. Finally, we are pursuing initiatives endorsed by the NPR which are intended to provide the nuclear weapons enterprise with the flexibility to provide a timely response to "surprise," or to changes in the threat environment.

WEAPONS ACTIVITIES—STOCKPILE STEWARDSHIP

The President's fiscal year 2004 request for Stockpile Stewardship continues to build and expand on the scientific and engineering successes that are the hallmarks of this program. This request totals \$6.378 billion, an increase of 8.2 percent. It will also allow us to meet our requirements under the terms of the Nuclear Posture Review including enhancing test readiness, reinvigorating the advanced concepts work in the weapons laboratories, and restoring the weapons complex to meet the national security requirements of the 21st Century. There are a number of significant milestones we expect to achieve this year.

- Manufacture the first certifiable W88 pit.
- Begin irradiation of the first Tritium Producing Burnable Absorber Rods in the TVA's Watts Bar Reactor.
- Continue delivery of W87 Life Extended warheads to the Air Force.
- Complete environmental documentation in support of the Modern Pit Facility.
- Deliver four ultraviolet beams of NIF laser light to the target chamber.
- Initiate Stockpile Stewardship experiments in NIF.
- Perform two- and three-dimensional simulations of aging stockpile weapons focused on Life Extension Program activities.
- Ship nuclear weapons, weapons components, and nuclear materials safely through the Secure Transportation Asset.
- Conduct subcritical experiments at the Nevada Test Site to better understand plutonium aging.
- Begin work on the Advanced Concepts initiative and, in particular, on the RNEP Phase 6.2 studies with the Air Force.

These major milestones will be accomplished by the weapons complex in addition to the manufacture of thousands of components needed to maintain the stockpile. The complex will also carry out hundreds of smaller scale experiments, perform surveillance activities, address Significant Finding Investigations to ensure weapons safety and operability, conduct flight tests with the support of the DOD, deploy new manufacturing tools and processes at the production plants, and safely dismantle weapons excess to national security requirements.

These and other activities are dependent on retaining today's highly skilled workforce and recruiting the next generation of stockpile stewards. Over the last several years, NNSA has made a significant headway on this all-important front. Critical skill vacancies across the complex have been reduced to 8 percent. Inextricably linked to recruitment and retention is providing the quality workspace and fully functioning tools and technologies needed by our scientists and engineers to carry out their work. We are working diligently to reinvest in the weapons complex infrastructure.

I would now like to highlight several activities under the Stockpile Stewardship Program that I believe are of particular interest to this committee.

Pit Manufacturing and Certification Campaign.—Restoring the Nation's ability to manufacture plutonium pits in support of the stockpile has been a central challenge for the stewardship program since the closure of the Rocky Flats plant in 1989. The United States has never before manufactured and certified pits without nuclear testing. I am very pleased to report that late this spring, Los Alamos will manufacture the first certifiable W88 pit. LANL also remains on-track to manufacture a war reserve W88 pit by 2007. To achieve this critical milestone, LANL has produced a number of development pits and has performed a series of engineering tests and physics experiments to confirm pit performance.

While the TA-55 facilities at LANL are adequate to support the W88 pit campaign, they do not appear to be capable of supporting the manufacturing need for long-term stockpile support. NNSA has begun planning for a Modern Pit Facility (MPF) consistent with the Record of Decision for Stockpile Stewardship and Management and the NPR. In May 2002, the Secretary of Energy formally approved Critical Decision "0" (CD-0) for the MPF. The NNSA is now examining five candidate sites—Pantex, Carlsbad, the Nevada Test Site, Savannah River and Los Alamos—as possible locations for the MPF. We expect to issue a Draft Environmental Impact Statement (EIS) later this spring. Following a series of public meetings, a

final EIS and associated Record of Decision (ROD) will be issued. The program will prepare site specific environmental documentation if the ROD supports a decision to construct and operate an MPF. The fiscal year 2004 request will allow conceptual design and other planning activities, NEPA work, and technology development activities to proceed on a schedule that will support a CD-1 decision in fiscal year 2006.

Test Readiness.—While I continue to have confidence in the ability of the Stockpile Stewardship Program to continue to ensure the safety, security, and reliability of this Nation's nuclear deterrent, we must maintain our ability to carry out nuclear weapons tests. Our current readiness posture to conduct such a test is 24 to 36 months, as established in a 1993 Presidential Decision Directive. Last year's NPR stated that this period should be reduced in order to provide options to deal with defense policy goals, including resolving unanticipated problems in the stockpile. A study completed in July 2002 confirmed that additional work was required to maintain the present posture, but it also led us to conclude that the right posture is to be ready for a test within approximately 18 months. With fiscal year 2003 funding now in place, we intend to begin the transition to a 18 month posture. The Nuclear Weapons Council has concurred that our intended action is appropriate. The transition to this new readiness posture is expected to take approximately three years.

Although there have been discussions about a transition to shorter times, there is concern that an unnecessarily expedited time-frame may cause adverse effects on critical personnel resources and require significantly more funding. It is not likely that we will be able to match the short lead times when the weapons complex conducted multiple underground tests annually, nor do I think it is prudent to tie-up important resources to indefinitely maintain an extremely short test readiness posture. Since device and diagnostics preparations are driven by the particular weapon to be tested and the questions to be answered by the test, such a posture might not be responsive to a surprise in the stockpile. The NNSA is studying this matter and I will soon be reporting to the Congress on these subjects as directed in the fiscal year 2003 Defense Authorization Bill.

Advanced Concepts/Robust Nuclear Earth Penetrator.—The NPR also highlighted the importance of pursuing Advanced Concepts work to ensure that the weapons complex can provide nuclear deterrence options well into the next century. To that end, the fiscal year 2004 budget includes \$21 million for Advanced Concepts work. About \$15 million will be allocated to the Robust Nuclear Earth Penetrator (RNEP), with the balance of the funding divided between the weapons laboratories for concept and feasibility studies of possible nuclear weapon modifications, or new designs to meet possible new requirements.

The Department of Defense submitted the report on RNEP to the Congress on March 19, 2003, as required by the fiscal year 2003 Bob Stump National Defense Authorization Act. The NNSA will begin an in-depth study once the 30 day waiting period has elapsed. As members know, this study will examine whether or not two existing warheads in the stockpile the B61 and the B83 can be sufficiently hardened through case modifications and other work to allow the weapons to survive penetration into various geologies before detonating. This would enhance the Nation's ability to hold hard and deeply buried targets at risk. The RNEP feasibility and cost study is currently scheduled for completion in 2006; however, we are looking at opportunities to reduce study time.

For other advanced concepts, we will work with the DOD to assess evolving military requirements. We will carry out theoretical and engineering design work. I should stress that we have no requirement to actually develop any new weapons at this time.

Physical Infrastructure.—Since its inception, the NNSA has been committed to a disciplined corporate facilities management approach to improve the facility conditions of the nuclear weapons complex. We made this corporate commitment clearly recognizing the drivers and practices of the past decade had ultimately resulted in a complex with significant deterioration in our physical infrastructure and an excessive backlog of deferred maintenance. The NNSA complex is part of our Nation's strategic nuclear infrastructure and the third leg of the New Triad as defined in the Nuclear Posture Review. The Nuclear Posture Review gave a responsive infrastructure equal priority with offensive and defensive weapons. Through our focused and disciplined efforts, we now have underway an effective and integrated program to restore, revitalize, and rebuild our nuclear weapons program infrastructure.

Two complementary accounts in the budget, Readiness in Technical Base and Facilities (RTBF) and the Facilities and Infrastructure Recapitalization Program (FIRP), are essential to the operation, maintenance, and renewal of a physical infrastructure. Funding for RTBF, Operations of Facilities, increases by 4 percent in the fiscal year 2004 request. The RTBF provides the funding needed to operate and

maintain the facilities required for certification, thus ensuring the vitality of the NNSA national security complex and its goal of a consistent readiness level. FIRP is a capital renewal and sustainability program designed to eliminate maintenance backlogs. The FIRP addresses an integrated, prioritized list of maintenance and infrastructure projects, separate from the maintenance and infrastructure efforts of RTBF, which will significantly increase the operational efficiency and effectiveness of the NNSA sites.

Importantly, beyond the application of the new and much needed funding, FIRP also brings a series of new facility management processes and best business practices which are improving our corporate facility management. One of the most important practices is the NNSA commitment to deferred maintenance reduction: stabilizing our backlog by fiscal year 2005 and returning it, for our mission essential facilities and infrastructure, to industry standards by fiscal year 2009. To meet this goal, the fiscal year 2004 budget request targets 45 percent of the FIRP Recapitalization subprogram to facilities and infrastructure specific deferred maintenance projects.

Integral to our corporate approach to RTBF and FIRP are the linkages and discipline provided by the PPBE process, and specifically the Ten-Year Comprehensive Site Plans (TYCSP) and associated facilities and infrastructure planning processes. We are now in the third year that the NNSA has approved the TYCSPs, incorporating technical requirements and performance measures within the financial bounds of the FYNRP resource levels. From the field perspective, these plans provide Federal and M&O managers at each site with the tools and processes to propose, prioritize and obtain approval of the work needed to effectively manage their facilities and infrastructure. From the Headquarters perspective, the TYCSP provides the NNSA with a standardization that allows comparisons and planning to be effected complex-wide.

In recent years, the combined and measurable efforts of FIRP and RTBF have worked to assure that we restore, revitalize, and rebuild the weapons complex infrastructure for today and tomorrow's missions. Across the weapons complex both programs are fixing the backlog of maintenance, keeping up with operational needs, and planning for the future to make a clear and visible difference. These combined efforts are crucial and I urge the committee to support them.

Stockpile Life Extension.—While preparing for the future, the labs and plants are working very hard to extend the life of several elements of the existing nuclear weapons stockpile through the Life Extension Program (LEP). The NPR reaffirmed the decision as reached by the Nuclear Weapons Council on the timing, pace, scope, and technical aspects of the LEPs for the W76, W80, B61-7/11, and ongoing W87 work. Through this program new subsystems and components are designed, built, tested and installed, thereby extending the operational service life for these warheads for some 30 additional years.

For the last several years, we have been extending the life of the W87 warhead for the Air Force. This work is ongoing at Y-12 National Security Complex, Lawrence Livermore and Sandia National Laboratories, and the Pantex Plant. We are more than half way through this effort and expect to wrap up the work by early 2004.

Life extension for the W76 involves a comprehensive overhaul of the warhead, including replacement or refurbishment of the Arming, Firing and Fuzing set, high explosives, gas transfer system and other components. We will also be requalifying the weapon primary. For the W80, we will be replacing the Trajectory Sensing Signal and Neutron Generators, the tritium bottles and incorporating surety upgrades. For the B61, we will be refurbishing the secondary. The First Production Units for these systems are scheduled for delivery to the Navy and Air Force in: fiscal year 2007, fiscal year 2006 and fiscal year 2006, respectively.

Tritium.—In addition to restoring plutonium manufacturing capabilities, NNSA will begin tritium production later this year when several hundred Tritium Producing Burnable Absorber Rods (TPBARs) are inserted into TVA's Watts Bar Reactor. However, because of significant changes in stockpile size in the outyears as a result of the NPR and the Moscow Treaty, the NNSA has, in concert with the DOD, adjusted the tritium production requirements to reflect these changes. We remain fully committed to exercise all elements of the system for producing, extracting, and purifying new tritium, including initial operation of the Tritium Extraction Facility (TEF) being constructed at the Savannah River Site.

Timing of tritium production, extraction, and purification has also been delayed by approximately 17 months for two reasons: (1) a reduction in the stockpile requirements by the NPR and (2) a delay in completion of the TEF project. This program delay can be accomplished without impacting nuclear weapons readiness. A revised baseline has been approved increasing the Total Project Cost from \$401 mil-

lion to \$506 million and delaying project completion from mid-fiscal year 2006 to late-fiscal year 2007.

Since the tritium decays by natural radioactivity at a rate of about 5 percent per year, and since irradiation service costs are the dominant operating costs in supplying tritium to the stockpile, it is prudent not to produce tritium beyond the stated national requirements. Since the program intends to complete and exercise all elements of the tritium production and purification system (including TVA's reactor(s) and the TEF) on a schedule that fully protects the stockpile requirements, irradiation services are being deferred in order to use funds planned for these activities to complete TEF.

National Ignition Facility.—I am pleased to report that tremendous technical progress has been achieved over the last year at the National Ignition Facility (NIF). Its mission is to obtain fusion ignition in a laboratory setting by imploding a BB-sized capsule containing a mixture of the hydrogen isotopes, deuterium and tritium. The NIF will provide the capability to conduct laboratory experiments to address the high-energy density and fusion aspects that are important to both primaries and secondaries in the nuclear stockpile.

In December 2002, the first four NIF laser beams were activated to generate a total of 43 kilojoules of infrared laser light in a single pulse. In March 2003, NIF delivered its first 4 beam of ultraviolet laser light focused onto a target at the center of the 30 foot-diameter target chamber. With this accomplishment, all elements of each of the NIF critical subsystems have been successfully activated and operated. Stewardship experiments will begin in fiscal year 2004.

Advanced Simulation and Computing.—The Advanced Simulation and Computing (ASCI) Campaign is creating simulation capabilities that incorporate modern physics and engineering models to improve our ability to predict with confidence the behavior of the nuclear weapons in the stockpile. These models, validated against experimental data from past above ground and underground nuclear tests, are the repositories of expert designer judgment as well as the best scientific representations of our current knowledge of the performance of the nuclear weapons. The ASCI Campaign is driving the integration of the theoretical and experimental efforts within the Stockpile Stewardship Program.

At the same time that ASCI continues the development of the most powerful computer capabilities needed for the future, the modern simulation tools previously developed by ASCI—the Blue Pacific and White Machines at LLNL, the Red Machine at SNL, and the Blue Mountain and Q machines at LANL—are being applied day-to-day to address immediate stockpile concerns. The ASCI codes are being used to close Significant Finding Investigations as well as to support Life Extension Programs for the W76, W80, W87, and B61. These activities are enabled by the ongoing supercomputing infrastructures at the national laboratories, encompassing both continuing operations as well as research in new techniques for storage, visualization, networking, and all aspects of the infrastructure required by modern computing.

By fiscal year 2008, ASCI will deliver a high fidelity, full-system physics characterization of a nuclear weapon. At that time, the campaign will deliver a suite of validated codes, running on supercomputer platforms, acquired through open procurement, with user-friendly environments, advanced visualization tools for analysis, and the entire support structure to integrate the components together. Other program deliverables include high-performance storage and high-bandwidth networks. In support of a true integrated SSP effort, the ASCI Campaign continues to push the envelope in distance computing as well as in advanced encryption techniques and other approaches to ensure secure, classified networking.

SECURE TRANSPORTATION

The Office of Secure Transportation is responsible for safely and securely moving nuclear weapons, special nuclear materials, select non-nuclear components, and Limited Life Components for the DOE and the DOD. This work is carried out by 225 Federal agents stationed at three sites—Pantex, Oak Ridge, and Albuquerque. These highly dedicated and skilled agents are authorized to use deadly force in the performance of their duties. Employing highly modified tractor trailers and escort vehicles, and secure and redundant communications they have amassed an impressive safety record of more than 100 million accident free miles without cargo compromise. I would note that this office also provides support to other elements of the DOE, including the Offices of Environmental Management and Nuclear Energy.

NONPROLIFERATION—REDUCING THE GLOBAL NUCLEAR DANGER

The NNSA's nonproliferation activities are central to the Bush Administration's National Strategy to Combat Weapons of Mass Destruction of December 2002, which

lists “Strengthened Nonproliferation” as a pillar of its approach to reducing proliferation threats. Secretary Abraham and the NNSA are committed to this critical mission. This commitment is reflected in the diversity of our programs to address nonproliferation concerns in Russia, other former Soviet states, and, increasingly, throughout the world. The NNSA uniquely integrates technical and policy expertise to guide and implement the full range of U.S. nonproliferation priorities. The fiscal year 2004 request for this program is \$1.34 billion, an increase of about 31 percent.

The NNSA addresses concerns that arise from the two requisites of nuclear weapons proliferation: materials and expertise. Whether ensuring that former Russian weapons experts are able to put their skills to use on peaceful and commercial initiatives, reducing the footprint of Russia’s “closed” nuclear cities, or leading on-the-ground programs to secure at-risk nuclear materials in Russia or elsewhere, NNSA is at the forefront of U.S. efforts to halt the proliferation of weapons of mass destruction and advance U.S. nuclear security interests.

The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, formed at the Kananaskis Summit in June 2002, has recommitted the G-8 nations to increase greatly assistance to nonproliferation, disarmament, counter-terrorism, and nuclear safety. The partnership pledges to provide \$20 billion over the next ten years for nonproliferation and threat reduction initially focused in Russia. The United States is committed to provide half that total. The effort of our G-8 partners will complement U.S. programs and meets past Congressional concerns that we not carry a disproportionate burden.

I am also pleased to inform you of the substantial progress of the Elimination of Weapons-Grade Plutonium Production Program (EWGPP). The EWGPP is using best project management practices by applying the Department’s established directives on project management. On December 20, 2002, the projects received Critical Decision Zero (CD-0), mission-need justification, and we have started the process to procure U.S. contractors.

These contractors will be responsible for oversight, verification, and payment to the Russian Federation Integrating Contractor for work completed. The U.S. contracts will be performance-based with the award fee provisions focusing on successful completion and the ability of the U.S. contractor to incentivize the Russian Federation Integrating Contractor’s performance in meeting or exceeding cost, schedule and quality objectives. The U.S. contractor is being selected from a group of contractors that have extensive experience in both fossil fueled power plants and in Russia. Although the projects will be executed in the Russian Federation, using Russian equipment and personnel, we are implementing a rigorous oversight plan to monitor the progress through a formal project management system.

With three exceptions, our fiscal year 2004 request is essentially the same as last year. Last year, at the President’s request, Secretary Abraham sought Russian agreement to dispose of additional Russian highly enriched uranium. We are nearing agreement on the purchase of Russian highly enriched uranium for U.S. research reactors and on purchasing downblended uranium from Russian weapons for a strategic uranium reserve. We have requested \$30 million for this program.

Second, there has been a \$19.7 million increase in the request for programs to secure radiological sources that could be used in radiological dispersal devices, also known as “dirty bombs.”

