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## **“Bunker Busters”: Robust Nuclear Earth Penetrator Issues, FY2005-FY2007**

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Jonathan Medalia  
Specialist in National Defense  
Foreign Affairs, Defense, and Trade Division

## Report Documentation Page

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# “Bunker Busters”: Robust Nuclear Earth Penetrator Issues, FY2005-FY2007

## Summary

Earth penetrator weapons, often called “bunker busters,” burrow into the ground some tens of feet before detonating, greatly increasing their ability to destroy buried targets. The United States has several types of conventional earth penetrators. The current U.S. nuclear earth penetrator, the B61-11 bomb, cannot penetrate certain types of terrain in which hardened underground facilities may be located, so the Air Force and the National Nuclear Security Administration (NNSA) are studying a more effective penetrator, the Robust Nuclear Earth Penetrator (RNEP).

While Secretary of Defense Rumsfeld said in 2003 that RNEP was a study, NNSA’s FY2005 budget document showed a five-year total of \$484.7 million if RNEP were to proceed beyond the study phase. NNSA said no decision had been made to proceed, and out-year figures were shown to meet congressionally-mandated budgeting requirements and were not a request. RNEP requests are, of course, subject to congressional approval, rejection, or modification. The five-year figure sparked congressional debate. The FY2005 National Defense Authorization Act contained the full RNEP request, \$27.6 million. The House and Senate both rejected amendments to that bill that would have eliminated RNEP funds. However, P.L. 108-447, the FY2005 Consolidated Appropriations Act, appropriated no funds for RNEP. As a result, NNSA could not work on RNEP in FY2005.

The FY2006 RNEP request was \$4.0 million for NNSA for studies, and \$4.5 million for the Department of Defense (DOD) to study integrating RNEP onto the B-2 bomber. The House passed the FY2006 Energy and Water Development Appropriations Bill, H.R. 2419, with no NNSA RNEP funds. The House passed the FY2006 National Defense Authorization Bill, H.R. 1815, providing the requested DOD funds and transferring the NNSA funds to DOD. The House Appropriations Committee’s mark of H.R. 2863, the FY2006 DOD Appropriations Bill, provided \$4.0 million for a conventional (nonnuclear) penetrator study. Committee staff indicated that the bill included the \$4.5 million for DOD, and that the committee’s intent was that DOD use the money to study integration of a conventional penetrator onto the B-2. The bill as passed by the House retained these provisions. The Senate Armed Services Committee’s mark of S. 1042, the FY2006 National Defense Authorization Bill, recommended providing the NNSA funds as requested but denying the DOD funds on grounds that the DOD program should await completion of NNSA’s feasibility study. The Senate provided \$4.0 million for NNSA for RNEP in H.R. 2419, rejecting an amendment by Senator Feinstein to delete the funds. The Senate Appropriations Committee’s mark of H.R. 2863 recommended eliminating DOD funds requested for RNEP. On October 25, Senator Domenici said that NNSA had dropped its RNEP request and planned to focus earth penetration on conventional weapons technology, so, he said, energy and water conferees agreed to drop funding for RNEP. H.R. 1815 as signed into law (P.L. 109-360) provided no funds for RNEP, but \$4.0 million for DOD for a conventional penetrator study.

For FY2007, NNSA requested no funds for RNEP, and has closed out the project. Accordingly, this report will not be updated further.

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# “Bunker Busters”: Robust Nuclear Earth Penetrator Issues, FY2005-FY2007

## Background

Potential adversaries and others have built hardened underground facilities to protect key assets. Conventional weapons are unable to destroy many such facilities, though opinions differ on whether nonnuclear means can disable or isolate them. Surface-burst nuclear weapons would have limited effectiveness against deeply buried facilities. In contrast, a nuclear weapon that burrows into the ground a few meters before detonating would be more effective because it would transfer much more of its energy into the ground.

The United States has one type of nuclear earth penetrator, the B61-11 bomb, which was accepted into the stockpile in September 2001.<sup>1</sup> That weapon, though, according to an article by several scientists from Los Alamos National Laboratory, “cannot survive delivery into certain types of terrain in which such [hardened underground] facilities may be located.”<sup>2</sup> The Administration proposes RNEP as a study of modifications to convert existing B83 nuclear bombs to an earth penetrator configuration. Another bomb, the B61, had also been under consideration earlier. The Air Force has been leading the study, which started in May 2003, with NNSA in charge of studying modifications of specific warheads. Accordingly, the Department of Defense (DOD) and the National Nuclear Security Administration (NNSA), which is the Department of Energy (DOE) agency in charge of the U.S. nuclear weapons program, requested funds to study the Robust Nuclear Earth Penetrator (RNEP).