The largest fiscal year 2004 budget increase, about \$272 million, supports our plutonium disposition efforts. The United States and Russia will each dispose of 34 metric tons of weapons grade plutonium by irradiating it as mixed oxide, MOX fuel, in existing nuclear reactors. This program is on track. Over 75 percent of the detailed design of the U.S. MOX facility will be done this year. Russia has told us that it will use the U.S. design for the MOX Fuel Fabrication Facility, thus ensuring the programs remain on roughly the same schedule. Construction of both the U.S. and Russian MOX Fuel Fabrication Facilities will begin in fiscal year 2004.

I would also like to comment on NNSA’s efforts to ensure that funding is focused on the highest nonproliferation concerns. Given that adverse impacts of terrorists or rogue nations obtaining nuclear weapons is intangible, we cannot easily assess risks using quantifiable risk analysis methods. However, we have and will continue to conduct qualitative risk analyses to determine that we are applying the most cost-effective approaches to meet the greatest nonproliferation needs.

The NNSA recognizes that proliferation is a multifaceted problem, and reduces the threat in a multitude of ways.

We’re attacking the problem globally.—The Global Partnership is only the most recent example of U.S. cooperation with the international community on nonproliferation. International cooperation supports our national nonproliferation objectives, and we pursue such cooperation in new ways. The suite of NNSA programs promotes greater international understanding and adherence to export controls, the applica-

tion of safeguards to secure nuclear materials, and measures to maintain regional security in the world's most volatile regions.

NNSA is improving the physical security of nuclear material.—The United States does this primarily through its Materials Protection, Control and Accounting (MPC&A) program in Russia, as well as the Newly Independent States/Baltics. In fiscal year 2004, this will include security upgrades on 24 metric tons of Russian nuclear material and 1200 Russian Navy nuclear warheads. We will also continue our work to ensure the adequate physical protection of nuclear material located in 40 countries around the world.

We are improving our work to secure radiological sources and prevent their use in "dirty bombs."—The International Conference on Security of Radioactive Sources delivered a concrete set of findings to guide international efforts to gain better control of high-risk radioactive sources worldwide. Secretary Abraham's announcement of a \$3 million "Radiological Security Partnership" will set in motion a new initiative to address potential threats from under secured, high-risk radioactive sources.

NNSA is helping to consolidate nuclear material.—By reducing the number of locations where this material is stored, the United States is greatly reducing its vulnerability to theft or sabotage. By the end of 2003, we will have removed all weapons-usable material from 23 buildings into fewer locations, thus improving security.

Nuclear material can be reduced.—Fissile Materials Disposition conducts activities to dispose of surplus highly enriched uranium and weapon-grade plutonium. By disposing of 68 metric tons of plutonium in the U.S. and Russia, the plutonium disposition program will reduce the threat that this material could pose if acquired by hostile nations or terrorist groups. The plutonium will be irradiated as mixed-oxide (MOX) fuel in nuclear reactors, making the material no longer readily usable for nuclear weapons.

The production of nuclear material for weapons can be ended.—The value of reducing nuclear materials increases greatly if no new material is being produced at the same time. The EWGPP discussed above aims to accomplish just that by replacing Russia's remaining plutonium production reactors with fossil fuel energy plants to meet the energy needs of local communities.

The illicit trafficking of nuclear materials can be slowed.—The Second Line of Defense Program and International Nuclear Export Control programs focus on cooperative efforts to minimize the risk of illicit trafficking of special nuclear material, radiological materials, and dual-use technologies across international borders such as land crossings, airports, and seaports. Under the fiscal year 2004 budget request, the program will continue to target strategic border points and transshipment countries around the world for deployment of radiation detection equipment while maintaining existing equipment in more than 20 countries.

The threat of the "Brain Drain" can be alleviated.—To prevent adverse mitigation of WMD expertise, the Russian Transition Initiatives (RTI) program commercializes technology and downsizes Russia's weapons complex. This approach transforms the former weapons infrastructure expertise into commercially viable, peaceful business ventures, and shrinks the complex by moving fence lines, closing buildings, and providing alternative employment opportunities to weapons experts.

We can continually improve our ability to detect proliferation.—Research and development in proliferation detection provides the United States timely detection of potential threats. These technologies are key to identifying threats at borders or other critical thoroughfares, detecting clandestine proliferation activities, and verifying treaty adherence.

In sum, the United States, with NNSA leading the way, has developed programs to address the threat of the proliferation of weapons of mass destruction—in all its dimensions.

NAVAL REACTORS

Naval Reactors (NR) continues the success it has had for more than 50 years and is a prime example of how to manage unforgiving and complex technology. Our Naval Reactors program, which supports the nuclear-powered submarines and carriers on station around the world, remains a vital part of the national security mission and the Global War on Terrorism. In fiscal year 2004, NR will support 103 reactors in 82 nuclear-powered warships, including the first-of-a-class reactor when the USS VIRGINIA goes to sea. In addition, NR will continue to design and develop the reactor for the new transformational carrier CVN-21. The NR budget request for fiscal year 2004 is \$768 million, about a 7 percent increase above inflation over fiscal year 2003. The increase will allow NR to begin the development of the Transformational Technology Core (TTC) utilizing advanced materials to achieve a substantial increase in core energy. TTC will be forward-fitted into the VIRGINIA Class

submarines, and will result in greater ship operational ability and flexibility to meet increasing national security demands. This budget increase will also allow maintenance and replacement of some of the program's 50-plus-year-old infrastructure as well as remediation at sites no longer in use, allowing NR to continue its "clean-as-you-go" policy.

SAFEGUARDS AND SECURITY THROUGHOUT THE COMPLEX

Security continues to be one of the NNSA's highest priorities. The NNSA's Safeguards and Security program focuses on the protection of our people, classified and sensitive information, nuclear and non-nuclear materials, and the vital infrastructure of our laboratory and industrial production complex. Overall, we have a very effective safeguards and security program as validated by internal and external independent reviews across our sites and operations. We then use the results of these reviews to assess and confirm our security postures and areas for improvement. Our fiscal year 2004 budget request maintains a robust safeguards and security posture throughout the weapons complex to protect our facilities, materials, information, and people.

The request also supports evaluation and assessment of options to use cost-effective measures to meet future security requirements. The NNSA sites conduct Vulnerability Assessments that include a review of potential targets and the identification of the variety of methods that an adversary could or might attempt to use against the targets. Tabletop exercises, computer simulations, and actual force-on-force exercises, conducted both internally and through external independent offices, are used to evaluate various scenarios and related options for protection.

In our efforts to assure we have a robust, responsive and adaptable security architecture, we have recently been conducting detailed, site specific reviews, known as Iterative Site Analyses (ISA). The ISAs are analytical, tabletop exercises which address a spectrum of potential threats, both within and beyond the Design Basis Threat. The ISA is conducted by independent and highly skilled security professionals from across the government and private sector. These analytical efforts are designed to give decision makers at each site and NNSA Headquarters a better understanding of how potential changes in threat and protective measures can be factored into actions that improve our system responsiveness and overall security posture. The results are then used in our risk identification and management efforts that assist in determining the safeguards and security program structure and most cost-effective investments at each site.

Immediately following the events of September 11, 2001, NNSA initiated a series of efforts to increase our security posture. As a result, I am very comfortable with the level of our security complex-wide. Most of the increases in our security posture, however, were the result of increases in the level of physical protection, mainly guard forces. As NNSA looks to the future, it is clear that the threat and protection challenges will continue to become more complicated and costly. More effort is needed to identify and deploy technologies and work procedures that can maintain or improve our security responsiveness while reducing physical security force staffing and overtime requirements.

In fiscal year 2004, the NNSA will initiate a modest research and development effort to pursue emerging technologies. In addition to our historic rate of physical protection upgrades, the modest research and development effort will focus on applied technology to define a more robust, flexible and cost-effective security architecture across all aspects of our work in the coming decade. These areas include earlier detection of adversaries, automated response capabilities, better coordinated communications, more efficient efforts to delay adversaries, better detection of contraband at site perimeters and enhanced cyber-security. This relates to both the current infrastructure and operations as well as our up-front planning for new construction and operations. Early in 2003, we completed an initial review of our technology needs and applications. In fiscal year 2004, we will complete the gap analysis of needed security efforts, review various technologies for near term application, and target areas that have the potential for significant long-term contributions. Throughout this effort, we will engage with the ongoing efforts and experiences of the Department of Energy's other program areas and National Laboratories as well as other Federal agencies such as Departments of Defense and Homeland Security, to help assure sharing of best practices and maximum leveraging of our resources.

RELATIONSHIP TO DEPARTMENT OF HOMELAND SECURITY

The standup of the NNSA has been shaped by the Nation's response over the past eighteen months to the terrorist attacks on September 11, 2001. Because the NNSA is the steward of the facilities and assets for the Nation's nuclear weapons complex,

we placed the highest priority on addressing urgent, emergent concerns about the safeguards and security posture of our nationwide complex of facilities and transportation systems. We also upgraded our emergency response assets, which are available to be deployed in emergencies around the world. We have accelerated research and development on chemical and biological agents, and have shared the expertise resident in our laboratories and other facilities with other agencies and municipalities as part of the expanded focus on homeland security across the government. NNSA has contributed research and development and Federal support programs to the new Department of Homeland Security (DHS) and provided expertise and administrative support for startup of the new department. These programs, totaling about \$88 million, include research and development to counter the chemical and biological threats; nuclear smuggling research and development; nuclear assessments program, from MPC&A; and, Federal program direction funding in support of these programs.

The legislation establishing the new Department specified that the Nation's radiological response capabilities will remain under the direction of the Secretary of Energy and NNSA Administrator. Funding for the radiological assets will remain within NNSA's Nuclear Weapons Incident Response programs (\$90 million in fiscal year 2004). The assets will continue to respond to radiological accidents at Departmental facilities and will support Federal law enforcement activities where nuclear materials may be involved. NNSA's Office of Emergency Operations will work cooperatively with the DHS, and, when deployed in formally designated situations, the radiological assets will take direction from the Secretary of Homeland Security as the Lead Federal Agency. A Memorandum of Agreement establishing a framework for DHS to access the capabilities of these assets was finalized between the two Departments last month.

OFFICE OF THE ADMINISTRATOR

Finally, I will summarize the fiscal year 2004 budget request for the NNSA Federal workforce, both Headquarters and field. The Office of the Administrator account provides the corporate direction and oversight of NNSA operations consistent with the principles of protecting the environment and safeguarding the safety and health of the public and workforce of the NNSA. This account now represents the consolidated program direction funds from the former Weapons Activities and Defense Nuclear Nonproliferation accounts; the Naval Reactors and Secure Transportation Asset activities retain separately funded program direction accounts. Our fiscal year 2004 budget request of \$348 million reflects declining staffing levels and includes about \$16 million for re-engineering incentives and relocation costs necessary to bring about the new NNSA organizational model.

MANAGEMENT ISSUES

I would like to conclude by discussing some of the management challenges and successes NNSA has faced. The most obvious challenge has been the ongoing problems at the Los Alamos National Laboratory. There are three specific areas of concern at Los Alamos: improper use of government-issued credit cards; potentially fraudulent use of purchase orders; and, poor accountability of government property. These problems taken together reveal significant weaknesses in business practices at the Laboratory.

As soon as we learned about the extent of these problems this past fall, Secretary Abraham and I insisted that the University of California, which manages the laboratory for the Department, take corrective action. Subsequently, the University has replaced the Los Alamos Director and Deputy Director, and demoted or replaced 15 other officials. The University also has subordinated business services and auditing at the laboratory directly to the University, brought in outside firms to conduct detailed audits, and made numerous changes in the internal procedures. Generally, we are satisfied with the corrective action taken to date. The Secretary has directed the Deputy Secretary and me to conduct a review of the future relationship between the University of California and the Department. This review will be complete by the end of April. In addition, we are compiling a comprehensive set of "lessons learned" from the Los Alamos problems to share with all DOE sites.

On a more optimistic note, good progress has been made in implementing the intent of the Congress in creating the NNSA. The National Nuclear Security Administration is in its third year of operation, focusing the management of the Nation's nuclear security programs through a single organization. The new organization brought together the Department of Energy's Defense Programs, Defense Nuclear Nonproliferation, and Naval Reactors organizations in a separately organized and managed agency within the DOE. The standup of the organization has been a com-

plex undertaking, and I am pleased to report that NNSA is now fully operational. As a result of our strategic planning exercises last year, and the resulting re-engineering of program responsibilities and organizations, we are getting a better handle on the many diverse components of the NNSA programs. Through an emphasis on our new Planning, Programming, Budgeting and Evaluation (PPBE) process, we are planning programs with a long-term view, budgeting within a firm five-year resource envelope, and managing program and budget execution with more discipline, all leading to better results for the citizens of the United States.

On December 20, 2002, the NNSA began a fundamental restructuring of its management structure designed to implement the President's Management Agenda to create a more effective NNSA. The NNSA of the future will build upon the successes of the past by giving outstanding people the tools needed for strong and effective management of our vital national security mission. This reorganization eliminated a layer of Federal management oversight in the field by disestablishing NNSA's three Operations Offices at Albuquerque, Nevada, and Oakland; shifting the locus of Federal management oversight to eight Site Offices, closer to where the actual work is performed; and, consolidating all business and administrative support functions into a Service Center to be located in Albuquerque to increase overall efficiency. These changes were the culmination of nine months of functional and business process re-engineering, as first described in the Administrator's February 2002 "Report to Congress on the Organization and Operations of the National Nuclear Security Administration." These management and organizational reforms are expected to permit NNSA to achieve significant Federal staff reductions of about 20 percent in the nuclear weapons enterprise by the end of fiscal year 2004.

As we continue to implement the NNSA Act, we are particularly mindful of the President's Management Agenda to which we are firmly committed. We have invested much time and energy over the past year to carrying out its five major initiatives. Implementation of a PPBE process as NNSA's core business practice is designed to improve budget and performance integration throughout the organization. During the past twelve months, NNSA has been involved in an intensive effort to design and implement a PPBE framework simultaneously with the standup of the new NNSA organization. The processes have been designed in-house, along the lines of the DOD's PPBS system but tailored to our needs. We are adapting processes to address NNSA's emerging organization and unique business operations, and working within limited administrative staffing levels.

Budgeting structures are being updated and aligned with management structures. We are making excellent progress in finalizing the cascade of performance metrics linked from the NNSA Strategic Plan to the individual budget and reporting (accounting) codes and contractor work authorizations. There is a very significant improvement in the Performance Measures across all programs for fiscal year 2004. Evaluation is becoming formalized through linkage with the budget, and improved by the realignment of roles and responsibilities for program managers and financial managers across the complex.

We are pleased with the early progress of PPBE in becoming the core operating philosophy for NNSA. The first year was spent on process design, integration of the NNSA programs primarily at Headquarters, and in consultations and coordination of our efforts with the DOE Office of Management, Budget and Evaluation/Chief Financial Officer and the Administration. The DOE Inspector General is currently auditing the first year's implementation, with a report expected in late Spring 2003. Our near term goal is to extend more formalized PPBE roles and missions from our Headquarters organizations to the new NNSA Federal field structure and the M&O contractors as the NNSA re-engineering proceeds during the next 12-18 months. It will take several budget cycles and lessons learned to complete the culture change, and to properly staff the organization to fully realize the benefits of PPBE. The NNSA remains committed to this goal.

The NNSA also participated in the Administration's Performance Assessment Rating Tool (PART) analyses, evaluating four programs that encompass about 20 percent of NNSA's annual funding. The PART assessment noted that the NNSA programs were well managed and that NNSA management was proactively working to make additional improvements to program effectiveness and efficiency. Two of the NNSA programs, Advanced Simulation and Computing and International Nuclear Materials Protection and Cooperation, were rated in the top 5 percent of programs government-wide and received the highest PART ratings of "Effective" from the Office of Management and Budget. The PART analysis tool embodies and reinforces the PPBE processes and discipline we are implementing throughout NNSA. We plan to incorporate the PART assessment for all of NNSA's programs as part of our annual Evaluation cycle, starting with the fiscal year 2005 budget this summer.

CONCLUSION

In conclusion, I remain confident that we are headed in the right direction. Our budget request will support continuing our progress in protecting and certifying our nuclear deterrent, reducing the global nuclear danger from proliferation and weapons of mass destruction, and enhancing the force projection capabilities of the U.S. nuclear Navy. It will enable us to continue to maintain the safety and security of our people, information, materials, and infrastructure. Above all, it will meet the national security needs of the United States in the 21st century.

Mr. Chairman, this concludes my prepared statement. Now, I would be pleased to answer any questions that you and members of the Committee may have.

Senator DOMENICI. I think what I am going to do is go to the Admiral and then have a few questions and observations before I get to Dr. Beckner.

Ambassador BROOKS. Certainly.

Senator DOMENICI. All right. Admiral, might I say before you testify, that I am in the process, as part of my own recapping of my activities as a Senator, the process of putting a book together on nuclear and where we made mistakes as a Nation—

Admiral BOWMAN. Sir.

Senator DOMENICI [continuing]. In not proceeding with nuclear power. And I might suggest to you that, right up front, I use as an example the safety record of yours, and the fact that you now have well over 100 ships at sea with one or more nuclear power plants on board. You were denied access to no seaport other than one in New Zealand, which means that, for those who wonder about the safety or, conversely, the danger of nuclear fuel rods, the world has indicated that they permit them to move everywhere and anywhere in and about the seas, oceans, and seaports, and close to boats and far away from them, and nobody seems to be the least bit worried about the pollution that certainly would be very apt to exchange if there was something amiss, because nothing will carry it better than the water.

Admiral BOWMAN. Sure.

Senator DOMENICI. And it is a perfect setting for, where have we gone awry in being so frightened about what to do with spent fuel rods and what to do about them? So in that regard, much of what you have said and one of the late speeches that you made, I think, the year before last, is something we—I have been looking at very carefully, and we thank you for that.

Admiral BOWMAN. Thank you, sir. I think smart ball for me would be to not testify now and just wait for additional questions.

Senator DOMENICI. We will make your speech a part of the record in any event, but, sir, you had better talk.

STATEMENT OF FRANK L. BOWMAN

Admiral BOWMAN. Well, thank you very much, Mr. Chairman, for those kind words and for the opportunity to testify today. With your permission, I do have a more detailed statement for the record.

Senator DOMENICI. Yes, sir.

Admiral BOWMAN. Let me also thank you, though, for the years and years of support that your committee and you personally have continued to provide this program. Without your support, that record that you just referred to would have been absolutely impossible. We have worked very hard to earn the trust and faith that

you place in the program, and the citizens of this country place in this program. We will continue to do what is needed to make sure our nuclear fleet remains deployed around the world, fighting terrorism as it is doing right now.

We all recognize the very serious threats our country faces today; some from hostile nations, some from organizations with no fixed borders, operating under a veil of secrecy and outside the international community.

Right now, nuclear-powered warships are on the front line ready to strike against any threat to the Nation. Nuclear propulsion is and has been essential in providing the mobility, the flexibility, and the endurance that today's much-smaller Navy needs to meet a number of growing global missions. Events since September 11, 2001, have continually highlighted the value of Naval presence and, in particular, of nuclear power for the Navy's major combatants.

On March 19, 2003, when Operation Iraqi Freedom began, 33 nuclear-powered aircraft carriers and attack submarines were at sea. Three nuclear-powered aircraft carriers were ready to carry out the initial strike on Iraq. The U.S.S. *Theodore Roosevelt*, U.S.S. *Abraham Lincoln*, and U.S.S. *Harry Truman*, and U.S.S. *Nimitz* were on the way. The opening salvo of Operation Iraqi Freedom included Tomahawk cruise missiles launched from nuclear attack submarines. We had 10 nuclear attack submarines in the Red Sea alone.

Some of these submarines had been covertly monitoring events offshore. By preparing for the attack and providing intelligence to national decisionmakers, submarines helped integrate the total battleship picture. This is just another example of the versatility and flexibility of these nuclear-powered submarines.

Recent U.S. military operations in Afghanistan, along with those associated with Operation Iraqi Freedom, re-validated, again, the value of these forward-deployed nuclear-powered carriers. These very powerful ships are four and a half acres of sovereign territory from which we can conduct sustained combatant operations and, as you said, without having to negotiate staging rights from, or overflight rights over, foreign soil. Diplomatic activity over the last year has shown how unpredictable and troublesome those issues can be. Nuclear power provides the flexibility for these ships to sprint where needed and arrive ready for action.

Many of the impressive capabilities these nuclear-powered ships and submarines possess were developed with the funding that this committee has supported. The Navy's new Virginia-class attack submarine will be delivered this coming summer—or summer of 2004, I should say. And the next generation class of aircraft carrier, CVN-21, will carry us through the 21st century and well beyond.

Even though these new designs are important, Naval Reactors' number one priority is ensuring that the officers and sailors at sea operating these plants and defending our Nation's interests, are operating in a safe, effective, reliable situation. This is where most of Naval Reactors' funding goes.

At the end of 2002, the average age of our nuclear-powered ships was 17 years. By 2012, 10 years from then, the average age will

increase to over 24 years. As these ships age, they place a greater and greater demand on my budgets. And as critical components and systems fail in service or become obsolete and require replacement, the problem gets harder as time goes on.

Since September 11, 2001, the demand for submarines has increased by 30 percent. We are trying to make do with the numbers we have, which are 54 attack submarines today, by running these submarines harder. If we continue to operate at today's operational tempo, these submarine reactor cores will not last the 30-plus years that we talked about last year.

In response, and in conjunction with the new core design required by shifting to a lower uranium enrichment, Naval Reactors has begun work on an advanced transformational technology core that the Ambassador referred to, that will deliver a significant energy increase to future Virginia-class submarines.

The TTC is a direct outgrowth of the program's advanced reactor technology work. It will also be a stepping stone for future reactor development. The TTC will use new core materials to achieve a significant increase in core energy density; more energy in the reactor without increasing the reactor size, weight, or space, and at a very reasonable cost.

The TTC can do one or more of the following: We can extend the ship life if we ever go back to the pre-9/11 operating tempos, we can maintain the planned 30-plus-year lives if we continue on this increased operational tempo, or we can provide more power for the weapons and weapons systems of the future. It will not require any changes to the Virginia-class submarine itself or major designs within the propulsion plant.

We are trying to do our part to help fill this gap of the need for submarines for the country. But this increased tempo of operations can only go so far and last so long. We really need to buy more submarines. And the only way we can get there is to buy submarines smarter, so we can afford more.

Buying submarines one at a time will not achieve the numbers we need for the future, nor is it a cost-effective way to buy anything, including submarines. As included in the President's budget this year, multi-year procurements coupled with buying material and economic ordering quantity, and increasing production to two ships per year will provide significant savings. I ask for your support of innovative contracting approaches.

Let me talk just very briefly, sir, about this year's budget request. Naval Reactors' fiscal year 2004 budget is \$768 million, an increase of some \$49 million, 7 percent after inflation, compared to fiscal year 2003. The funding increase supports this transformational core that I was talking about plus accelerated remediation work and facility upgrades.

The ongoing support of this committee is one of the most important factors in Naval Reactors' success story. This subcommittee has recognized the requirements and demands of our program, our growing need for power projection and forward presence far from home which further strains our aging nuclear fleet, and the funding required to meet these commitments today and into the future.

The unique capabilities inherent in nuclear power have played a vital role over the past 50 years in our country's defense. This leg-

acy is strong. It is as strong and vibrant today as it ever has been. With your continued support, it will continue far into the future. Naval Reactors' record is strong as you mentioned, sir, and the work is important, and the funding needs, I think, are modest.

PREPARED STATEMENT

Mr. Chairman, also, with your permission, I would like to submit for the record the program's annual environmental occupational radiation exposure and occupational safety and health reports. I thank you for your continued support.

Senator DOMENICI. It will be made a part of the record. Thank you.

[The statement follows:]

PREPARED STATEMENT OF FRANK L. BOWMAN

Thank you for inviting me to testify on Naval Reactors' fiscal year 2004 Department of Energy/National Nuclear Security Administration budget request.

Let me also thank you for the support you continue to provide my Program. I know that with your support, we will continue the success we have had for more than 50 years. We have worked hard to earn the trust and faith you place in the Program. We will continue to do what is necessary to ensure our nuclear fleet remains deployed around the world, actively involved in Operation Iraqi Freedom and the Global War on Terrorism (GWOT).

We all recognize the serious threats our country faces today. The threats come not only from hostile nations, but also from organizations with no fixed borders, operating under a veil of secrecy and outside the international community.

Nuclear-powered warships are on the frontline ready to strike against any threat to our national interests and to respond to any aggression against the United States. Nuclear propulsion is essential in providing the flexibility, speed, endurance, and multimission capability that today's smaller Navy requires to meet a growing number of global missions.

Last year, I recounted the events of September 11, 2001, and how rapidly nuclear-powered warships were able to get on-station in the North Arabian Sea—validating again the value that nuclear power brings to our Navy. I discussed the significant contributions that nuclear-powered warships made during Operation Enduring Freedom.

I'm here to tell you this year that as the events of the GWOT and Operation Iraqi Freedom unfold, the value of naval presence, and in particular of nuclear power for the Navy's major combatants, has been continually highlighted.

Over the past year, U.S. military operations in Afghanistan and the Persian Gulf have revalidated and underscored the value of forward-deployed nuclear-powered warships. Nuclear-powered submarines have been covertly monitoring al Qaeda, providing intelligence to national decisionmakers for the GWOT. Keeping track of merchant ships that have possible connections with al Qaeda—knowing who's aboard, what the ships are carrying, what the names of the ships are, what color they are when they go into port, and what different color they might be when they come out of port—is all of inestimable value to our Nation during the GWOT.

On March 19, 2003, when Operation Iraqi Freedom began, there were 33 nuclear-powered warships, both aircraft carriers and attack submarines, at sea. Three nuclear-powered aircraft carriers were ready to carry out the initial air strikes on Iraq—USS THEODORE ROOSEVELT (CVN 71), USS ABRAHAM LINCOLN (CVN 72), and USS HARRY S. TRUMAN (CVN 75)—with USS NIMITZ (CVN 68) on the way. The opening salvo of Operation Iraqi Freedom included Tomahawk cruise missiles launched from nuclear-powered attack submarines.

Nuclear-powered aircraft carriers continue to provide 4½ acres of sovereign U.S. territory from which we can conduct sustained combat operations quickly without having to negotiate staging rights on—and potentially overflight rights across—foreign soil. Diplomatic activity over the last couple of months has shown how unpredictable and troublesome these issues can be. Nuclear power enhances these warships' capability and flexibility to sprint where needed and arrive ready for around-the-clock power projection and combat operations. Sustained high-speed capability (without dependence on a slow logistics train) enables a rapid response to changing world circumstances, allowing operational commanders to surge these ships from the United States to trouble spots or to shift them from one crisis area to another.

Nuclear propulsion helps the Navy stretch available assets to meet today's world-wide commitments.

Again and again, the ability to change from mission to mission is demonstrated by our nuclear-powered warships. The versatility and flexibility of our nuclear-powered attack submarines and aircraft carriers are vital to defending our national interests. As we look to the future, new and extremely valuable missions and capabilities are on the horizon for nuclear-powered warships. In January 2003, the highly successful SSGN GIANT SHADOW experiment onboard USS FLORIDA tested strategic concepts and hardware that could double or triple the value of submarines while reducing risk to the crews. GIANT SHADOW explored how a network of forces—a network including submarines carrying unmanned underwater vehicles (UUVs), unmanned aerial vehicles (UAVs), and various aerial, underwater, and ground sensors—could be used to provide surveillance, collect real-time intelligence, develop and recommend a course of action for the joint commander, and launch a time-critical strike, including covertly deploying special forces ashore. This capability will offer powerful options to force commanders for covert surveillance and weapons delivery.

In our unstable world environment, nuclear-powered warships will continue to adapt. They will be ready to meet the changing needs of our national security today, and in the future.

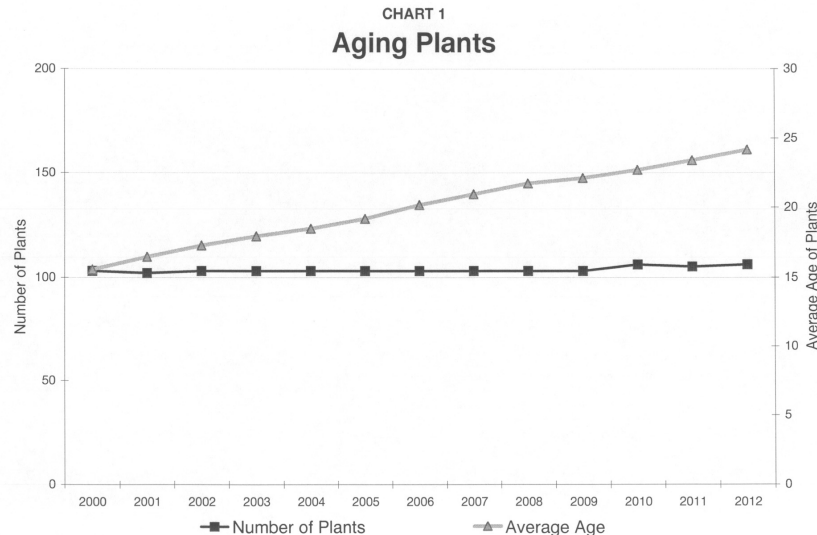
NUCLEAR POWER—TODAY AND IN THE FUTURE

A forward-deployed, highly mobile Navy is imperative for the Navy's Sea Power 21 in support of our country's global responsibilities and obligations. Nuclear power delivers that mobility and delivers the endurance that goes with it, both of which are absolutely necessary in the world today, and as far out into the future as I can see.

Many of the impressive capabilities these ships possess were developed with funding that was supported by this subcommittee.

Naval Reactors' number-one priority is ensuring that the officers and sailors at sea defending our Nation's interests are operating safe, effective, reliable nuclear propulsion plants. This is where most of Naval Reactors' funding goes. Today, the Naval Reactors Program supports 103 reactors (the same number of reactors that operate commercially in this country) in 54 operational attack submarines, 16 ballistic missile submarines, 2 SSGNs (under conversion), 9 nuclear-powered aircraft carriers, 4 training and prototype platforms, and a deep submergence vehicle. In addition, we are in the various stages of building five more attack submarines and three carriers, and refueling four LOS ANGELES-class submarines and one NIMITZ-class carrier.

At the end of 2002, the average age of these ships was 17 years. By 2012 the average age will increase to over 24 years (see chart 1). As these ships age, they place a greater and greater demand on Naval Reactors' DOE budgets as key components and systems obsolesce and require replacement.



Another priority of the Program is designing and developing new nuclear propulsion plants to meet the Nation's needs. The Navy's new VIRGINIA-class attack submarine will be delivered in summer 2004; and the next-generation class of aircraft carriers, CVN-21, will carry us through the 21st Century and well beyond. Naval Reactors has begun work on an advanced Transformational Technology Core (TTC) that will deliver a significant energy increase to future VIRGINIA-class submarines.

Since September 11, 2001, the Combatant Commanders' demand for submarines has increased 30 percent, which validates the need for 68–70 attack submarines. We are attempting to make do with the numbers we have (54 attack submarines today) by running these submarines harder. We have increased our transit speed (speed of advance), increased our operating tempo (time underway during deployment), and reduced our turnaround ratio (which means the non-deployed time divided by the time deployed). Before September 11, 2001, our basis for planning had been to move these submarines from point A to point B at 16 knots. Today, many submarines travel from point A to point B to point C at 20 knots. The Navy's planning goals state that we should be operating while deployed for 65 percent of the underway time (35 percent in port, showing the flag and giving the crew some much needed rest or doing some needed maintenance). Instead, most deployed attack submarines are now at about 80 percent operational tempo. So we are trying to make ends meet, but what's going to give at the end of the day is reactor core endurance, because we are burning uranium out of these cores at a much faster rate. If we continue to operate at today's level, these submarine reactor cores will not last the 30-plus years we had planned.

TTC—RIGHT CORE AT THE RIGHT TIME

To help meet these ever-increasing national security demands with a too-small submarine fleet, Naval Reactors has begun conceptual studies on the Transformational Technology Core. The TTC is a direct outgrowth of the Program's advanced reactor technology work. It is a stepping stone for future reactor development; this development should support procurement of the first core in about fiscal year 2008 for insertion into a 2010 Virginia Class.

The TTC will use new core materials to achieve a significant increase in core energy density (that is, more energy in the reactor without increasing reactor size, weight, or space) and at a reasonable cost. The timing of TTC development also corresponds to the need to transition from 97 to 93 percent enriched uranium fuel—necessitated by the decision to use uranium from retired nuclear weapons as starter material for naval nuclear reactors in order to allow shutting down U.S. highly enriched uranium enrichment facilities.

The TTC can do one or a combination of the following:

- Extend ship life if we return to past usage rate.

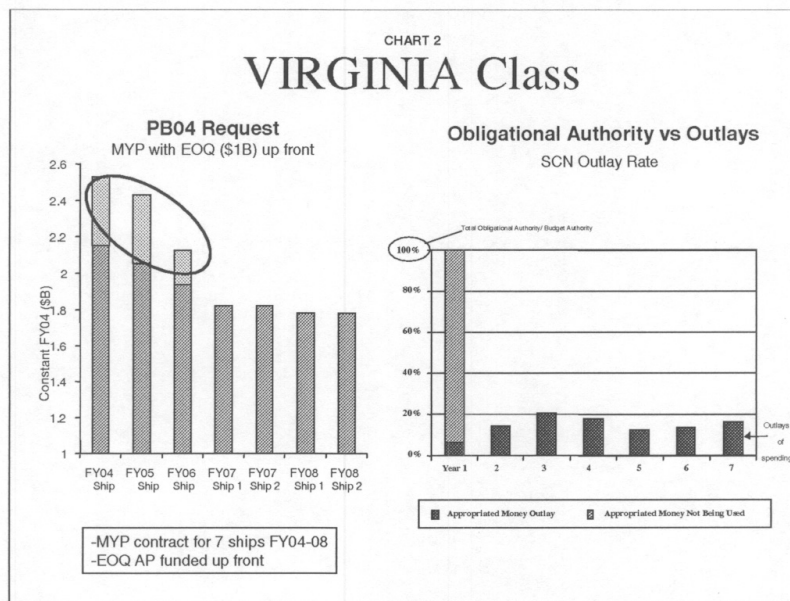
- Increase operating hours per operational year.
- Increase average power during ship operations, which could enable the offboard sensors and UUV/UAV concepts or the higher speed of advance discussed earlier

TTC will also save taxpayers' dollars. Once we achieve the submarine force level needed to meet national security requirements, increasing ship life will reduce the number of ships we need to buy to sustain the force level.

The TTC is intended for forward fitting in VIRGINIA-class submarines, which will be the mainstay of the submarine fleet in future decades. We believe the first TTC will be available for installation in a 2010 VIRGINIA-class ship; at that time 14 of the expected 30 ships will be at sea or under construction. Because the TTC will not require a VIRGINIA-class ship redesign, the end result is significantly greater operational ability and flexibility. The TTC is truly the right core at the right time.

Although the TTC will help submarines better meet increasing operational demands, the only long-term solution to meeting force level requirements is to build more submarines. It is imperative that we increase the VIRGINIA-class submarine build rate to meet the Nation's long-term force level requirement for attack submarines. To that end, the President's budget supports one VIRGINIA-class ship per year until 2006 and then 2 per year in 2007 and 2008.

The practice of buying submarines one at a time will not achieve the submarine numbers we need for the future, nor is it a cost-effective way to buy anything, including submarines. This year's shipbuilding plan helps the Navy get to where it needs to be by procuring two per year starting in fiscal year 2007. In addition, the increased production coupled with a multi-year procurement strategy that includes material buys in economic ordering quantities will provide significant savings (see chart 2).



FISCAL YEAR 2004 DEPARTMENT OF ENERGY BUDGET REQUEST

Naval Reactors' fiscal year 2004 DOE budget request is \$768.4 million, an increase of \$49 million (after inflation) from fiscal year 2003 to fiscal year 2004. The funding increase supports Transformational Technology Core (TTC) development, remediation work, and facility upgrades.