RNEP has been the most controversial nuclear weapon program in Congress for the past few years. Supporters argue that it is needed to attack hard and deeply buried targets (such as leadership bunkers or WMD production facilities) in countries of concern, thereby deterring or defeating challenges from such nations; critics assert that RNEP would lower the threshold for use of nuclear weapons and prompt other nations to develop nuclear weapons to deter U.S. attack. Secretary of Defense Donald Rumsfeld said in May 2003 that RNEP “is a study. It is nothing more and nothing less.”<sup>3</sup> The plan was that the RNEP study would cost \$15 million a year for

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<sup>1</sup> “B61-11 Enters the Stockpile,” *Weapons Insider: A Publication of the Nuclear Weapons Program*, Los Alamos National Laboratory, Sept./Oct. 2001, p. 2.

<sup>2</sup> Bryan Fearey, Paul White, John St. Ledger, and John Immele, “An Analysis of Reduced Collateral Damage Nuclear Weapons,” *Comparative Strategy*, Oct./Nov. 2003, p. 312.

<sup>3</sup> U.S. Department of Defense, “DOD News Briefing — Secretary Rumsfeld and Gen. (continued...) ”

FY2003-FY2005. While Congress appropriated the FY2003 request of \$15.0 million, the FY2004 request met much criticism. The House rejected an amendment by Representative Tauscher to transfer funds from RNEP to conventional means of attacking buried targets. The Senate tabled an amendment by Senator Dorgan and another by Senator Feinstein to bar funds for RNEP, and adopted an amendment by Senator Nelson (FL), and a similar amendment by Senator Reed, to require congressional authorization to start development engineering (discussed below) or later phases of RNEP. (The Nelson amendment became Section 3117 of P.L. 108-136, the FY2004 National Defense Authorization Act.) Congress reduced the FY2004 appropriation to \$7.5 million.

In response to this reduction, NNSA planned to spend almost all of the \$7.5 million to study the B83 as an RNEP candidate, and little on the B61 study.<sup>4</sup> The B83 study was being conducted by Lawrence Livermore National Laboratory, in Livermore, CA, and Sandia National Laboratories' Livermore branch; the B61 study was the responsibility of Los Alamos National Laboratory, Los Alamos, NM, and Sandia National Laboratories' headquarters site in Albuquerque, NM. For FY2005, Congress eliminated RNEP funding. For FY2006, the Administration requested \$4.0 million for NNSA to conduct a sled test, in which a penetrator body would be shot down a test track and slammed into a material, such as a concrete block, to help design and evaluate penetrators. For FY2006, the Administration also requested \$4.5 million for DOD to study linking RNEP to the B-2 bomber. The appropriation was \$4.0 million for DOD to conduct the sled test.

To address some technical issues that have arisen in the RNEP debates, the Bob Stump National Defense Authorization Act for FY2003, P.L. 107-314, Section 1033, called for a National Academy of Sciences report on effects of nuclear and conventional earth penetrator weapons (EPWs). The report, released in April 2005, had nine key conclusions: (1) many high-value buried facilities can be held at risk by nuclear but not conventional EPWs; (2) penetration to a depth of 3 meters captures most effects of EPWs on buried targets; deeper penetration puts the weapon at greater risk; (3) EPWs cannot penetrate deeply enough to contain nuclear weapon effects fully; (4) casualties from a nuclear weapon burst at shallow depth or on the surface are essentially the same; (5) detonating a nuclear weapon at shallow depth increases the energy transmitted to a buried target, permitting a reduction in yield by a factor of 15 to 25; (6) attacks using nuclear EPWs near urban areas could produce thousands to over a million casualties, or hundreds to several hundred thousand for attacks in rural areas; (7) a nuclear EPW could reduce civilian casualties in an urban area by a factor of 2 to 10 compared to a surface-burst weapon with 25 times the yield; (8) a nuclear weapon would have to detonate within a chamber where chemical or biological agents were stored to destroy the agents; the same is true of nonnuclear "thermobaric" bombs, which generate high heat and pressure; and (9) in a nuclear attack on a chemical weapon facility, nuclear effects would probably kill many more civilians than would the released chemical agent, while a nuclear attack on a

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<sup>3</sup> (...continued)

Myers," May 20, 2003. At [<http://www.defenselink.mil/transcripts/2003/tr20030520-secdef0207.html>].

<sup>4</sup> Information provided by NNSA staff, Feb. 10, 2004.

biological facility could kill similar numbers of civilians from nuclear effects and released biological agents, depending on weapon yield and amount of agent.<sup>5</sup>

This report discusses the history of RNEP in Congress and the Administration for the FY2005 and FY2006 budget cycles. For a more extensive history and technical background, see CRS Report RL32130, *Nuclear Weapon Initiatives: Low-Yield R&D, Advanced Concepts, Earth Penetrators, Test Readiness*, and CRS Report RL32599, *'Bunker Busters': Sources of Confusion in the Robust Nuclear Earth Penetrator Debate*, both by Jonathan Medalia. Any consideration of RNEP in the second session of the 109<sup>th</sup> Congress may hinge on whether the Administration requests funds for the program in the FY2007 budget.