- TTC (\$33 million increase).—As discussed earlier, Naval Reactors has begun conceptual studies on the TTC to meet ever-increasing national security demands caused by a smaller Fleet size and higher operating tempo. Based on design core life, continuing the current ship operating tempo could reduce the ex-

pected submarine core life to less than 30 years. The TTC could extend ship life beyond 33 years by at least 30 percent if we return to the baseline operating tempo, or increase annual operating hours or average power output without increasing the current size, weight, or space of the current reactor. The TTC will be provided at a reasonable cost while enabling the Fleet to meet the increasing demand on the operating nuclear-powered ships.

—*Remediation (\$10 million increase).*—Naval Reactors will continue remediation efforts at Program sites in New York, Pennsylvania, and Idaho. It is important that we continue our “clean as we go” policy, to minimize any potential impact on the environment or site workers. Over the past few years, older facilities have been inactivated at a faster pace than our cleanup rate has been able to match, and additional facilities will be inactivated over the next several years. Accelerating cleanup is necessary to minimize the potential for future chemical or radiological releases to the environment, to minimize the costs of maintaining idle facilities, and to free up central areas at the various sites for future Program use.

—*Facilities (\$6 million increase).*—Naval Reactors has consistently funded facility and infrastructure maintenance within Program targets. However, additional funding is necessary to accomplish major maintenance and replacement of some of the Program’s more-than 50-year-old infrastructure, located in New York, Pennsylvania, and Idaho. Significant infrastructure work is required to ensure protection, preservation, and continued reliable operation of Program facilities. Naval Reactors has worked within targets to maintain facilities, but the cost of necessary work now exceeds current funding.

Naval Reactors supports the 82 nuclear-powered warships that make up over 40 percent of the Navy’s major combatants. This responsibility includes ensuring safe and reliable operation of reactor plants in these ships, enhancing the reactor plants’ performance, and developing improved reactor plants to support the Navy’s needs for the future.

Sustaining today’s 103 operating reactors (the country also has 103 commercial reactors) requires continual analysis, testing, and monitoring of plant and core performance. Nuclear propulsion is a demanding technology—the harsh environment within a reactor plant subjects equipment and materials to the harmful effects of irradiation, corrosion, high temperature, and high pressure over a lifetime measured in decades. In addition, naval reactor plants must have the resilience to respond to rapidly changing demands for power; be robust enough to withstand the rigors of battle and shock and to accommodate ships’ pitching and rolling; and be safe and easily maintainable by the Sailors who must live next to them.

Naval Reactors’ DOE laboratories have made significant advancements in components, materials, core lives, and predictive capabilities. These advancements allowed the Navy to extend the service life and intervals between major maintenance periods for nuclear-powered warships and to reduce ship offline time for maintenance. Increasing ship availability also increases the Navy’s warfighting capability and supports the Navy’s unplanned surge requirements that we’ve seen recently, while reducing maintenance costs. Added ship availability is particularly important in the face of Fleet downsizing because the operational demands on each remaining ship continue to increase. In the same vein, some development effort is devoted to ensuring that Naval Reactors can meet the Navy’s need to extend warship lifetime. Longer ship lifetimes are achievable because we are able to extend reactor plant lifetime. But longer lifetimes require more resources to support an older fleet.

We have been able to extend the lifetime of some existing reactor plants because of the robust designs that resulted from solid engineering done over the past 50 years. After significant additional engineering, we determined that those reactor plants will be able to stay in service longer than we had originally intended. The engineering work to support those ships in their extended lives will continue during that extension. For new reactor core and reactor plant designs, we are using the experience of the past 50+ years to incorporate improvements into both design and construction. It is imperative that we continue to deliver robust designs. It is equally important that we do the necessary engineering work now to ensure that those reactor plants are able to meet the needs of national defense now, and for the next several decades.

New plant development work at the Program’s DOE laboratories is focused on completing the design of the next-generation submarine reactor for the Navy’s new VIRGINIA-class attack submarines, continuing the design for CVN-21, and working on the Transformational Technology Core. In order to accommodate this work, we have had to throttle back on some promising advanced concepts technologies that include high-temperature fuel and direct energy conversion.

The design of the reactor plant for the VIRGINIA-class submarine is nearly complete. Shipboard acceptance testing continues. VIRGINIA will go to sea early next year and will provide needed capability for the Navy at an affordable price.

The CVN-21 nuclear propulsion plant design is well underway. CVN-21 is the first new carrier designed since the 1960's NIMITZ class. The CVN-21 reactor plant will build on three generations of nuclear propulsion technology developed for submarines since NIMITZ. The new high-energy reactor design for CVN-21 represents a quantum leap in capability. Not only will CVN-21 enable the Navy to meet operational requirements of the future, but just as importantly, it will provide flexibility to deal with changing warfighting needs in the future. Reactor plant design work is on schedule to support the long design and manufacturing lead-times of reactor plant components needed for the CVN-21 construction schedule.

Major inactivation work on seven shutdown prototype reactors is finished. The four prototype reactors at the Naval Reactors Facility in Idaho are defueled and in an environmentally benign, safe layup condition; site and reactor plant related remediation work, including State-mandated inactivation efforts, is planned for fiscal year 2003 and future years. Dismantlement and cleanup work at the Windsor site in Connecticut is complete, and approval from the EPA and the State to release the site for unrestricted future use and property transfer is expected in fiscal year 2004. The two shutdown prototype reactors at the Kesselring site in New York have been inactivated and defueled, and major dismantlement work was completed in fiscal year 2002. Other inactivation work is continuing.

The MARF and S8G prototypes in New York continue to operate to train students and provide a test platform for new nuclear propulsion plant equipment. There are no near-term plans to inactivate these plants.

NAVAL REACTORS FISCAL YEAR 2004 DEPARTMENT OF ENERGY BUDGET DETAIL

Since the early 1990s Naval Reactors' DOE budgets have decreased more than 30 percent. The Program's DOE budget has been flat (in real terms) from 2000 to 2003. To live within our means over the past several years, Naval Reactors has eliminated infrastructure, consolidated functions and facilities, revised work practices to become more efficient, and downsized the nuclear industrial base. Bettis Atomic Power Laboratory and Knolls Atomic Power Laboratory, the Program's two laboratories, respectively have the first and the third lowest overhead costs as a percentage of total budget out of 30 DOE sites featured in the "fiscal year 2001 Functional Support Cost Report of 30 Major DOE Contract Sites."

Naval Reactors' technical budget request is categorized into four areas of technology: Reactor Technology and Analysis, Plant Technology, Materials Development and Verification, and Evaluation and Servicing. This approach supports the integrated and generic nature of our DOE research and development work. The results of Naval Reactors DOE-funded research, development, and design work in the following technology areas will be incorporated into future ships, and retrofitted into existing ships.

—The \$236.5 million requested for Reactor Technology and Analysis will continue design work on both the next-generation reactor for the VIRGINIA-class submarine and the new reactor for CVN-21, and will ensure the safe and reliable operation of existing reactors. The reduction in operating plant maintenance periods places greater requirements on thermal-hydraulics, structural mechanics, fluid mechanics, and vibration analysis work to predict reactor performance more accurately and to identify and avoid problems. The continued push for longer life cores means that our reactors will have to operate beyond our operational experience base for many years to come. Fortunately, improved analysis tools and understanding of basic nuclear data will allow us to predict performance more accurately and thus better ensure safety throughout the extended core life. Other efforts in this area include revising core manufacturing processes to reduce cost and hazardous waste, performing reactor safety analyses, designing advanced control drive mechanisms, developing components and systems to support the Navy's acoustic requirements, and developing improved shield designs to reduce both weight and costs. These efforts support the introduction of the Transformational Technology Core, a new high-energy core to support increased Fleet operational requirements. TTC is a direct outgrowth of the Program's advanced reactor technology work and will not only help meet national security demands, but also serve as a stepping stone for future reactor plant development.

—The \$131.4 million requested for Plant Technology provides funding to develop, test, and analyze components and systems that transfer, convert, control, and measure reactor power in a ship's power plant. Reactor plant performance, reli-

ability, and safety are maintained by a full understanding of component performance and system condition throughout the life of a ship. The request reflects the goal of enhancing steam generator performance, which will benefit both CVN-21 and VIRGINIA-class steam generators. Development work for improving VIRGINIA steam generator performance is needed to meet energy and power requirements for the TTC. Naval Reactors is developing components to address known limitations or to improve reliability of instrumentation and power distribution equipment to replace aging, technologically obsolete equipment that is increasingly difficult to support. Additional technology development in the areas of chemistry, energy conversion, instrumentation and control, plant arrangement, and plant components will continue to improve reactor performance and support Fleet operational requirements.

—The \$137.7 million requested for Materials Development and Verification funds material analyses and testing necessitated by our having extended the life of our ships beyond the original projection. It also funds a portion of Naval Reactors' work at the Advanced Test Reactor (ATR), a specialized materials testing facility operated by the DOE Office of Nuclear Energy, Science, and Technology. Materials in the reactor core and reactor plant must perform safely and reliably for the extended life of the ship. Testing and analyses are performed on the fuel, poison, and cladding materials to verify acceptable performance, as well as to develop materials with increased corrosion resistance. Testing and development of reactor plant materials also ensures reliable performance and leads to improvements such as reduced stress in materials and reduced potential for cracking.

—The \$161.3 million request for Evaluation and Servicing sustains the operation, maintenance, and servicing of land-based test reactor plants and part of Naval Reactors' share of the Advanced Test Reactor. Reactor core and reactor plant materials, components, and systems in these plants provide important research and development data and experience under actual operating conditions. These data aid in predicting and therefore preventing problems that could develop in Fleet reactors. With proper maintenance, upgrades, and servicing, the two operating test reactor plants and the ATR will continue to meet testing needs for quite some time.

Evaluation and Servicing funds also support the initiation of a dry spent fuel storage process line that will allow us to put naval spent fuel currently stored in water pits at the Idaho Nuclear Technology and Engineering Center and the Expanded Core Facility at the Naval Reactors Facility (NRF) into dry storage at NRF. This process has now begun and will require small increases to the Naval Reactors budget request in future years. Additionally, these funds support ongoing cleanup of facilities at all Naval Reactors sites to minimize hazards to personnel and reduce potential liabilities due to aging facilities, changing conditions, or accidental releases.

PROGRAM INFRASTRUCTURE AND ADMINISTRATIVE REQUIREMENTS

In addition to the budget request for the important technical work discussed above, infrastructure and administrative funding is also required for continued operation of the Program. Specifically, the fiscal year 2004 budget request includes:

—*Facility Operations.*—\$57.7 million in funding is to maintain and modernize the Program's facilities, including the Bettis and Knolls laboratories and the Expanded Core Facility (ECF), through Capital Equipment purchases and General Plant Project upgrades. Because the cost of necessary work currently exceeds funding, Naval Reactors has requested an additional \$6.0 million in the fiscal year 2004 budget to help accomplish major maintenance and replacement of some of the Program's more-than 50-year-old infrastructure to ensure protection, preservation, and continued reliable operation of Program facilities.

—*Construction.*—\$18.6 million in funding is to refurbish and replace Program facilities. This includes the continuation of the ECF Dry Cell project in Idaho, a project that will significantly improve Naval Reactors' ability to process naval spent fuel for dry storage. (Under a Settlement Agreement signed by the Department of Energy, the Navy, and the State of Idaho, Naval Reactors spent fuel must be among the early shipments to the first permanent repository or interim storage facility.) The requested funding also enables the continuation of the Cleanroom Technology Facility.

—*Program Direction.*—\$25.2 million in funding is to cover Naval Reactors' 186 DOE personnel at Headquarters and the Program's field offices, including salaries, benefits, travel, and other expenses. This staff maintains oversight of the Program's extensive day-to-day technical and administrative operations, while

continuing to ensure compliance with growing environmental, safety, and other regulatory requirements—all of which, notwithstanding our excellent record, necessitate substantial effort.

PRESIDENT'S MANAGEMENT AGENDA

The President's Management Agenda promotes efficiency and improvement. All Federal agencies are adopting and implementing the initiatives where feasible. Naval Reactors has a proven track record of results, especially within the following two areas of the President's Management Agenda:

Budget and Performance Integration

Naval Reactors planning leads to well-documented, quantifiable, proven accomplishments. The Program consistently meets midterm and end-of-year goals. Milestones and research outputs are clearly linked to the long-term Program goals of supporting operating naval nuclear propulsion plants, providing new propulsion plants to meet national security requirements, and maintaining outstanding environmental performance.

Naval Reactors' comprehensive multi-year planning process requires all Program activities to identify performance indicators clearly. This process ensures that the Program continually meets or exceeds its performance goals.

Better R&D Investment Criteria

Naval Reactors work builds on existing generic technology and as such is evolutionary in nature. For general development efforts, the Program's multi-year planning process helps measure progress and ensures that goals are achieved. During reviews, competing lines of research are evaluated to ensure that the highest priority work is accomplished within existing resources. Each individual development effort has clear starting and ending points, with established milestones and off ramps. All plant types benefit from development work targeted at specific platforms—including work on new, advanced plant types, which could benefit existing submarines and aircraft carriers.

PERFORMANCE MEASUREMENTS, GOALS, AND ACCOMPLISHMENTS

Naval Reactors has a long history of operating with the highest levels of integrity and operational accountability. Our husbanding of taxpayer dollars provided by this subcommittee is well recognized. Last year in forwarding the President's fiscal year 2003 budget request to you, the Office of Management and Budget (OMB) rated Naval Reactors as "Effective"—the highest rating on OMB's scale—and noted: "Outputs are identifiable and make key contributions to national security. Delivery schedules are consistently met. Contracts have positive and negative incentives, and include performance requirements."

Furthermore, in a report dated December 12, 2001, the General Accounting Office recognized Naval Reactors' strong performance within DOE and NNSA. The report stated: "The Office of Naval Reactors, which is a part of NNSA, has long been recognized as having a focused mission, strong leadership, clear lines of authority, long-serving employees, and a strong set of internal controls, as well as a culture that enhances accountability and good control over its costs and contractor performance." The Naval Reactors Program has always been dedicated to continual improvement. We use semiannual reviews of short- and long-range plans to rebaseline work and revisit Program priorities. Monthly financial reports from contractors are used to compare actual performance against Projected performance. Additionally, Naval Reactors Headquarters maintains close oversight of its Management and Operating contractors through periodic reviews, formal audits, and performance appraisals.

For the fiscal year 2002 end-of-year performance results, my Program met or exceeded all major performance targets. We ensured the safety, performance, reliability, and service life of operating reactors for uninterrupted support of the Fleet. We exceeded 90 percent utilization availability for test reactor plants. By the end of fiscal year 2002, U.S. nuclear-powered warships had safely steamed over 124 million miles. Naval Reactors developed new technologies, methods, and materials to support reactor plant design, which included surpassing the fiscal year 2002 goal of 96 percent design completion of the next-generation submarine reactor. We initiated detailed design on the reactor plant for the next-generation aircraft carrier, which is on schedule to meet the planned ship construction start. Additionally, Naval Reactors maintained its outstanding environmental performance—no personnel exceeded Federal limits (5 rem per year) for radiation exposure, and program operations had no adverse impact on human health or the quality of the environment.

Naval Reactors expects to meet or exceed all fiscal year 2003 performance targets, which are to achieve 90 percent utilization availability for operation of test reactor plants; to exceed 126 million miles safely steamed; to complete 99 percent of the next-generation submarine reactor; to complete 55 percent of the CVN-21 reactor design; to continue ensuring that no personnel exceed 5 rem per year of radiation exposure; and to have no adverse impact on human health or the quality of the environment.

CONCLUSION

The ongoing support of the Senate Appropriations Committee Subcommittee on Energy and Water Development is one of the most important factors in our success story. The subcommittee has recognized the requirements and demands the Program confronts daily: a growing need for power projection and forward presence far from home, which strains our dwindling number of nuclear ships; an aging nuclear fleet; and the funding required to meet these commitments today and in the future.

The unique capabilities inherent in nuclear power have played a vital role over the past 50 years in our Nation's defense. This legacy is as strong and vibrant today as it ever has been. With your support, this legacy will continue far into the future as the Nation meets each new threat with strength and resolve. Naval Reactors' record is strong, the work important, the funding needs modest.

I thank you for your support.

Senator DOMENICI. Perhaps we will just proceed rather quickly with the next witnesses. I do not think it will take too long.

Okay, Dr. Beckner.

STATEMENT OF EVERET H. BECKNER

Dr. BECKNER. Mr. Chairman, members of the subcommittee, it is a pleasure to be here this afternoon to review several significant programmatic accomplishments.

As Ambassador Brooks has highlighted, the stockpile stewardship program has allowed us again this year to certify to the President that the nuclear weapons stockpile is safe, secure, and reliable. And at this time, there is no need to resume underground testing.

Using the cutting-edge scientific and engineering tools of stewardship, we have a more complete understanding of the condition of the stockpile with each passing year. We annually withdraw approximately 100 weapons from the active stockpile and perform a comprehensive diagnostic exam of the weapons at the Pantex plant. This examination studies the hundreds of parts that make up the weapon. While most of these weapons are reassembled and returned to the services, several are subject to destructive evaluation, providing us additional insights into the health of the stockpile.

To ensure that the existing stockpile continues to meet its military requirements, the NNSA also has a comprehensive refurbishment program known as stockpile life extension where we are presently working on four warhead types in the enduring stockpile, the W-76, W-87, B-61, and the W-80. This program designs, builds, tests, and installs new subsystems and components, thereby extending the operational service life for those warheads. For example, we have already refurbished the parts from nearly three-quarters of all W-87 warheads for the Air Force. NNSA is also restoring the full suite of manufacturing capabilities needed to respond to any stockpile contingency.

As you can see, while we are maintaining and refurbishing the stockpile, with each passing year it is getting to be a bit harder to

do so. In fact, it now appears that by the year 2020 or so, we will have refurbished every weapon in the stockpile.

Returning to the present, as members of this committee are aware, we are installing an interim pit production capability at Los Alamos. Within the next few weeks we expect Los Alamos to deliver a W-88 pit, as Ambassador Brooks stated. It will meet all quality manufacturing requirements for use in the stockpile. It will be the first certifiable pit made by the United States since the shutdown of Rocky Flats in 1989.

To obtain a better permanent manufacturing capability NNSA has begun work on design and siting for a modern pit facility that will be capable of manufacturing all pit types for the current stockpile and any new requirements that we can reasonably foresee should they arise.

To complete the material supply story, NNSA has recently restarted wet chemistry operations at the Y-12 plant in Oak Ridge, Tennessee, to produce highly-enriched uranium metal. And further, we will begin producing new tritium for the stockpile by irradiation of tritium-producing rods at a TVA reactor this fall. To complete the story on tritium, in concert with the Defense Department, we have adjusted the tritium production plans to reflect changes resulting from the MPR and the Moscow Treaty.

Critical to many aspects of stewardship is the role of secure transportation. Again, this year, this organization of Federal agents has safely and securely moved nuclear weapons, nuclear components, and special nuclear materials over a hundred million miles without serious accidents or compromise of cargo. Our agents, many of them veterans of the armed services, are highly skilled and authorized to use deadly force in the performance of their duties.

But stewardship is more than maintenance and refurbishment; it is also about the future. With the support of the Congress, we are investing in leading edge scientific and engineering tools required to support the stockpile now and into the future.

Three areas deserve special mention. First, the Advanced Scientific Computing Initiative, ASCI. Over the last several years we have deployed several world class super computers: White at Lawrence Livermore, Q at Los Alamos, and Red Storm at Sandia. These machines are working full-time to address SFIs and to support the important life extension work I mentioned earlier.

Late next year we will begin to take delivery of two even more capable machines including the largest and most capable machine in the world, a 100 TeraOPS machine at Lawrence Livermore National Laboratory. This suite of capabilities is allowing us to solve critical weapons assessment problems that only a few years ago were impossible.

Two, the Dual Access Radiographic Hydro Test Facility at Los Alamos, called DARHT, is providing CAT-scan-like images of weapons implosion processes. This facility is proving to be even better than we anticipated in providing critical hydrodynamic data to validate the ASCI codes. Increasingly, this facility will become our workhorse for the study of ultra-high density hydrodynamics, providing data previously available only from full-scale testing.

And three, I am also pleased to report that the National Ignition Facility at Lawrence Livermore National Laboratory continues to make excellent progress in meeting and even exceeding its technical milestones. On March 6, laboratory scientists delivered four beautiful beams of ultraviolet laser light into the target chamber well ahead of schedule. Stockpile stewardship experiments in the NIF will begin in fiscal year 2004.

Now, let me say a few words about the changes we are planning in the fiscal year 2004 budget submission in response to the Nuclear Posture Review and the threats this country faces today. To ensure that future American presidents have deterrent options to deal with these threats, we are proposing a modest increase in the advanced concepts program in 2004.

The most significant elements of that program will be the Robust Nuclear Earth Penetrator, RNEP, which was mentioned previously. As you know, this program will be conducted jointly with the Air Force to examine whether or not one of two existing warheads in the stockpile, the B-61 or the B-83, can be sufficiently hardened, packaged, and delivered to allow the weapon to survive penetration into various geologies and attack-hardened, buried targets with high reliability. The remaining \$6 million of advanced concepts funds will be divided between the weapons labs for studies of other new concepts.

Mr. Chairman, that concludes my remarks. I would be pleased to answer your questions.

Senator DOMENICI. Thank you very much.

Mr. Baker, it is good to have you back.

STATEMENT OF KENNETH E. BAKER

Mr. BAKER. Thank you, it is always a pleasure to brief you, sir, on our program—

Senator DOMENICI. Thank you.

Mr. BAKER [continuing]. And the opportunity to give you, sir, our 2004 budget request.

NNSA's nonproliferation activities are central to the Bush administration's national strategy to combat weapons of mass destruction. NNSA continues to be committed to the nonproliferation mission as reflected in the breadth of our programs to address nonproliferation concerns in Russia, other former Soviet states and, increasingly, throughout the world.

The nonproliferation challenge is multidimensional, and our budget request addresses the challenges on many fronts and in many places. While much of our work is with Russia, we are taking global commitments to address global threats.

September 11, 2001, and the aftermath have made it clear that the threat comes not only from so-called rogue states, but some national terrorist organizations that may take any imaginable step to pursue their ruthless ends. The threat can come from any region and can take many forms. So we need to address it broadly.

Our 2004 request, as Ambassador Brooks has stated, is 31 percent above last year's appropriation. Most of the money is in three areas. First, the United States and Russia are nearing agreement on purchasing Russian highly-enriched uranium for research, U.S. research reactors, and down-blending uranium from Russian weap-

ons for its strategic uranium reserve. We have requested \$30 million for this initiative. This is in addition to the approximately 170 metric tons of weapons usable material already blended down and sent to USEC.

The largest fiscal year 2004 budget request is about \$276 million that supports our plutonium disposition program. The United States and Russia will each dispose of 34 metric tons of weapons-grade plutonium by irradiating it in mixed oxide, MOX, fuel in existing nuclear reactors. Russia has told us that they will use the U.S. design for the MOX fuel fabrication facility, thus ensuring the programs remain roughly on the same schedule. Construction of both U.S. and Russian MOX fuel facilities is scheduled to begin in fiscal year 2004.

We have also requested a small increase in another program to fund the IAEA additional protocol, and to help the IAEA verify the extent and dismantlement of foreign clandestine nuclear programs.

With this background, sir, I would like to touch on a broad range of programs that we will pursue to support the President's non-proliferation agenda with your help. We are working with the global partners to reduce the proliferation threats. For example, the global partnership against the spread of weapons of mass destruction, formed at Kananaskis summit in June 2002, has recommitted the G-8 nations to increase greatly the assistance to the non-proliferation, disarmament, counterterrorism and nuclear safety area. The partnership has pledged to provide \$20 billion over the next 10 years for the nonproliferation and threat reduction in Russia and elsewhere. The United States will provide half of that money.

We are working with the international community to better secure high-risk radioactive sources that can be used for dirty bombs. Six weeks ago, Secretary Abraham presided over an international conference on this issue which was attended by 750 participants and 124 countries, far beyond our expectations. And I think there could be no better symbol on how seriously this world takes the dirty bomb. There is much to be done and the fiscal year 2004 request is \$36 million for this purpose.

We are continuing to provide physical security of nuclear material through the IAEA, through bilateral arrangements, such as materials protection control and an accounting program in Russia. In fiscal year 2004 this will include security upgrades to approximately 24 additional metric tons of Russian nuclear material and 1,200 Russian navy nuclear warheads, in general. We expect to be complete with security improvements to the under-secured weapons usable material in 2008, about 2 years ahead of schedule.

While we have included a request for \$24 million to address the under-secured nuclear warheads at the strategic rocket forces, NNSA has sought not to increase an overall budget for Russian MPCEA. The pace of the program is now primarily governed by Russia's ability to absorb assistance and by access arrangement, now that we have our funding.

We are consolidating nuclear materials into Russia by reducing the number of locations where the material was stored and thereby reducing its vulnerability to theft and sabotage. By the end of 2003, we will have removed all weapons usable materials from 23 build-

ings, reducing the total number of buildings where there is such material from 75 to 52. Over time this number will decrease more.

The NNSA will help to end the production of Russian nuclear material that could be used for nuclear weapons. Just a few weeks ago, Secretary Abraham and Minister Rumyantsev signed a key agreement that paved the way for the NNSA to work with Russia to shut down the three plutonium reactors that are still producing weapons-usable plutonium. These reactors, located at Seversk and Zheleznogorsk will be replaced with fossil fuel energy plants to meet energy needs of the local Russian communities.

Additionally, our export control and second line of defense programs are minimizing the risk of illicit movement of radiological materials and WMD-related dual use commodities across international borders. Under a new initiative called Megaports, we will improve our ability to detect and stop illicit traffic—transfer of such materials in major transfer hubs around the world.

Additionally, Mr. Chairman, a program that you started many years ago continues to be more and more effective every day. And that is our program to prevent the adverse migration of WMD scientific expertise from Russia. This program funnels former weapons scientists, their expertise into some commercially viable area and peaceful business ventures, and shrinks the complex from moving fences, from closing buildings, and for other alternate forms of employment.

We have been continually improving our ability to detect proliferation of timely potential targets through our robust R&D detection program. Research and development of proliferation detection provides the United States timely detection of potential threats. Our R&D efforts are key to identifying threats at critical thoroughfares, detecting clandestine perverse proliferation activities and verifying treaty adherence.

In summary, we in the NNSA are addressing the threat of proliferation of weapons of mass destruction in all dimensions. I am proud of the work we do and more proud of the men and women that spend weeks and months away from their family and the comforts of their home and work this tireless mission as fast as they can.

Mr. Chairman and Senator Reid, also, I want to thank you for the years of support for these programs. With your help and your continued help, we are making this country a safer place. Thank you, sir.

Senator DOMENICI. Thank you very much. I am going to submit a number of questions for you all to answer in perhaps 2 weeks, an adequate time.

I just want to say how thrilled I am to listen to the testimony, to hear about the progress being made in some areas that just a few years ago I never thought we would ever be involved in. And to hear the progress in MOX and that the Russians are now going along with it, we are both going to be doing the same thing with reference to that program, is just incredible. I never thought we would be there. There is a substantial amount in the budget to proceed with dispatch in that regard.

And, Mr. Ambassador, I note that much discussion today about NNSA and I just want to continue to urge that you move ahead

wherever you can to make the transition total. And you are—you are moving as fast as you can toward making the NNSA the semi-autonomous agency contemplated by the statute, and Senator Reid complimented you today and complimented it today. I am pleased to hear that. And you know of my insistence that once we have that statute drawn, that you proceed to live with it and move in that direction as rapidly as you can. I note the testimony here today by NNSA on many fronts is very good, and I am very proud of it.

A couple of observations. I wanted to say, Admiral, believe it or not, in another committee here in the Senate, the Authorizing Committee for Energy and Natural Resources, just today we approved as part of a new energy—comprehensive energy bill, the creation of a testbed for the United States to begin the development of a brand new nuclear reactor for civilian use, a model, with many new characteristics which will make even the latest of our light water reactors appear to be an ancient, ancient mariner. And that will have a 10-year program development which, hopefully, agencies as far as yours will participate in helping them move ahead rapidly. It is not intended to be a production reactor. It is intended to be a model of the kind that could be used by America or the world as the next generation of energy producers that would have many things that the current reactors do not have; passivity in terms of the physics of the instrument; many things that worry people, it is as safe as could be even today, even to make them better. That is going to be approved from what I can tell by the Congress as a new activity.

That is pretty visionary and it is long overdue, but in the environment that you and I lived in the last 15 years, it is something we probably would never have expected to happen.

Admiral BOWMAN. Yes, sir.

Senator DOMENICI. In terms of the war we are in right now and the aftermath of it, I can just surmise, not knowing anything specifically, but I would think our President would be very excited about moving ahead rapidly in some of the areas that you were describing to us here today. It is obvious to me that he is going to be interested in taking an international lead in getting weapons of mass destruction more under control in the world. And I am sure that as he asks about that, he will find that within the Department of Energy many of the things that he is going to want to be doing, the groundwork is there for him to take the leadership in the world. I am very, very pleased about that.

Dr. Beckner, I appreciate your testimony about NIF. I only hope you are right. It has been so wrong early on that I am almost tempted to call a separate hearing on NIF just to make sure that I get it straight and that they get it straight. But I did note your testimony and I will reread it.

In summary, it is on schedule and as an expert and supervisor you were saying it is probably going to do what it was intended to do, is that correct?

Dr. BECKNER. That is correct.

Senator DOMENICI. It is not just going to have these rays; they are going to do what they are supposed to do?

Dr. BECKNER. Yes, sir.

Senator DOMENICI. They are going to be hot enough when we are finished to do it?

Dr. BECKNER. There is every reason to believe so at this time.

Senator DOMENICI. As an aside, I was just going to ask: What do either of you think about the Z machine at Sandia? I assume we have another reading out of it. I imagine it is another rather incredible instrumentality out there.

Dr. BECKNER. It continues to perform very well.

Senator DOMENICI. And what will it be used for?

Dr. BECKNER. Well, among other things, we are looking at whether we may be able to do some plutonium hydrodynamics experiments with it now. It remains to be seen if that will be possible, but that is one of the new possibilities. So we are encouraged by that.

Senator DOMENICI. It certainly is an example of an achievement of high significance, so I assume it will be used for something great.

Dr. BECKNER. Certainly.

Senator DOMENICI. Is that a fair assessment?

Dr. BECKNER. Of course. Yes, sir.

Senator DOMENICI. Just because NIF is coming along does not mean we should throw it away. The reverse might have been true had we known about it.

I cannot think of anything else, other than that I will submit questions. Did you want to make any other observations, Mr. Ambassador, having heard the testimony or heard my ad-libbing up here, blithering so to speak?

Ambassador BROOKS. No, sir. Except to say, again, how much all of my colleagues and I appreciate both the committee's support and your strong personal support for these programs over the years.

Senator DOMENICI. I think we are making some headway with the OMB. It is a good-looking budget for a change. We do need a little bit more money in some areas.

We are—incidentally, Mr. Baker, on the issue of the Megaports and the machines, we had asked for an extra \$150 million for that program, knowing that we are ready to go and that there is some in the budget but not enough. It is still there waiting to be decided as one of the issues. If that happens, then we will not have to squeeze the budget so much. We will have received that money in a supplemental for some of the activity you are referring to.

Mr. BAKER. Thank you very much, sir.

ADDITIONAL COMMITTEE QUESTIONS

Senator DOMENICI. We are asking for more than is in the budget in our supplemental request.

[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 PETE V. DOMENICI

SAFEGUARDS AND SECURITY FUNDING

Question. The NNSA has a unique and challenging security environment because of the special nature of our mission and the many tons of material and weapons under our control. Security costs throughout the Department have been increasing

for years, and particularly in the aftermath of September 11. And now that our country is at war with Iraq, the security condition has been raised to the higher "orange level" security condition. As a result of this, Senator Reid and I, with great help from Senator Stevens, last week led the fight here in the Senate to add significant sums to the fiscal year 2003 supplemental to cover projected heightened security costs that the Department did not budget for. What threat level or security condition did you assume in developing the fiscal year 2004 budget request?

Answer. The Department and the NNSA implement and maintain our Security Condition based upon the Homeland Security Advisory System developed by the Department of Homeland Security. For instance, our Security Condition 3 (SECON 3), which corresponds with Homeland Security "Number 3 Elevated Condition (Yellow)," was anticipated for routine day-to-day security operations during fiscal year 2004 and was used for budget development.

Question. Will it be sufficient if the Department remains at Security Condition 3 for all of fiscal year 2004?

Answer. Yes, that was the minimum baseline because of the present world-wide tension.

Question. Are there investments we could make today that would dramatically reduce operational security costs over the next few years? If so, please provide specifics for the record.

Answer. Yes, we believe that there are ways in which we can increase the efficiency of security operations, and we are working on them. For instance, we are working with other agencies striving to identify advanced technologies to maintain or improve security at reduced costs. Additionally, we will continue to review our physical and cyber protection measures by assessing vulnerabilities and protection strategies, and identifying common cost effective solutions for all NNSA sites. We are also working with the Department of Energy, Office of Security, to expedite security clearances for individuals who, when cleared, will reduce our guard force overtime costs. In addition, our sites continue to evaluate changes in their operations, such as consolidation of nuclear material and changes to security perimeters that can provide increased detection and assessment capabilities.

OVERALL BUDGET FOR STOCKPILE STEWARDSHIP

Question. Could you use additional resources in these areas if they were provided?

Answer. The Stockpile Stewardship Program (SSP) is planned and budgeted for by the NNSA Planning, Programming, Budgeting, and Evaluation/Execution (PPBE) system, which establishes a formal, resource-constrained baseline for the SSP. Within the 5-year planning horizon of the Future-Years Nuclear Security Plan, workload has been prioritized to fit this resource-constrained baseline.

Question. What are some of the highest priority tasks that you will not be able to achieve within the requested budget?

Answer. Because of the way in which the NNSA budget is formulated, particularly the programming part of the PPBE system, SSP's highest-priority needs are addressed in the fiscal year 2004 budget request.

TRITIUM

Question. The NNSA is preparing to spend over \$500 million on a Tritium Extraction Facility over the next few years in South Carolina. The project is not going particularly well and last year its cost was re-estimated to increase 25 percent. What is the status of the Tritium Extraction Facility project?

Answer. A new baseline for the cost and schedule of the Tritium Extraction Facility construction project (98-D-125) was approved by the Deputy Secretary on February 24, 2003, following independent management reviews. The total project cost is \$506 million and the facility will be operational by July 2007. When measured against the new baseline, to date, the project is on schedule and spending is within the planned profile.

Question. Given a possible change in tritium requirements as a result of the Moscow Treaty and other arms reductions, what is the date that we must resume tritium production? (Note: We don't need tritium until well beyond 2012 now.)

Answer. Taking into account the Moscow Treaty, the NNSA plans to initiate tritium production in October 2003 by irradiating several hundred tritium-producing rods in the Tennessee Valley Authority Watts Bar reactor until March 2005. Those rods will then be stored until the Tritium Extraction Facility is ready to begin extraction operations in fiscal year 2007. The NNSA will continue to use the Watts Bar reactor to irradiate rods and to operate the Tritium Extraction Facility. There are no current plans to use either of the Sequoyah reactors in the foreseeable future.

This low-tempo operating approach has advantages over a scenario that would delay the start of tritium production. First, this approach yields the earliest demonstration that tritium capabilities have been restored, which, in turn, enhances the confidence of NNSA and the Department of Defense, thus reducing the need for a 5-year tritium reserve. Reducing or eliminating the reserve would be a significant factor in reducing tritium production requirements. Second, the continuing low-tempo plan is the best way to ensure that tritium-production experience is gained by maintaining the current government and commercial capability base, thus eliminating the need for costly reestablishment efforts in the future. This approach has been briefed to the Nuclear Weapons Council.

We need tritium well before 2012. The lead time to produce tritium to meet currently projected requirements is 3 to 5 years. Under NNSA's current plan, the rate of tritium production will increase by fiscal year 2008 in order to ensure that minimum projected stockpile requirements are satisfied.

PIT PRODUCTION

Question. Ambassador Brooks or Dr. Beckner, we have had many tough conversations about the pit program over the years, and I have had to work hard to add tens of millions of dollars over the last several years to get it on track. As you know, I have always felt that our ability to demonstrate our ability to rebuild this very important weapons component was a key test of the stockpile stewardship program. I understand we have, or will soon achieve an important milestone of progress. Can you give the subcommittee an update on where we are on pit production?