## Developments in the FY2005 Budget Cycle

### The FY2005 Budget and Plan

Congress required NNSA — and DOE before NNSA was created — to provide a five-year budget projection (current year plus four out-years) in the National Defense Authorization Acts for FY1997 (P.L. 104-201, Section 3155), FY2000 (P.L. 106-65, Section 3253), and FY2001 (P.L. 106-398, Sections 3154 and 3155). The FY2005 budget cycle was the first in which NNSA presented detailed out-year projection with the current request. In the FY2005 request, the projected figures for RNEP were: FY2005 (request), \$27.6 million; FY2006, \$95.0 million; FY2007, \$145.4 million; FY2008, \$128.4 million; and FY2009, \$88.4 million, for a five-year total of \$484.7 million.<sup>6</sup> The FY2005 request also presented a plan for RNEP. All figures for FY2005-FY2009 are subject to congressional approval, rejection, or modification.

The research program for FY2003-FY2009 was thus estimated to cost \$498.3 million — \$6.1 million spent for FY2003, \$7.5 million appropriated for FY2004, and \$484.7 million, as noted, for FY2005-FY2009. If RNEP were to proceed through development and production, additional costs would include completing production engineering, and manufacturing components to convert the selected weapon into an earth penetrator. These figures include NNSA costs, such as for the penetrator case, but exclude Air Force costs for the guidance unit (tail assembly, guidance computer, etc.) NNSA cannot provide an estimate of total program cost because it has not completed the cost study.

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<sup>5</sup> National Academy of Sciences, National Research Council. Division on Engineering and Physical Sciences, Committee on the Effects of Nuclear Earth-Penetrator and Other Weapons, (Washington: National Academies Press, 2005) (prepublication copy), pp. 9-2, 9-3.

<sup>6</sup> U.S. Department of Energy, Office of Management, Budget, and Administration/CFO, *FY2005 Congressional Budget Request*, vol. 1, National Nuclear Security Administration, DOE/ME-0032, Feb. 2004, p. 63. The RNEP budget is available under “Directed Stockpile Work” at [<http://www.mbe.doe.gov/budget/05budget/index.htm>].

By way of background, the Departments of Defense and Energy agreed years ago to a formal set of phases by which modified nuclear weapons move through research, development, production, deployment, and retirement, often called the Phase 6.X process. The key phases for RNEP are: Phase 6.2, feasibility study and option down select; Phase 6.2A, design definition and cost study; Phase 6.3, development engineering, in which the nuclear weapons laboratories produce a completed warhead design; and Phase 6.4, production engineering, in which the design is adapted for production and a system to manufacture the weapon is created. In its FY2005 request, NNSA stated the performance targets for RNEP as follows:

- FY2005: “Complete 56% of scheduled RNEP Phase 6.2/6.2A activity.” Further, “In FY2005, subsystem tests and a full system test of the proposed design will be completed.”
- FY2006: “Complete 100% of scheduled RNEP Phase 6.2/6.2A activity.”
- FY2007: “Report results of RNEP Phase 6.2/6.2A to Nuclear Weapons Council [a joint Department of Defense (DOD)-DOE agency that coordinates nuclear weapon programs] Obtain, if applicable, RNEP Phase 6.3 appropriate authorization. Complete initial 25% of scheduled RNEP Phase 6.3 activity (if authorized).”
- FY2008: “Complete 65% of RNEP Phase 6.3 activity (if appropriately authorized).”
- FY2009: “Complete 100% of scheduled RNEP Phase 6.3 activity (if authorized). Complete 15% of scheduled RNEP Phase 6.4 activity (if appropriately authorized).”<sup>7</sup>

The FY2005 request therefore seemed to cast serious doubt on assertions that RNEP is only a study. However, NNSA Administrator Linton Brooks stated:

We included funds in our out-year budget projections to comply with legislative requirements for five-year budget projections. The out-year projections are placeholders in the event the President decides to proceed with development and Congress approves. No decision will be made until the study is completed. The law is clear that beginning 6.3 engineering development requires Congressional approval.<sup>8</sup>

The legislation that he referred to is P.L. 108-136, FY2004 National Defense Authorization Act, Section 3117, which states:

The Secretary of Energy may not commence the engineering development phase (phase 6.3) of the nuclear weapons development process, or any subsequent

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<sup>7</sup> Department of Energy, *FY 2005 Congressional Budget Request*, vol. 1, pp. 69, 70, 76.