Answer. The Department of Energy/NNSA recognizes that manufacture and certification of a W88 pit is a pivotal element of the Stockpile Stewardship Program. As such, the NNSA has worked with Los Alamos National Laboratory (LANL) to projectize the pit manufacturing and certification campaign to ensure a disciplined process. The result of this effort is that Los Alamos has completed the manufacture of the first certifiable W88 replacement warhead pit in April 2003. This is the first step to establish a capability to manufacture 10 pits per year at Los Alamos in fiscal year 2007. Initially, Los Alamos will only manufacture W88 pits and processes to manufacture other pits will be developed at both Los Alamos and Lawrence Livermore National Laboratory in fiscal year 2009.

Question. When do you expect you will be able to certify the first pit? (Note: Los Alamos produced its first "certifiable pit" this week. The internal milestone was to have it done by April 30.)

Answer. Los Alamos National Laboratory (LANL) is currently scheduled to certify that W88 pits manufactured at LANL will meet W88 warhead requirements in fiscal year 2007. This success-oriented fiscal year 2007 schedule requires that non-nuclear experiments and analysis remain on track. Because the W88 pit is scheduled to be certified without a nuclear test, a new level of precision in pit manufacturing and certification must be established. This precision is essential to ensure high confidence in stockpiled W88 warheads that would use a Los Alamos manufactured pit.

SUPERCOMPUTING

Question. Ambassador Brooks or Dr. Beckner, as you are well aware, this subcommittee has raised a number of questions about the direction of the ASCI supercomputing program within NNSA. A particular point of concern is the way in which the platform acquisition strategy has been in a state of constant change over the last several years. The original ASCI acquisition schedule (circa 1995) proposed the acquisition of the following platforms at a projected total program cost of \$1.7 billion from 1996 through 2001:

- 1 T—1997;
- 3 T—1998;
- 10 T—2000;
- 30 T—2001;
- 100 T—2003.

Actual costs during that period were approximately \$2.9 billion. Furthermore, the platform acquisition schedule continues to change. As of today, NNSA has acquired or is planning to acquire the following:

- 3 T—Red (SNL);
- 3 T—Blue Mountain (LANL);
- 3 T—Blue Pacific (LLNL);
- 12 T—White (LLNL);
- 20 T—Q (LANL);
- 40 T—Red Storm (Sandia);
- 100 T—Blue Jean (LLNL).

Is the current ASCI approach the most cost-effective and efficient manner of achieving the desired capability and capacity?

Answer. We believe that the current approach has provided the Stockpile Stewardship program with effective and efficient computing cycles. High-end computing solutions emerging over the past year, principally the advent of low-cost, high-performance Linux clusters, are providing us opportunities to obtain even more cost-effective machines for smaller jobs.

All of the ASCI platforms have been acquired through competitive procurements, and in every case the machines have been brought in for the amount we have budgeted. We have met all of our planned schedules for the deployment of these computer platforms, except for the Q machine at Los Alamos, which was downsized due to Congressional budget reductions. The increase in the ASCI budget in the 2001 timeframe was not caused by a change in our platform acquisition strategy. Instead, increased program costs were caused by the merger of original ASCI with the old Stockpile Computing program and by the inclusion of several new program elements, including code verification and validation, distance computing, visualization, and University Alliances.

Question. What are the mission requirements driving the ASCI program?

Answer. The ASCI program, together with a vigorous experimental program, is an integral part of the Stockpile Stewardship program. ASCI provides the simulation capability, both software and hardware, to enable decision-making to support the existing and future nuclear weapons stockpile. Activities supported include annual assessment for all current stockpile systems, resolution of significant findings (SFIs), peer review and independent assessments, design and analysis of weapons-related experiments and requirements for facilities, resolution of technical issues affecting the production complex, nuclear test readiness, the ability to respond rapidly to new military or design requirements, and the development and validation of advanced physics models and codes for more fundamental understanding of weapons physics to reduce uncertainty in system margins and respond effectively to future issues or significant findings that may arise.

Question. How much capacity is needed and when is it needed over the next 10 years?

Answer. Our current acquisition strategy reflects the capacity needs given to us by our weapons designers. However, the early success of our code projects has increased demand for computer cycles beyond our initial projections. We are in the process of reevaluating our need for these cycles and extending our strategy through the end of the decade.

Question. What is the maximum capability required in the top ASCI platform, and when, over the next 10 years?

Answer. Since the inception of the ASCI program, the 2004 objective has been to produce a supercomputer operating environment capable of performing high-fidelity, three-dimensional weapons calculations at a resolution sufficient for confident prediction of weapon behavior. In 1995, this appeared to be an ambitious and risky undertaking. ASCI progress to date shows that we will be able to perform such calculations at the rate of about one per month on a 100 Tera OPS machine. As the nuclear weapons stockpile continues to age, the challenges will grow ever more complex demanding greater computing capabilities and faster turnaround times. We estimate that a 1-2 Peta OPS (quadrillion operations per second) system will be required. We believe that machines of this size will be technically feasible and affordable near the end of the decade based on the continuing pace of technology advances.

Question. Was the NNSA wise to abandon custom-designed chips and vector architecture for much cheaper, commodity chip-based, massively parallel systems?

Answer. The designers and engineers at the weapons laboratories are using the ASCI machines to solve weapons related problems that only a few years ago would have been impossible to solve. We did not make a decision to abandon custom-designed chips and vector architectures. The only bids we received on our early procurements were for massively parallel machines based on commodity microprocessors. During this period, the single U.S. vendor of vector architectures was purchased by another company, and their vector machines were not available. Only within the past month or so has a U.S. vendor been capable of delivering a vector machine. We hope to see this architecture bid competitively in our future procurements, and we are eager to see whether there are applications for which this technology provides a cost-effective solution.

Question. What level of customization is needed for the various government interests in supercomputing (e.g. weapons design, molecule modeling and simulation, cryptanalysis, bioinformatics, climate modeling)?

Answer. We believe that computer architecture diversity is healthy for the United States scientific community and the Nation. Different scientific applications are un-

likely to perform with high efficiency on a single architecture. Through our Advanced Architecture and Pathforward programs, we are currently supporting development of custom architectures that we believe will yield effective performance for weapons simulations and a large number of related scientific applications for the Department of Defense. We do not have enough experience with other applications, including cryptanalysis, bioinformatics, and climate modeling, to be able to predict what architectures are best suited to those problems.

Question. How effective are the current or planned ASCI platforms in addressing the requirements of the program?

Answer. Our platforms are performing well, albeit they are oversubscribed. They are being used to address relevant stockpile issues in closing Significant Finding Investigations, certifying weapons components, and supporting Stockpile Life Extensions and peer reviews.

Question. Are there alternative architectures, interconnect technologies, systems software and tools, or other approaches that will result in improved performance for future ASCI platforms?

Answer. The answer, as with all technology dependent programs, is yes. We have a long history of exploring, identifying and funding technologies that help improve the performance of future platforms. When better technologies become available, we would like to retain enough flexibility in our procurement strategy to be able to take advantage of them.

Question. If so, can industry supply the required alternative architecture and software, i.e. is industry properly incentivized? Or, must government lead the development of alternatives?

Answer. The computing industry is driven by market forces of which high end computing represents a very small share. Nevertheless, our investments have an impact out of proportion to our market share. We have been extremely successful with our Pathforward program, which has benefited the broader high-end computing community and is acknowledged as a successful approach to incentivizing industry. Although the funding for this program element is not as robust as in past years, ASCI continues to make investments in Pathforward with industry partners.

Question. As it relates to the ASCI mission requirements, what is the cost/benefit of investing more heavily in capacity now, and deferring acquisition of capability machines, thereby taking advantage of the falling price/teraflop?

Answer. Our procurement strategy has provided cost-effective supercomputers to our weapons designers and code teams. We are investing heavily in the development of 3-D, high-fidelity physics applications, which are addressing urgent stockpile issues. Effective use of these applications by weapons designers will be impossible without our largest platforms, and delays will severely limit our ability to address these issues promptly.

MODERN PIT FACILITY

Question. Ambassador Brooks or Dr. Beckner, the NNSA is planning on building a modern pit production facility that would come on line in 2019. Dr. John Foster has suggested that the NNSA should have a significantly more flexible and accelerated approach that would allow you to have a modular facility on line as early as 2010. Will you update us on this project?

Answer. The Department has not made a final decision to proceed with a Modern Pit Facility to ensure long-term pit production to meet the needs of the United States nuclear stockpile. However, a Critical Decision-0 (CD-0) on mission need relative to a Modern Pit Facility (MPF) was made in May 2002. This decision enabled the start of the National Environmental Policy Act (NEPA) process, including preparation of an Environmental Impact Statement (EIS) and conceptual design of a MPF in fiscal year 2003. A preferred site will be announced in that document. The Department plans to issue a Record of Decision (ROD) in 2004. The ROD will be based on the MPF Environmental Impact Statement and other factors such as cost and technical considerations.

Question. How much more would it cost if you used a flexible/modular approach suggested by Dr. Foster?

Answer. We are currently utilizing a modular approach and are developing a range of costs relative to that approach. If it is determined that it is necessary to accelerate the project, the costs will likely rise in the early years of the project.

Question. Are you still planning on making a siting decision as early as December of this year?

Answer. We are committed to a Record of Decision milestone of April 2004. However, our goal is to arrive at the Record of Decision earlier.

FACILITIES AND INFRASTRUCTURE INITIATIVE

Question. Ambassador Brooks or Dr. Beckner, 2 years ago I was very pleased to work with Chairman Reid in getting the Facilities and Infrastructure rebuilding effort underway with \$200 million. For fiscal year 2004, you have requested a total of \$265 million. The state of the complex had too long been a neglected issue. But last year, this committee's focus on infrastructure was reaffirmed in the Nuclear Posture Review—which concluded that we must have a flexible and responsive nuclear weapons enterprise in order to meet the challenges of an uncertain and unpredictable threat environment. However, I am still concerned about two points. Past evidence put before this committee indicated we needed to be spending an additional \$300 to \$500 million per year for the next 15 or so years to refurbish the weapons complex. Why have you requested significantly less?

Answer. The fiscal year 2004 budget request of \$265 million is substantial and will support some 150 Recapitalization, Facility Planning, and Facility Disposition projects that will provide capital renewal and sustainability, with an emphasis on deferred maintenance reduction. Facility Disposition projects will reduce the footprint of the complex by approximately 325,000 gross square feet. From the turn of the century, the fragile condition of the nuclear weapons complex has been described in a series of internal and external assessments. The Foster Panel, Chiles Report, the DOE Inspector General, the Defense Department, and the NNSA comprise the reports in the series. Independently, each concluded that the complex is old, with half of the facilities 40 years or older; and, to restore the complex to an acceptable condition, substantial additional annual funding was needed, on the order of some \$300 to \$500 million for about a decade. In addition, all agreed that although money is important and needed, strong structured management, absent in the past, is as important.

Two components dominate the NNSA's corporate management approach—securing the appropriate level of funding, and rigorous management. Current funding levels meet NNSA's planned facility requirements and are approved by the OMB, and most importantly, the Congress. In addition, improved management of the infrastructure is developed and implemented through integrated management tools that include the Ten-Year Comprehensive Site Plans (TYCSP), Project Execution Plans, a well-structured Planning, Programming, Budget, and Evaluation process, upon which is determined the longer view of program needs described in NNSA's Future-Years Nuclear Security Program (FYNSP). The request for resources shown in the FYNSP seeks annual incremental increases of about \$50 million building to \$500 million in fiscal year 2008. The NNSA believes that growth of the Facilities and Infrastructure Recapitalization Program is building in accordance with the changing culture regarding improved facilities management and the ability to successfully execute the funds provided. The program has 2 years of full funding experience, is proceeding according to plan, and has a number of impressive successes to its credit.

Question. Secondly, if we are ever going to effectively reduce the maintenance backlog, we must stop contributing to the backlog. My review of the budget requests for regular maintenance of facilities is still below what is needed. So while we are trying to reduce the maintenance backlog through the F&I program, we are adding to it by under funding regular maintenance. Do you agree with my contention? Please respond.

Answer. The Readiness in Technical Base and Facilities (RTBF) Operation of Facilities budget identified in the Future Year Nuclear Security Plan (FYNSP) in conjunction with the Facility Infrastructure Recapitalization Program (FIRP) budget is adequate to maintain the complex in a safe, secure, and compliant status. The President's fiscal year 2004 request for RTBF proposes an overall increase of 7.4 percent and a 4.2 percent increase for Operations of Facilities. The RTBF program is committed to ensuring its facilities have responsible maintenance programs and adequate funding to support the mission. NNSA has established a goal of stabilizing (i.e., zero growth) the program facility deferred maintenance backlog by fiscal year 2005 and to reduce it to industry standard levels (or better) by fiscal year 2009. RTBF will fund the complex at an adequate level; this will enable (FIRP) to execute its deferred maintenance reduction responsibilities and help recapitalize the complex.

Historically, the maintenance backlog has not been measured consistently through the application of consistent direction across the complex. In fiscal year 2003, NNSA has taken action to assure consistent application of standardized definitions to create a "corporate" business process and allow the establishment of a baseline. Until this was done, it was not possible to understand the magnitude of what is needed. In fiscal year 2004 and beyond, NNSA will track funding of maintenance and measure the maintenance backlog to assure that actual progress is being made. With

these tools and measures in place, NNSA can and will ensure that maintenance is not under funded.

Question. Will you update the committee on the Facilities and Infrastructure Initiative?

Answer. The effort to restore the nuclear weapons complex began as the Facilities and Infrastructure (F&I) Initiative. Upon congressional authorization, the F&I Initiative became the Facilities and Infrastructure Recapitalization Program. The physical infrastructure of the nuclear weapons program is managed by NNSA within a corporate facilities management framework, which is designed to stabilize the deferred maintenance backlog, improve the complex through facility upgrade and new construction, while at the same time reducing the footprint of our facilities through elimination of excess facilities, yielding an operationally more economical, revitalized enterprise. The general NNSA approach is that daily operations and maintenance to ensure the availability of facilities and infrastructure essential to the Stockpile Stewardship mission are principally funded within the Readiness in the Technical Base and Facilities (RTBF) program. Capital renewal and sustainability are the focus of the Facilities and Infrastructure Recapitalization Program. Capital acquisition (line items) is managed across several program areas, in accordance with an Integrated Construction Program Plan.

The mission of the Facilities and Infrastructure Recapitalization Program (FIRP) is to restore, rebuild, and revitalize the physical infrastructure of the nuclear weapons complex. The program applies new direct appropriations to address an integrated, prioritized series of repair and infrastructure projects that will significantly increase the operational efficiency and effectiveness of the NNSA weapons complex sites. The FIRP mission is an integral component of the NNSA Strategic Goal to provide state-of-the-art facilities and infrastructure supported by advanced scientific and technical tools to meet operational and mission requirements. The Nuclear Posture Review discussed the need to revitalize the nuclear weapons complex as the third leg of the New Triad of our national nuclear strategy. The Facilities and Infrastructure Recapitalization Program was established specifically to address these concerns and assure that the NNSA continues to meet its major performance objectives of ensuring the vitality and readiness of the national security enterprise.

Base maintenance and infrastructure efforts at NNSA sites are primarily funded within Readiness in Technical Base and Facilities (RTBF)/Operations of Facilities and through site overhead allocations. These efforts focus on ensuring that facilities necessary for immediate programmatic workload activities are maintained sufficiently to support that workload. FIRP addresses the additional sustained investments above this base for deferred maintenance and the infrastructure that are needed to extend facility lifetimes, reduce the risk of unplanned system and equipment failures, increase operational efficiency and effectiveness, and allow for recapitalization of aging facility systems. FIRP also manages utility line items. This capital renewal and sustainability focus is the core mission of the Facilities and Infrastructure Recapitalization Program.

A major metric for the recovery of the facilities and infrastructure of the nuclear weapons complex is the reduction of the NNSA's deferred maintenance, currently in excess of a billion dollars. The NNSA has committed to stabilize its deferred maintenance by the end of fiscal year 2005. Additionally, by the end of fiscal year 2009 the NNSA has committed to reduce deferred maintenance to within industry standards and return facility conditions for mission essential facilities and infrastructure to an assessment level of good to excellent (deferred maintenance replacement plant value less than 5 percent). FIRP will provide the major funding, and management effort, to achieve this reduction.

A separate but vital sub-program is Facility Disposition. This congressionally directed effort requires that at least \$50 million of the FIRP funding be used each year to dispose of excess facilities that will provide the greatest impact on reducing long-term costs and risk. In the near term, this has meant focusing on footprint reduction. The facility disposition effort not only frees high value real estate to enable the modernization of the complex, but also provides NNSA the foundation to manage the entire range of its excess facilities portfolio. The NNSA is committed to reduce the nuclear weapons complex footprint by 3 million gross square feet of excess space by 2009. FIRP will provide the major funding and management effort to achieve this reduction.

Embedded within the FIRP program management is the NNSA commitment to congress to demonstrate credible deliverables, efficient management, and fiscal accountability. The program's funding significantly ramps-up over the next several years until it reaches the level determined by the NNSA, and external reviews, required to restore the nuclear weapons complex and ultimately return the condition of the complex to industry standards by fiscal year 2009.

The NNSA is committed to responsible and accountable facility management processes, including budgetary ones, so that the condition of NNSA facilities and infrastructure is maintained equal to or better than industry standards. This integrated corporate long-term goal, encompassing improved facilities management and significant additional funding, will ensure the recovery and subsequent sustainment of the nuclear weapons complex.

Question. What have you accomplished, and where do we need to go in the future?

Answer. The backdrop for the restoration of the weapons complex is set in the following remarks/commitments made by General Gordon to the Congress:

- Infrastructure is aging, in some cases failing. (HASC Oversight Panel—11 July 2000)
- Cannot let our infrastructure decay . . . it's potentially dangerous, it sends wrong signal . . . (HASC Oversight Panel—11 July 2000)
- Are we under invested in facilities? . . . today I am positive of the answer: we are under invested by a lot. (Senate Water and Energy Subcommittee, Senate Appropriations Committee—13 March 2001)
- The facilities that underpin the American nuclear deterrent require immediate attention, on the order of \$500 million a year for at least the next 10 years. (Senate Water and Energy Subcommittee, Senate Appropriations Committee—13 March 2001).

General Gordon's early compelling argument, and successive semiannual status reports to the authorization and appropriations committees, prompted Congress to authorize \$8.7 million in fiscal year 2001, \$197 million in fiscal year 2002, and \$243 million in fiscal year 2003 for the Facilities and Infrastructure Recapitalization Program to begin the restoration of the nuclear enterprise. With 2 years of full funding, the significant achievements of the Facility and Infrastructure Recapitalization Program (FIRP) are as follows:

- Established advocacy for facilities—the third leg of the New Triad of our national nuclear strategy
- Defined corporate facilities management, as an embedded concept in NNSA strategy, planning, facility restoration, recapitalization, and revitalization of the nuclear enterprise
- Introduced commonality and standardization regarding facility management and accountability
- Championed a corporate facility management data base (FIMS)
- Introduced a graded approach to life-cycle facility management
- Established an approach to facility budgeting
- Established a “first time ever” complex-wide prioritized project listing
- Developed criteria for priority approach to sifting requirements on a “worst first” basis
- Embedded comprehensive long-term planning (Ten-Year Comprehensive Site Plan (TYCSP))
- Established formal Federal review process
- Limned facility stewardship:
 - Established facility complex baseline conditions
 - Built performance measures to track conditions
 - Developed a prioritization and integration process for project selection
 - Established desired steady state goal for complex-wide facility condition
- Established fiscal visibility and accountability:
 - Established financial visibility—both direct and indirect
 - Established financial benchmarks
 - Developed and promulgated Federal facility budget guidance
 - Instituted institutional general plant projects for laboratories
 - Established the recapitalization program controlled by work authorizations and baseline change control
- Instituted procedural improvements:
 - Periodic and independent reviews of program
 - Performance measures/performance evaluation management plan/laboratory appraisal plan
 - Developing return on investment strategies/best practices such as the multi-site—Roofing Repair Pilot Program
 - Established strategic professional linkages—National Research Council's Federal Facilities Council, civilian industry's APPA, and the Energy Facilities Contract Group (EFCOG) as well as within the DOE
- Conceived the FIRP in three parts—recapitalization, facility planning, and facility disposition
- Established FIRP performance indicators for reduction of the backlog of deferred maintenance and reduction of the complex's facility footprint

- Established annual targets for achieving performance goals
 - Managing FIRP with fiscal responsibility within FYNSP constraints
 - Defined achievable targets for program execution in fiscal year 2002 and fiscal year 2003—\$440 million
 - Managing projects in accordance with a graded approach to meeting DOE Order 413.3
 - Faithfully adhere to the “what and how” approach to headquarter and field responsibilities
 - FIRP is executed through Federal field validation for baseline credibility, fiscal and legal accountability
 - FIRP requires identification of site-specific Stockpile Stewardship Program supporting projects
 - FIRP is managing to the parameters of a construction year—obviously different than the fiscal year cycle
 - Receiving wide-spread recognition for performance of Federal and M&O staffs—congressional report language
 - Congress continues to fund at growth levels established in Calendar Year 2000.
- With regard to the future, the formula remains, leadership support within the NNSA, measurable results; Departmental support, OMB support, and most importantly, continued support of the Congress. Corporate facilities management is embedded at each of the eight sites, performance measures on a par with industry standards management of the backlog of deferred maintenance projects is occurring, the footprint is shrinking ahead of plan, and the NNSA is performing within its means. NNSA is positioned to be able to adequately maintain the vital “Third Leg of the New Triad” of the Nation’s nuclear posture.

NONPROLIFERATION BUDGET

Question. To Ambassador Brooks or Mr. Baker: I am pleased to see the broad and specific goals of your nonproliferation program continue to receive strong support from the Administration. Overall, I believe you have a pretty good budget for fiscal year 2004. How would you characterize your progress in the Nuclear Nonproliferation programs?

Answer. We are making good progress toward achieving our goals and objectives. We have had many successes in our programs, have accelerated our efforts in protecting nuclear materials, and are now aggressively ramping up several new cooperative programs and initiatives, as follows:

- On March 12, we signed agreements with the Russian Federation to initiate our work on the Elimination of Weapons-Grade Plutonium Production in Russia. This will allow us to begin work with our Russian partners to close down the last three operating plutonium production reactors in Russia.
- In a major development in reciprocal U.S. and Russian plutonium disposition efforts, the Russians have recently agreed to the U.S. design for their mixed oxide (MOX) fuel fabrication facilities. Construction should begin next year.
- We have recently begun cooperative work with Russia’s Strategic Rocket Forces in order to improve the security of their nuclear warheads and we are providing security upgrades at two sites to which the Russian Ministry of Defense has permitted DOE access. We anticipate work on additional proposed sites in the future.
- We are working toward the goal of completing the materials protection, control and accounting (MPC&A) upgrades by 2008 at which point we will enter a sustainability phase and transition to Russian ownership of the programs.
- We have initiated a project to equip foreign seaports with radiological and nuclear detection systems to pre-screen containers destined for U.S. ports.
- In our efforts to engage Russian weapons scientists in commercial activities, our Russian Transition Initiative program has secured over \$90 million in private venture capital, in addition to industry matching funds that bring in \$3 for every \$2 invested by the U.S. Government.
- We are supporting U.S. Government participation in the G-8 Global Partnership that involves the United States committing \$10 billion of nonproliferation funds to be matched by \$10 billion from the international community over the next 10 years.

These are just some of the programs and projects we are working on.

Question. How many sites did you protect last year compared to previous years?

Answer. We expect to significantly increase the number of sites protected under more extensive or comprehensive MPC&A upgrades than in previous years. We will complete comprehensive upgrades at an additional 8 sites in fiscal year 2003 versus 4 sites in fiscal year 2002, raising the total number of sites protected with com-

prehensive upgrades to 48. In fiscal year 2004, we will complete comprehensive upgrades at an additional 7 sites raising the total number of fully protected sites to 55.

Question. What, if anything, is needed to ensure the success of this program?

Answer. We believe that the strategies we are pursuing within our panoply of programs fully supported by the President and reflecting the outcome of the recent review of nonproliferation programs by the National Security Council are significantly reducing the WMD proliferation threat to the United States. However, I would like to stress the importance of the full and continued congressional funding for the Department's programs. I am grateful for the cooperation from Congress and look forward to continuing that cooperation as we advance our shared national security objectives. It is also essential that we enjoy full and complete cooperation from our international partners, such as Russia, in breaking down bureaucratic barriers to program implementation and take further steps to accelerate our efforts there. I also believe that success in working with our G-8 partners to advance our Global Partnership objectives will be essential to future success.

NNSA's nonproliferation mission and responsibilities set forth in the National Nuclear Security Administration Act are broad enough to encompass our conduct of nuclear nonproliferation activities outside of Russia. However, we are seeking to clarify in the National Defense Authorization Act for fiscal year 2004 that NNSA has the requisite authority to conduct its International Nuclear Materials Protection and Control Program not only in the former Soviet Union but in other countries where the risks of proliferation of weapons of mass destruction, materials, and technology also threaten the security of the United States.

MATERIALS PROTECTION IN RUSSIA

Question. Ambassador Brooks or Mr. Baker, I had an opportunity to visit yesterday with Minister Alexander Rumyantsev, the Russian Minister of Atomic Energy. We talked about many of our nuclear nonproliferation programs of common interest. I reassured him of my strong support for the programs, but I also raised with him my concerns that we were still not making progress as fast as we should and are not getting the access necessary to ensure our tax dollars are being properly spent. But he raised another issue of concern—that the legal agreements that form the basis of our cooperative efforts would expire this summer, and that our governments were having trouble renegotiating the agreements. That is potentially an issue of great concern. Will you comment first on the access issue—are we getting what we need to provide security upgrades in Russian production facilities storing the greatest amounts of nuclear material?

Answer. Our efforts to secure materials in Russia are proceeding well. We have made significant progress with the Russian Ministry of Atomic Energy (MinAtom), especially at "civilian" facilities with less stringent access restrictions imposed by MinAtom. In fact, we are finishing work at the first large MinAtom fuel processing facility, the Luch facility, this spring. Luch was the site of the attempted theft of HEU by a facility insider several years ago. We expect to complete at least 2 additional large MinAtom facilities next year (Novosibirsk & IPPE in Obninsk). Consequently, this part of our program is in the process of downsizing as work is completed.

Work at sensitive MinAtom facilities continues, but the pace is set mostly by the time it takes to overcome access restrictions more than anything else. We are making progress at these sites—contracts for upgrades have and will continue to be signed at places like Tomsk, Krasnoyarsk-26, Mayak, and C-70 as the year progresses. We are achieving concrete results with the MOD as well. Last year we completed negotiations for upgrades at the majority of the remaining sites in the RF Navy believed to require comprehensive upgrades. This is another area of our program that will be scaling down in the next couple of years—assuming the RF Navy does not introduce additional sites where upgrades are justified. However, our work with the Strategic Rocket Forces (SRF) is just underway, and we should be seeing increased activity in this area over the next few years.

We will continue to focus our efforts on providing upgrades to sites containing materials of concern that we have access to in order to reduce the threat as quickly as possible, while we negotiate access to the remaining weapons sites.

In our Nuclear Cities Initiative program, we have had no problems with access since signing an access arrangements document last year. The Russian side does still have some difficulty figuring out how it will provide access to foreign companies that want to own land and property in Russia. That has made it a little more difficult than we would like getting Western businesses to invest unreservedly in Russia, but the regional and municipal authorities, and MinAtom itself, are working to

develop various proposals that will satisfy both the Western private sector and Russian security requirements.

Question. Also, what are you doing to ensure this important work is not stopped because of a failure to get proper legal agreements?

Answer. The bilateral agreements that govern our MPC&A activities do not expire until 2006. These include the U.S/Russian Cooperative Threat Reduction umbrella agreement and the 1999 Agreement. We will start the renegotiation process well in advance of this deadline. In the case of the NCI Government-to-Government Agreement, which is set to expire at the end of this September, we have received a letter from Minister Rumyantsev requesting extension of the Agreement for another 5-year term, without making any changes to the current text. However, the Administration is reviewing the liability protection in this agreement, which may impact our ability to extend it. We are working with the Russians and our interagency colleagues to identify ways to solve this problem.

MPC&A OUTSIDE OF THE FORMER SOVIET UNION

Question. Ambassador Brooks or Mr. Baker, historically the focus of our nonproliferation programs has been almost exclusively on the former Soviet Union. And Russia certainly remains the largest source of nuclear materials which could become potential threats to our security. But the events of the last 2 years have certainly shown us threats exist all over the globe. What nonproliferation problems and opportunities do you see outside the former Soviet Union?

Answer. While true that our programs focus on Russia, it's also true that for many years we have engaged in a variety of nonproliferation efforts around the world. Those nonproliferation efforts continue today and have in fact expanded since September 11th. As you correctly point out, there are several countries outside the former Soviet Union, for instance in South Asia, that raise important nonproliferation issues. In that context, there may be opportunities for mutually beneficial exchanges that could lead to enhancements in the security of nuclear weapons, weapons-usable nuclear material, radiological material, and the prevention of illicit nuclear/radiological material from crossing borders. In some key cases, we have not fully engaged these countries because they remain outside the Non-Proliferation Treaty and we are therefore constrained somewhat by law and policy with respect to how we can assist them.

Question. What do you need in terms of money or agreements in order to begin addressing those threats?

Answer. The recent fiscal year 2003 Supplemental Appropriations included \$15 million for nonproliferation work outside of the former Soviet Union. That should be sufficient to continue our longstanding engagement with these countries. However, if initial efforts in areas such as South Asia lead to large programs of direct assistance in these areas, additional resources would be required. We will be in a better position to identify the required funding level once the scope of such work has been more clearly defined and the U.S. Government has completed its evaluation of what types of security assistance are desirable and permissible.

NNSA's nonproliferation mission and responsibilities set forth in the National Nuclear Security Administration Act are broad enough to encompass our conduct of nuclear nonproliferation activities outside of the FSU. However, we are seeking to clarify by means of the fiscal year 2004 National Defense Authorization Act that NNSA has the requisite authority to conduct its International Nuclear Materials Protection and Control Program not only in the states that resulted from the former Soviet Union but in other countries where the risks of proliferation of weapons of mass destruction, materials, and technology threaten the security of the United States.

Beyond that, the legal requirements, like the funding requirements, will very much depend on the attributes of the country in question and the scope of work proposed. We will certainly keep you informed as these activities proceed.

Question. I remember that in Russia, early progress was accomplished on a scientist-to-scientist basis through the so-called "lab-to-lab" approach. Is the original "lab-to-lab" approach being revisited to encourage progress in some of the countries that may present threats?

Answer. Yes, in many countries we have found direct exchanges between technical experts to be a valuable tool of engagement. Specifically with respect to countries outside the former Soviet Union, we will use this approach in combination with other vehicles to engage on sensitive nonproliferation issues.

RUSSIAN PLUTONIUM DISPOSITION PROGRAM

Question. Ambassador Brooks or Mr. Baker, I am pleased to see us on the cusp of constructing facilities in the United States and Russia to finally carry out the dis-

position of up to 34 metric tons of plutonium in each of our two countries. However, I remain concerned about the schedule and our ability to begin construction in Russia in fiscal year 2004. I don't say that because you are not doing everything you can, I just say it because the job is very hard. Among the obstacles still out there are securing all of the \$1 billion in international financing for construction, getting the right legal agreements in place, and finding another \$1 billion to finance the operations of the MOX plant. How are we coming on those issues?

Answer. For the construction phase of the Russian plutonium disposition program, pledges thus far total \$800 million, leaving a \$200-million shortfall. We believe that the remainder of funding necessary for construction will be obtained shortly. As for the operations phase of the program, there are a number of non-government funding sources that could be used for this purpose, including receipts from the exports of Russian MOX fuel and displaced uranium fuel, cross-subsidies from other Russian programs and Russian domestic MOX fuel sales. In many cases, these are heavily dependent upon future developments in the Russian and international nuclear industries and markets, which are not predictable at the present time. Nonetheless, we believe that a combination of these revenue sources could be used to fund some or all of the operations phase of the disposition program.

In addition to obtaining funding, we have recently made significant progress in developing a multilateral structure that allows for bilateral U.S.-Russian program management. We are also working to adapt the detailed design of the U.S. facility for use in Russia and to reach agreement on licensing arrangements that will permit Russia to use Cogema MOX technology for its MOX facility. Once the key details of these efforts are decided, we can begin to set up the necessary legal implementing documents.

Question. What confidence do you have that we can stay on schedule?

Answer. We expect to begin construction of both the U.S. and Russian MOX facilities in fiscal year 2004. Russia's recent announcement to use the design of the U.S. MOX facility to dispose of 34 metric tons of its surplus weapons plutonium will greatly accelerate the Russian program. However, the requirement to maintain parallel progress between the two programs may cause the U.S. program to be delayed slightly in order to allow the Russian program to catch up.

RUSSIAN TRANSITION INITIATIVES

Question. Ambassador Brooks or Mr. Baker, on several occasions the Administration indicated its strong support for programs designed to employ scientists in the Former Soviet Union. The Initiatives for Proliferation Prevention (IPP) has enjoyed success, but the Nuclear Cities Initiative has had more difficulty in producing results, although it has had some. In the environment of a huge budget increase for nonproliferation, the budget request for these Russian Transition Initiatives remains flat at about \$40 million. Should I conclude from that request that you do not see as much opportunity in those programs as some of the others focused on materials?

Answer. No, we still see a great deal of opportunity and need in the work of these programs focused on the human component of our proliferation concerns, and believe that these scientist engagement programs have a great deal of importance for our national security. At the end of World War II, the U.S. Government was concerned about German missile and nuclear expertise falling into the wrong hands, and we made sure those German scientists did not trade their information on the open market. Similarly, today we must make sure that the enormous scientific and technical expertise left over from the Cold War in the former Soviet Union does not find its way to rogue states or terrorist groups. I believe that our requested budget levels are sufficient to respond to the risk of adverse migration of this scientific and technical expertise to terrorists or rogue states—especially considering that these programs are highly leveraged by private sector investment and matching contributions that meet or exceed U.S. Government funding. But having performed a relative risk assessment of adverse migration versus the magnitude of the threat posed by unsecured materials, I believe the Administration has made some reasonable decisions about the relative distribution of funding requests.

Question. Is the Administration not as concerned about "brain drain" issues as it was several years ago?

Answer. Since September 11th, the Administration is even more concerned about nuclear know-how falling into the wrong hands. In recognition of that threat, the President requested and received a supplemental of \$15 million in fiscal year 2002 from Congress for these programs. So "brain drain" from the former Soviet Union remains a strong concern. However, since the early and mid-1990's when some of these programs were begun, conditions have improved somewhat. The Russian econ-

omy has stabilized and we are not seeing the run-away inflation that stripped away life savings. The Russian Government is paying nuclear scientists more regularly. Also, the Russian economy is beginning to generate some private sector opportunities for these scientists. Our programs have adapted to these changes by focusing less on supplementing scientists' meager paychecks and more on seeking sustainable economic transformation and downsizing of the Russian weapons complex, taking advantage of market opportunities through technology commercialization.

ROLE OF NNSA LABS IN DEPARTMENT OF HOMELAND SECURITY

Question. Ambassador Brooks, approximately \$140 million in R&D activities at the labs has been transferred over to the Department of Homeland Security to manage. As you know, I wrote several provisions into the Act creating the Department of Homeland Security that will ensure our national labs continue to bring their expertise to bear on many problems facing us in the war on terrorism. Will you please comment on how the transition of those programs is going?

Answer. The transition is progressing well. Of the approximately \$150 million in functional transfers to the Department of Homeland Security (DHS), approximately \$85 million of these programmatic activities were from the NNSA, \$79 million from our Nonproliferation and Verification R&D program and \$6 million from the nuclear assessments program. NNSA also transferred Program Direction funding associated with these activities in the amount of \$3.7 million. Nonproliferation and Verification R&D program management is working closely with their DHS counterparts to assure a smooth transition of the R&D activities towards countering nuclear smuggling and preventing or countering the effects of biological or chemical terrorism. To facilitate this transition, DHS has asked NNSA to participate in execution of these programs through fiscal year 2003. In addition, particular activities in which we continue to have a strong role are the test bed for nuclear detection technology in cooperation with the New York/New Jersey Port Authority and the establishment of the BioWatch initiative in 30 cities across the country. We are working closely with DHS personnel as they assume management of these programs, so that the high quality work of the national laboratories continues to serve the national need, without any loss of capability or momentum.