<sup>8</sup> Letter from Linton F. Brooks, Administrator, NNSA, to Honorable Ellen O. Tauscher, Mar. 17, 2004.



phase, of a Robust Nuclear Earth Penetrator weapon unless specifically authorized by Congress.

An NNSA manager responsible for the program stated that, if out-year funds were not included in the FY2005 budget, NNSA would have faced two choices that it deemed unsatisfactory: (1) By the time the budget for one fiscal year is submitted, the budget for the next fiscal year is largely fixed; without the placeholder, a decision to proceed with RNEP could not have been implemented until the second fiscal year. (2) Alternatively, without the placeholder, a decision to proceed with RNEP could have been implemented promptly only by taking the needed funds out of other programs. The budget projection reflects costs that might be expected if RNEP were to proceed to Phases 6.3 and 6.4. The manager emphasized that no decision had been made on whether or not to proceed with those phases pending completion of the Phase 6.2/6.2A study.<sup>9</sup>

The RNEP study was initially projected to cost \$45 million — \$15 million a year for FY2003-FY2005. The numbers, however, have changed for each year. For FY2003, delay in submission of a DOD study required by the FY2003 National Defense Authorization Act (P.L. 107-314, Section 3146) delayed the start of NNSA's RNEP study, so \$6.1 million was spent of the \$15.0 million appropriated. For FY2004, Congress cut the appropriation to \$7.5 million. For FY2005, the request was \$27.6 million, and the appropriation zero, vs. \$15.0 million originally planned, and for FY2006 the appropriation was zero for RNEP but \$4.0 million for a related conventional penetrator study.

## Criticisms, Questions, and Responses

Critics reacted to the RNEP budget projection and plan presented with the FY2005 request. Representative Tauscher, in a letter to NNSA Administrator Linton Brooks, stated that “This is the first notice that we have received of a significantly ramped up activity,” and that “the planning and budgeting for further steps in the 6.X process in the next five years speaks to a clear intent to develop these modified nuclear weapons at a time when the feasibility study has not been completed and the Department of Defense has not submitted a request for this weapon.”<sup>10</sup> Steven Aftergood of the Federation of American Scientists argued that there are not five-year budgets for every research program that might lead to development. He reportedly said, “If they had placeholders for every funding scenario, they'd have to request an infinite amount of money. ... This is an expression of intent to move ahead with an expanded program.”<sup>11</sup> Another critic, Jay Coghlan, director of Nuclear Watch of New Mexico, was quoted as saying, “The present administration is definitely seeking

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<sup>9</sup> Telephone interview, Feb. 10, 2004.

<sup>10</sup> Letter from Representative Ellen Tauscher to Linton Brooks, Administrator, National Nuclear Security Administration, Mar. 8, 2004.

<sup>11</sup> Paul Richter, “Questions Raised about Bomb Plan,” *Los Angeles Times*, Mar. 11, 2004, p. 12.

to expand U.S. nuclear capabilities — while at the same time it denounces any kind of effort by others to do the same.”<sup>12</sup>

**Programmatic Questions.** The following paragraphs present questions from Representative Tauscher’s letter, responses from Administrator Brooks,<sup>13</sup> and additional information based on discussions with staff from NNSA, Los Alamos National Laboratory, and Lawrence Livermore National Laboratory. Representative Tauscher wrote:

For FY2005 the budget request describes the RNEP activities as including “subsystems tests and full system test of the proposed design.” Such activities appear to go beyond research activities and may be interpreted to fall into 6.3 activities. In your view, why are such activities consistent with legislation passed by Congress last year? What specific activities would be associated with the initial year of 6.3 work on the RNEP in FY2007?

Administrator Brooks responded:

The “subsystem and full system tests of the proposed design” refer to impact tests to be performed on surrogate penetrator bodies at Sandia National Laboratories’ sled track facility. These tests are consistent with the definition and requirements for a Phase 6.2 feasibility study. We need to understand whether the penetrator bodies are survivable to ground penetration in the required geologies before feasibility can be assessed.

The context of this question is that the FY2004 National Defense Authorization Act, P.L. 108-136, Section 3117, requires specific congressional authorization before starting Phase 6.3 or subsequent phases of RNEP. NNSA indicated that one type of physical test (as distinct from a computer simulation) is planned as part of the 6.2/6.2A study: a series of “sled track tests” at Sandia National Laboratories. Some would be done as full system tests, in which the various components of an RNEP would be assembled in a penetrator body (a strong, heavy, pointed metal case) without a guidance system or fissile materials.<sup>14</sup> This assembly would be mounted on a sled that is sent down a track at high speed and slammed into a large concrete block to test how well the components withstand the deceleration required of an earth penetrator weapon. This type of test is included in the 6.2/6.2A study because NNSA deems it essential to assess feasibility. In turn, a successful demonstration of feasibility is a necessary condition for the weapon to proceed to Phase 6.3. In preparation for the full system tests, a number of subsystem sled tests will be conducted, in which candidate RNEP components are slammed into a water target. These were to have started in the third quarter of FY2005, and to be held at Sandia’s sled track, located at Kirtland Air Force Base in Albuquerque, NM.

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<sup>12</sup> Jeff Tollefson, Santa Fe New Mexican.com, Mar. 11, 2004.

<sup>13</sup> Letter from Linton F. Brooks, Administrator, NNSA, to Honorable Ellen O. Tauscher, Mar. 17, 2004.

<sup>14</sup> Information provided March 11-12, 2004.

More advanced tests would be conducted in Phase 6.3. In one type, “vibration flyaround tests,” a mock-up of the weapon would be mounted on an aircraft and flown to validate that the weapon would not be damaged by the vibration of the aircraft and to determine the weapon’s aerodynamic stability. In this test, the device would not be released. Another type of test, which would occur later in the development process once the guidance system was developed, would involve dropping a mock-up of the weapon from an aircraft. Both types of test would use surrogate material (a heavy metal) instead of fissile materials. Other tests would probably be conducted as well.

Representative Tauscher also asked:

With regard to the Annual Performance Results and Targets, what technical, military, and other criteria would the NNSA consider and what decisions would be made before it requests legislative authorization to begin 6.3 work? Who is involved in the determination to begin 6.3 work and why does the budget indicate that this might happen in FY 2007? Similarly, what criteria would the NNSA use to base its decision to go from phase 6.3 to 6.4 in FY 2009?

Administrator Brooks replied:

The National Nuclear Security Administration (NNSA) does not make the decision to proceed to Phase 6.3 or subsequent phases. If NNSA and the Air Force agree that the Phase 6.2/6.2A study results support proceeding to Phase 6.3 engineering development, the Nuclear Weapons Council (NWC) could consider whether to proceed further. If the NWC recommends going forward, NNSA would move beyond the study stage only if the President approves and funds are authorized and appropriated by the Congress.

He further stated that the criteria NWC would use in this decision include “the feasibility and military utility of the design definition, and the projected cost and schedule established in the Phase 6.2/6.2A Study,” and that “If RNEP does proceed to 6.3, the President and Congress will make a separate decision on whether to proceed to Phase 6.4, Production Engineering.”

To support a decision to move RNEP to Phase 6.3, NNSA would address cost, schedule, and feasibility, while the Air Force would address military requirements. As a hypothetical example, NNSA might say that an RNEP would have a specified cost, could be ready by a certain date, and would have certain characteristics (weight, accuracy, depth of penetration, etc.) The Air Force might decide not to proceed if the penetration ability was too low or if a nonnuclear alternative existed, or it might recommend proceeding if the proposed RNEP was the only way to accomplish what it considered a critical military mission. The decision to request congressional approval would be worked through the Nuclear Weapons Council and ultimately be made by the President. The decision on whether or not to proceed with Phase 6.3 was projected to occur in FY2007 because the Phase 6.2/6.2A study was expected to conclude late in FY2006. With elimination of RNEP funds for FY2005 and FY2006, these decisions would be set back. They would be rendered moot if the Administration chooses not to proceed with the program, which might be revealed in the FY2007 request.

**RNEP Budget and Need for Congressional Approval.** For many Members, the five-year cost of RNEP as presented in the FY2005 budget document came as a surprise not only in the amount, but also in what appeared to be an intent contrary to legislation barring Phase 6.3 or greater work on RNEP without congressional authorization. Senator Domenici said:

I was surprised to see that the request — that nearly \$500 million is provided for the Robust Nuclear Earth Penetrator in the out year funding. ... The department [DOE] should not assume such large sums in its budget without congressional approval or direction. ... I want it explained to this committee unequivocally what we are doing and what we are authorizing, and what we are not doing and what we are not authorizing, because nobody on this committee is voting to do this. We're voting to study it if it wins, but not to do it. To study it is a small amount of money. To do it is a lot of money.<sup>15</sup>

Senator Reid said to NNSA Administrator Linton Brooks:

I am a little concerned, maybe even put off by the notion that you've included a half a billion dollars in your out year spending plan as what you call a place holder for bunker busting, pending White House and congressional decisions. I'm not sure that we can allow this to go forward. This is a large place holder. Many remain unconvinced that this is an appropriate path.<sup>16</sup>

Senator Kennedy said to Secretary of Energy Spencer Abraham:

... you're rushing ahead with the nuclear weapons, including the mini-nukes and the nuclear bunker busters. I'll give you a chance to be able to explain how this program, which was \$45 million two years ago is now up to almost \$.5 billion. ... Why are we going ahead and are going to be requesting \$.5 billion from Congress on new nuclear weapons, the bunker buster?<sup>17</sup>

In a colloquy, Senator Warner expressed his concern on the RNEP budget and Secretary Abraham offered an explanation:

Senator Warner: Let's talk about the Robust Nuclear Earth Penetrator. And I was looking at the out years, and particularly 2006, looking at a fairly substantial increase. And I bring to your attention the fact ... in 2004, the Department of Energy — we put in the legislation — may not proceed to the engineering development phase three or to subsequent phases without a specific authorization from Congress. And can you correlate that substantial '06 bump up with this statutory provision, which I hope will remain?