Question. Do you foresee any problems?

Answer. No, but I do feel that it will be important for NNSA and DHS to work together to complement each others' missions. That is, NNSA will continue to work on development of technology for national security missions, some of which will have application to homeland security problems. NNSA's Nonproliferation and Verification R&D program will continue to focus on strategic R&D in support of WMD nonproliferation missions, while DHS focuses on the more immediate-operational needs of homeland security agencies, including the U.S. Customs Service, the Coast Guard, and the Transportation Security Administration. NNSA can complement the near-term development and application of, for example, radiation detection technology by DHS, with the strategic, "leap-ahead" research necessary to sustain national security capabilities, drawing on the strengths of the national laboratories and the NNSA responsibility for nuclear weapons and materials.

Question. Do you believe counter-terrorism R&D will continue to be a growing part of the labs missions?

Answer. Yes, the labs' research in nuclear, chemical, and biological science and technology will continue to be important to national security programs and provides the core competency to address counter-terrorism concerns. NNSA will continue to maintain a strong R&D program in nuclear technologies, which is of paramount importance to both the weapons and nonproliferation missions, and the NNSA Nonproliferation and Verification R&D program will continue research on methods to detect activities associated with proliferation of all types of weapons of mass destruction. However, with the transfer to the DHS of the R&D for the chem-bio domestic preparedness mission that department must undertake the support of the science and technology base in those disciplines. NNSA will no longer be funded to sustain the required capabilities in those areas.

NASA'S NUCLEAR SYSTEMS INITIATIVE

Question. Admiral Bowman, NASA is proceeding with its "nuclear systems initiative," and I know they remain interested in you managing all or parts of that program. This initiative will develop new radioisotope power systems for on-board electric power on future space platforms, and it will also conduct research and development on nuclear electric propulsion systems that would allow future space craft to speed throughout the outer reaches of the solar system. Of course, much of the his-

toric capability in nuclear space systems resides at other DOE labs outside of your program. What is your view of this effort and the role for Naval Reactors?

Answer. First, I should make clear that we are not lobbying for this work; our hands are already full with current and planned Naval Nuclear Propulsion Program work. We have no particular expertise in radioisotope power systems and have no interest in managing this aspect of the nuclear space initiative. However, NASA has indicated that they are interested in NR taking the lead for reactor development in the Nuclear Systems Initiative (NSI), including the Jupiter Icy Moons Orbiter (JIMO). My view of the overall effort is based on what I have learned from NASA, which has convinced me that fission reactor technology is a key that will unlock new capabilities in space science. If this effort is assigned to us by the Administration and funded by Congress, our role should be to manage this work consistent with our practices for naval reactor plants. If we are not in charge, I believe that our role should be limited to occasional peer review.

Question. Do you agree that the other NNSA labs with expertise in nuclear systems for space should play a strong role in this effort?

Answer. Yes, the NR program does not possess all the technical expertise and facilities needed to execute this task entirely within Naval Nuclear Propulsion program national laboratories. Consistent with our practice for other advanced development efforts, NR would seek to leverage existing expertise and facilities at NNSA labs, other DOE labs, and in Industry to accomplish this task most effectively and at the lowest cost to the taxpayer. However, this work would be managed and budgeted for through Naval Reactors Headquarters. We believe that strong centralized control is necessary for success in this area. Therefore, we would coordinate this effort through one or both of our existing single-customer laboratories, which would have the overall responsibility for integrating the reactor system and identifying the appropriate subcontractors (including DOE laboratories).

Question. What terms and conditions would you want in order to manage the whole program?

Answer. To be clear, NR has no interest in managing the entire NSI or JIMO efforts, both of which contain significant non-reactor work, in which Naval Reactors possesses no relevant expertise. If Congress and the Administration decided to assign this work to Naval Reactors, we would continue to do business the "NR way." This means that NR should have complete financial, technical, and contractual control over the parts of the NSI for which we are responsible. To make that control effective, we would request a separate line in the DOE budget for space reactor work. This would also help ensure that our space and Navy responsibilities do not interfere with each other. We would use our successful practices in naval reactor design by assigning one of our single-customer laboratories the lead for integrating the reactor system. Finally, this work would be conducted so that no sensitive or classified naval nuclear propulsion information was disclosed. These terms are important for us to preserve our total ownership approach to doing business. I would request a letter from high levels in the Administration to assign this mandate to Naval Reactors, codifying these terms and conditions.

NAVAL REACTOR LABS

Question. You have two outstanding engineering labs, the Bettis Atomic Power Lab and the Knolls Atomic Power Lab. Both of those labs went through contract competitions within the last 5 years. Did competing the contracts at your labs produce significant or notable improvements in performance?

Answer. Competing Naval Reactors' labs resulted in lower combined cost to the government to run those facilities. In the Request for Proposal we asked that the successful bidder make any transition transparent to the laboratory workforce. Cost savings were principally through the ability to reduce contribution to corporate overhead. This workforce continues to deliver the same consistently high-quality engineering support for our nuclear fleet that it has for over 50 years.

Question. Can you elaborate on the Naval Reactors tradition as to how you manage your labs? I ask that with full knowledge that the weapons labs are much different animals from yours, but I ask just as a point of contrast.

Answer. Naval Reactors' two national labs, Bettis Atomic Power Laboratory (Bettis), and Knolls Atomic Power Laboratory (KAPL), have made vital contributions to the Naval Reactors Program for more than 50 years. It is difficult to isolate the factors that have led to this success, but several do stand out. First, our labs have a very focused mission: they only do work for this program and their general managers report directly to me. Second, my field offices use an effective audit and appraisal program that allows me to keep a close watch on the performance of our labs. Third, Naval Reactors benefits from a focused multi-year planning process, re-

viewed semiannually, as well as an annual technical work review. Experts in naval nuclear propulsion perform these reviews. Finally, Naval Reactors maintains a simple, technically talented, enduring, lean headquarters structure that allows us to oversee our responsibilities effectively. My headquarters staff retains clear, total responsibility for all aspects of naval nuclear propulsion, including management of the laboratories. Laboratory general managers report directly to me. By statute (Executive Order 12344 codified in Public Laws 106-65 and 98-525) the Director of Naval Reactors is a four-star admiral with an 8-year tenure, as well as a deputy administrator in the NNSA/DOE. This is important for two reasons: it gives the director the stature to handle the issues that arise while overseeing such unforgiving technology and it gives him enough time to learn all the aspects of the job while providing leadership consistency.

QUESTIONS SUBMITTED BY SENATOR HARRY REID

NUCLEAR SECURITY

Question. Ambassador Brooks, since September 11th NNSA has sent up numerous reprogramming requests to cover the costs of enhanced security, particularly for periods when the Nation has gone to Code Orange. Generally, we have been happy to approve these reprogrammings. However, I am concerned that we have seen lot of supplemental appropriations requests come to the Hill during the last few years and they rarely, if ever, have any funding for the NNSA. Given that you are the guardians of both our Nation's nuclear stockpile and also a tremendous amount of fissile nuclear material around the country, this concerns me. Is your organization not requesting additional funding for nuclear security? Is OMB simply denying your requests?

Answer. While we continually work hard to establish a base Safeguards and Security program request that will be sufficient to effectively meet our annual security program requirements, we, like the rest of the Nation, are doing this against a backdrop of rapidly evolving threats of terrorism. Against this backdrop, we also continue to actively assess our programs to assure performance and readiness. Accordingly, budget changes within a year may be necessary. The fiscal year 2004 budget request for Safeguards and Security is sufficient to meet our currently known needs for ongoing Safeguards and Security activities. This request was developed with information from an assessment of the complex's needs following the September 11, 2001, attacks, and was formulated using the NNSA Planning, Programming, Budgeting and Evaluation process to assure that funding requests are closely linked to established program plans and balanced across NNSA.

The requests for supplemental funding you mention have been related to emergent requirements that could not be accommodated within the base budget request—the “unknown-unknowns.” A good example is the amount of time we will spend this year at the elevated “SECON 2” security level at our sites. Rather than budget for this type of contingency, it is our policy to work within the base budget and accommodate what we can before requesting additional funding authority. The Administration endorses this approach and, in fact, supported two such requests for our S&S programs last year.

Right now, we are looking at the increased costs we're incurring for site protection at the SECON 2 level. We are also expecting the DOE to issue in the near future, a revised, Design Basis Threat. Each of our sites will analyze their security postures and the range of activities that may need to be taken to best address the new threat guidance. The sites will also work throughout the coming year to identify areas of efficiencies and operational improvements that could reduce S&S costs while maintaining the level of protection we require.

Throughout our efforts, we will try to accommodate S&S program needs within available funding. If increased funding is required, we will promptly work with the Congress.

Question. What can we do to get the Administration to take the threat of loose nuclear material as seriously as they seem to take the threat of chemical or biological attack?

Answer. The Bush Administration takes all threats posed by WMD seriously and has undertaken several major initiatives to address security risks arising from nuclear and radiological materials. Presidents Bush and Putin agreed last year to cooperate on ways to accelerate the elimination of excess nuclear materials. To supplement our ongoing programs to convert highly enriched uranium to nuclear reactor fuel and dispose of excess weapons plutonium, we are currently negotiating with Russia on several new initiatives that will increase the rate at which nuclear mate-

rials are converted to non-weapons usable forms. This year's G-8 summit meeting included a reaffirmation of commitments by the United States and its allies to supply up to \$20 billion of assistance to enable Russia to reduce proliferation risks, with the elimination of excess fissile materials identified as a priority area. Through the Materials Protection, Control, and Accounting program run by DOE's National Nuclear Security Administration, we have upgraded security at facilities and storage sites in Russia and other countries that contain hundreds of tons of weapons-usable nuclear material.

Secretary Abraham hosted an international conference in March to identify steps that need to be taken globally to reduce the danger that terrorists could use radiological dispersion devices. DOE is actively engaged in assisting a number of countries to recover and safely dispose of abandoned radiological sources that pose a security threat. Domestically, the NRC is working to put in place improved security for radiological sources used for commercial, medical, or scientific purposes in the United States. DOE continues to operate the Off-Site Source Recovery Program, which has already retrieved and securely stored thousands of radioactive sources no longer needed for their original purposes.

NEVADA TEST SITE

Question. The Nevada Test Site provided crucial capabilities to the Nation during the Cold War, and the Administration claims that this national asset must remain ready to undertake similar responsibilities if called upon. Yet, the levels of activity at the Test Site and the levels of employment have steadily diminished since the termination of nuclear testing. The only way I see to maintain the former capability is to establish new activities at the Test Site that require similar skills and facilities. Without that approach, the entire capability will evaporate. Older workers will depart through death and retirement, and without a stable and demanding mission new workers will not develop. Please tell me how your Administration plans to reverse the decline in morale and mission content at the Nevada Test Site.

Answer. Since the moratorium on nuclear testing in 1992, the NTS has maintained the readiness to conduct testing if deemed necessary by the President. The skill mix needed for the readiness posture is complimentary to that needed to support Stockpile Stewardship program activities. By ensuring a continued robust subcritical experiment and other physics research program capabilities such as JASPER and Atlas at the NTS, historic skills and capabilities can be maintained.

To date, 19 subcritical experiments have been successfully conducted at the NTS. The national laboratories rely on the technical expertise and scientific skills of NTS workers to maintain underground testing expertise and capability and to capture essential data from the subcritical experiments. Although we expect the number of subcritical experiments to decline over the next several years, the complexity of the experiments and need for advanced diagnostics will increase.

NNSA is committed to continued use of the NTS and expansion of its missions as is evident in the relocation of the Atlas program to the NTS. Atlas is a high performance pulsed power machine and will be used to implode targets and measure the physical properties of weapons material. NNSA is committed to bringing this machine on line in Nevada and fielding experiments in support of the Stockpile Stewardship program.

As other DOE/NNSA facilities face encroachment by population centers, we look to move those missions with greater need for remote and secure operations to the NTS. It is recognized that the NTS has sufficient infrastructure and security features that make it ideal for nonproliferation and national security related projects. A clear example is the planned relocation of the critical assembly work from Los Alamos to the NTS. These assemblies will complement the existing missions of the NTS by providing an additional training tool for emergency response personnel and those who work in nuclear environments.

This administration continues to enhance and support nuclear-related emergency response activities and is working closely with the newly-formed Department of Homeland Security (DHS) to fight terrorism. An ambitious DHS-sponsored program to train first responders and local emergency managers from throughout the country at the NTS continues to grow. Known as the National Center for Exercise Excellence, this program will graduate 6,000 students this year alone. Within NNSA, the existing NTS infrastructure is being modernized under current National Center for Combating Terrorism (NCCT) funding to accommodate this increase in student volume, and will ultimately enhance other national security programs. The Remote Sensing Laboratory has provided the great majority of radiological emergency response for the United States over the last 30 years. These scientists and engineers, in close partnership with the National Laboratories, are also developing the next

generation of counterterrorism technology for the Department of Homeland Security.

NUCLEAR WEAPONS STOCKPILE

Question. Maintaining the safety and reliability of our nuclear weapons stockpile is technically difficult, even if we were still testing. The absence of testing makes this job even more difficult. I know that the work of our weapons scientists and engineers is mostly classified and carried out in secure facilities, but I suspect that most of the scientific and technical tools are very similar to those used for nonclassified research and development. Please tell me how the Administration is assuring benefit to the classified program from the enormous Federal investments in scientific and technical advances made by DOE's Office of Science, the National Science Foundation, the Department of Defense labs, Commerce's National Institute of Science and Technology, and others like the Justice Department and our intelligence agencies.

Answer. NNSA firmly supports leveraging science and technology investments made by other Federal agencies. Let me provide just a few examples from our Accelerated Strategic Computing program:

- Energy Sciences Network (ESNet).*—The weapons program's SecureNet relies heavily upon the Office of Science's ESNet as the underlying infrastructure for wide area network communications.
- High Performance Storage System (HPSS).*—Developed through a consortium including the Oak Ridge National Laboratory (ORNL), the three weapons laboratories, and IBM Government Systems, HPSS provides a high speed, parallel, network-centered system for high performance storage. ASCI continues to rely on ORNL to provide storage system management support.
- Defense Threat Reduction Agency's PITHON.*—This experimental capability simulates hot x-rays by using a moderate energy source. Data from this facility will be used as part of the ASCI code verification and validation process.
- National Security Agency Encryptors.*—Development and early production of UltraFastlanes through the National Security Agency enabled sufficient data transfer rates to support designer work at the labs.
- National Science Foundation platforms.*—Compute cycles from the Blue Horizon platform at San Diego Supercomputing Center are used to provide Stockpile Stewardship Alliance University partners with access to unclassified supercomputing capability.

NONPROLIFERATION PROGRAMS

Question. The nonproliferation programs within your Administration are, for the most part, pursued by the same organizations that manage the weapons research and development. In fact, most of the nonproliferation scientists and engineers are either former or even present weapons specialists in the Stockpile Stewardship program. Yet, the management of these two activities within your administration is quite different. For example, definition of the stockpile stewardship program develops from a partnership between the Federal Government and the civilian specialists. Is the same approach used for nonproliferation activities?

Answer. As for the approach for development of U.S. nonproliferation programs, the programs have evolved considerably over the last 10 years. The phrase "partnership between the Federal Government and the civilian specialists" may be somewhat misleading. The National Security Council sets the agenda for U.S. nonproliferation programs for the Executive Branch. However, the NNSA's nonproliferation programs have received considerable input from Nongovernmental Organizations (NGOs), Congress, and the Interagency. Also, milestones and events such as the fall of the Soviet Union, the crash of the Russian economy, accords by former Soviet States to abrogate nuclear weapons, the September 11, 2002, terrorist attacks and others have had major influence on the evolution of these programs. With 10 years of experience implementing nonproliferation programs in the former Soviet Union and in other countries around the world, the NNSA has developed a broad range of experts upon which to draw for expertise, both inside and outside of the NNSA.

Question. Do you think that efficiencies and cost savings could be found by uniting these two programs into a single program, perhaps entitled Nuclear Security programs?

Answer. By act of Congress, the National Nuclear Security Administration has three line organizations: Defense Programs, Defense Nuclear Nonproliferation, and Naval Reactors. Each program has a distinct mission, a unique set of skills to accomplish the mission, different stakeholders, and a dissimilar venue for performing

the work. Naval Reactors has specific legislative mandates. Defense Programs and Defense Nuclear Nonproliferation, however, work quite independently to perform their missions, although there are some areas of mutual concern. Defense Programs carries out the Stockpile Stewardship Program and other missions primarily in the United States; Defense Nuclear Nonproliferation conducts its programs internationally. Defense Programs' primary customer is the Department of Defense while Defense Nuclear Nonproliferation works with U.S. allies to reduce the threat of weapons of mass destruction, keeping threats away from the U.S. shores.

Congressional action to create the NNSA as a "separately organized" agency within the DOE provides for the management of nuclear weapons expertise and infrastructure under a single leader. Defense Programs and Defense Nuclear Nonproliferation organizations reflect the disparate missions of these organizations. A large part of the work for each program is accomplished at the three NNSA laboratories, Lawrence Livermore, Sandia, and Los Alamos. However, the NNSA national laboratories have organized in such a way that the expertise to support each program is provided by dedicated and specialized support because of the nature of the work for each program. Defense Nuclear Nonproliferation, moreover, uses resources of other laboratories and contractors outside of NNSA, including Pacific Northwest, Argonne, Brookhaven, and Oak Ridge National Laboratories in working in Russia and around the world.

In those areas where mutual concerns of Defense Programs and Defense Nuclear Nonproliferation converge, such as international access to the U.S. nuclear weapons complex for treaty compliance, the NNSA is particularly well organized to perform the necessary interfaces to determine the best approach to accomplish both missions. Combining these organizations would be disruptive and blur the distinct missions of each organization. The structure of the NNSA provides for cost effective management of resources through delivery of services to the line organizations by the Offices of Management and Administration and Infrastructure and Security.

CONCLUSION OF HEARINGS

Senator DOMENICI. Anything further?

We stand in recess. Thank you all very much.

[Whereupon, at 3:40 p.m., Thursday, April 10, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]