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<sup>15</sup> U.S. Congress, Senate Committee on Appropriations, Subcommittee on Energy and Water Development, *FY2005 Budget of the National Nuclear Security Administration*, hearing, Mar. 23, 2004, p. 2. Transcript by Federal News Service, Inc.

<sup>16</sup> *Ibid.*, p. 5.

<sup>17</sup> U.S. Congress, Senate Committee on Armed Services, *FY2005 Department of Energy Defense-related Activities Budget Request*, hearing, Mar. 23, 2004, p. 15. Transcript by Federal News Service, Inc.

Secretary Abraham: The statutory provision, Mr. Chairman, would, of course, govern any decision to move from a stage of research or preliminary inquiry to the engineering phase. We are required to provide five-year budgets, however, so that people can look down the road and make a proper sort of assessment of what potential expenses will be.<sup>18</sup>

**Is There a Military Requirement for RNEP?** Another concern is that there is no military requirement for RNEP.

Senator Reed: ... Is there a specific military requirement for the RNEP today?

Secretary Abraham: It was the conclusion of the Nuclear Posture Review that a threat that needed to be addressed in the 21<sup>st</sup> century in the immediate period ahead of us would be hard, deeply buried targets. A number of approaches to dealing with that were then asked to be researched. This is just one of them. It's a threat that rose to the level of being included in that review.

Senator Reed: There's no doubt about the threat. But it's your opinion that the position of the administration is there is a specific military requirement for the RNEP, not for a device to counter deeply buried targets, but for the RNEP? Is that your position?

Secretary Abraham: No. The position of the administration is that we should inquire about or that we should make inquiries and investigate a variety of approaches to dealing with the hard, deeply buried target. Whether or not this approach is feasible is the first question. And the second is whether or not it's preferable to other approaches that would involve conventional weapons. And we have not completed the first phase of that inquiry, let alone the second.<sup>19</sup>

NNSA has stated that "requirement" has been used in two senses.<sup>20</sup> Before DOD or NNSA start a concept study, there is a perceived need for a capability. This type of need used to be called a "requirement," but DOD now uses the term "desired capabilities and characteristics." In the case of RNEP, this perceived need has reportedly been documented in classified form. An unclassified document dealt more generally with defeat of hard and deeply buried targets.<sup>21</sup> "Requirement" is also used for a specific weapon as applied to the acquisition process. According to NNSA, DOD "will not have an acquisition requirement before there is a well defined system or component for them to acquire. In the nuclear weapon life cycle, that will not occur until the completion of the Phase 2A/6.2A study."

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<sup>18</sup> Ibid., p. 8.

<sup>19</sup> Ibid., p. 18.

<sup>20</sup> NNSA provided the information in this paragraph on Apr. 1, 2004.

<sup>21</sup> U.S. Departments of Defense and Energy, *Report to Congress on the Defeat of Hard and Deeply Buried Targets*, Submitted by the Secretary of Defense in Conjunction with the Secretary of Energy in Response to Section 1044 of the Floyd D. Spence National Defense Authorization Act for FY2001, P.L. 106-398, July 2001.

## Legislative Activity on RNEP, FY2005

The two defense authorization bills — H.R. 4200, as reported from the House Armed Services Committee, and S. 2400, as reported from the Senate Armed Services Committee — both contained the full amount requested for RNEP, \$27.6 million. The House Armed Services Committee “strongly reaffirms the importance” of the RNEP Phase 6.2/6.2A study. It further stated,

The committee also takes note that a recent Defense Science Board Task Force study on Future Strategic Strike Forces specifically recommended that research be initiated on nuclear weapons that produce much lower collateral damage than those weapons in the existing nuclear stockpile. The committee also reminds the NNSA that any efforts beyond a study could only be pursued if the President approves and funds are authorized and appropriated by Congress.<sup>22</sup>

Representatives Tauscher, Markey, Skelton, Dicks, Allen, and Spratt offered an amendment on RNEP and other topics to H.R. 4200. It was defeated, 204-214, on May 20 (roll no. 203). The text of the amendment is as follows:

Additional amounts for ordnance technology and for strategic capability modernization.

1. (a) Air Force Conventional Munitions- The amount in section 201(3) for research, development, test, and evaluation for the Air Force is hereby increased by \$25,000,000, of which —

(1) \$10,000,000 is to be available in program element 0602602F, Conventional Munitions, for ordnance technology applicable to defeat of weapons of mass destruction and hardened, deeply buried targets; and

(2) \$15,000,000 is to be available in program element 0603601F, Conventional Weapons Technology, for ordnance technology applicable to defeat of weapons of mass destruction and hardened, deeply buried targets.

(b) Defense-wide Strategic Capability Modernization- The amount in section 201(4) for research, development, test, and evaluation, Defense-wide, is hereby increased by \$11,557,000, to be available for program element 0603910D8Z, Strategic Capability Modernization.

(c) Offset- The amount in section 3101(a)(1) for weapons activities is hereby reduced by \$36,557,000, of which —

(1) \$27,557,000 is to be derived from the Stockpile Services Robust Nuclear Earth Penetrator study; and

(2) \$9,000,000 is to be derived from the Stockpile Services Advanced Concepts program.

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<sup>22</sup> U.S. Congress, House Committee on Armed Services, *National Defense Authorization Act for FY2005*, 108<sup>th</sup> Congress, 2<sup>nd</sup> Session, H.Rept. 108-491 (Washington: GPO, 2004) p. 431.

(The Advanced Concepts Initiative funds R&D, prior to development engineering, of “laboratory workload activities to potentially enhance the military capabilities of the stockpile, in coordination with the DOD.”<sup>23</sup> See CRS Report RL32130, *Nuclear Weapon Initiatives: Low-Yield R&D, Advanced Concepts, Earth Penetrators, Test Readiness*, by Jonathan Medalia.)

Senators Kennedy and Feinstein introduced amendment no. 3263 to S. 2400, the FY2005 defense authorization bill, to bar the use of FY2005 funds for RNEP or the Advanced Concepts Initiative. The Senate debated the amendment on June 3 and 15, and rejected it on the latter date, 55-42.

Senator Bennett submitted the following amendment 3403 to S. 2400 on June 7. He withdrew it on June 23.

At the end of subtitle B of title XXXI, add the following:

Sec. 3122. Requirement of specific authorization of Congress for full-scale underground nuclear test of robust nuclear earth penetrator.

Section 3117 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136; 117 Stat. 1746) is amended by inserting, “or conduct a full-scale underground nuclear test of such weapon,” after “Robust Nuclear Earth Penetrator weapon.”

For reference, Section 3117 of P.L. 108-136 is as follows:

Sec. 3117. Requirement for specific authorization of Congress for commencement of engineering development phase or subsequent phase of robust nuclear earth penetrator.

The Secretary of Energy may not commence the engineering development phase (phase 6.3) of the nuclear weapons development process, or any subsequent phase, of a Robust Nuclear Earth Penetrator weapon unless specifically authorized by Congress.

On June 9, 2004, the Energy and Water Development Subcommittee of the House Appropriations Committee approved the FY2005 energy and water development appropriations bill by voice vote. The measure provided no funds for RNEP.<sup>24</sup> The full committee approved the bill by voice vote on June 16. The committee bill provided no funds for RNEP. The committee explained its position on RNEP and ACI as follows:

The Committee continues to oppose the diversion of resources and intellectual capital away from the most serious issues that confront the management of the

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<sup>23</sup> Department of Energy, *FY 2005 Congressional Budget Request*, vol. 1, p. 76.

<sup>24</sup> Statement of Chairman Dave Hobson, in U.S. Congress, House Committee on Appropriations, *FY2005 Energy and Water Development Appropriations Bill*, June 9, 2004. [[http://appropriations.house.gov/index.cfm?FuseAction=PressReleases.Detail&PressRelease\\_id=383](http://appropriations.house.gov/index.cfm?FuseAction=PressReleases.Detail&PressRelease_id=383)].

nation's nuclear deterrent. ... the Committee remains unconvinced by the Department [of Energy]'s superficial assurance that the RNEP activity is only a study and that advanced concepts is only a skills exercise for weapons designers. The Committee notes that the management direction for fiscal year 2004 sent to the directors of the weapons design laboratories left little doubt that the objective of the program was to advance the most extreme new nuclear weapon goals irrespective of any reservations expressed by Congress. ... the Committee's priorities are maintaining our Nation's nuclear deterrent in a safe and secure condition and maintaining our Nation's integrity in the international effort to halt the proliferation of weapons of mass destruction. The Department's obsession with launching a new round of nuclear weapons development runs counter to those priorities. The Committee directs the NNSA to focus wholly on its primary mission of maintaining the safety, security, and viability of the existing stockpile ..."<sup>25</sup>

On June 25, the House considered the bill, H.R. 4614, and passed it, as amended, 370-16. No amendments were offered to the Weapons Activities section.

In the Senate, the energy and water bill was held up by disputes over the Yucca Mountain (NV) civilian nuclear waste repository.<sup>26</sup> The Energy and Water Development Appropriations Subcommittee did not report a bill to the full committee. For a time, it appeared that it would not be possible to include energy and water appropriations in the omnibus appropriations bill, and that FY2005 spending for energy and water would be done under a year-long continuing resolution.<sup>27</sup> However, a compromise worked out at the last minute permitted inclusion of energy and water appropriations in H.R. 4818, Consolidated Appropriations Act, 2005.<sup>28</sup>

Piecing together numerous press reports, the arrangement that broke the logjam included several elements. (1) RNEP and ACI were eliminated, and several other nuclear weapons programs were eliminated, reduced, or modified. (2) Conferees freed up \$800 million from various parts of the omnibus bill, some of which was used to provide \$577 million for Yucca Mountain instead of the \$131 million in the House bill. (3) Conferees provided substantial increases for three projects at Los

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<sup>25</sup> U.S. Congress, House Committee on Appropriations, *Energy and Water Development Appropriations Bill, 2005*, H.Rept. 108-554, 108<sup>th</sup> Congress., 2<sup>nd</sup> Session, June 2004 (Washington, GPO, 2004), p. 115.

<sup>26</sup> For details on Yucca Mountain, see CRS Issue Brief IB92059, *Civilian Nuclear Waste Disposal*, by Mark Holt. Regarding the legislative process on the energy and water bill, see Amol Sharma, "Energy and Water Appropriations: The Battle for Yucca Mountain," *CQ Weekly*, Nov. 27, 2004, p. 2787.

<sup>27</sup> Joseph Schatz, "Thorny Issues, Multibillion-Dollar Gap Divide Chambers' Fiscal Spending Bills," *CQ Today*, Oct. 22, 2004.

<sup>28</sup> For text of this measure, see U.S. Congress. *Congressional Record*, Nov. 19, 2004, Book II (entire volume). For text of Weapons Activities, see *ibid.*, pp. H10273-H10274, H10556-H10557, and H10566-H10569.



Alamos and Sandia National Laboratories.<sup>29</sup> According to one report, “In return for letting Hobson cut the bunker-buster and other new nuclear weapons initiatives, Domenici got money he wanted for work at Sandia and Los Alamos, Domenici acknowledged in an interview.”<sup>30</sup> Another report stated: “Sen. Pete Domenici (R-NM), one of the chief backers of RNEP and ACI funding in Congress, told reporters this week that he agreed to the spending cuts for both programs in order to get the omnibus bill finished.”<sup>31</sup>

## Developments in the FY2006 Budget Cycle

### The FY2006 RNEP request

For FY2006, NNSA cast a program more modest in its cost, scope, and schedule than it was for FY2005. Rather than show a five-year projection, NNSA, recognizing that a separate decision would be needed to go beyond the study phase, projected a cost for the study only, ending in FY2007, and reduced the scope of the study from the B83 and B61 to the B83 only. As a result, the cost was much lower, \$4.0 million for FY2006 and \$14.0 million for FY2007.<sup>32</sup> As Ambassador Brooks explained,

The reason the level is so much less is we have cut back on what it is that we propose to do. Originally, we proposed to examine two different warheads. Fundamentally, what we’re doing is taking a warhead, putting a very hard case on it, controlling its attitude very precisely, so that it can penetrate a few meters into rock and still stay intact and go off, that way the energy goes into the ground. We’ve concluded that we can demonstrate whether or not the concept is feasible by looking at only one warhead. We selected the B83, which is one of the two bombs we were looking at, because that was where we were when the program was stopped.<sup>33</sup>

Further, NNSA stated:

The Robust Nuclear Earth Penetrator (RNEP) category includes funding for the Phase 6.2/2A Air Force-led study. The decision to complete this study was reaffirmed with DOD in January 2005. Activities include participating in integrated NNSA-DOD integrated product teams for development of RNEP requirements and programmatic documents; system design and integration;

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<sup>29</sup> Amol Sharma, “Energy and Water Appropriations: The Battle for Yucca Mountain,” *CQ Weekly*, Nov. 27, 2004, p. 2787.

<sup>30</sup> John Fleck, “Nuclear Weapons Budget Grows Despite Cuts to Bomb Modernization Plans,” *Albuquerque Journal*, Nov. 23, 2004.

<sup>31</sup> Keith Costa, “Lawmakers Scuttle FY-05 Funding for Nuclear ‘Bunker Busters,’” *Inside the Pentagon*, Nov. 25, 2004.

<sup>32</sup> Department of Energy, *FY 2006 Congressional Budget Request*, vol. 1, p. 68.

<sup>33</sup> Testimony of Ambassador Linton Brooks, Administrator, National Nuclear Security Administration, in U.S. Congress, Senate Committee on Armed Services. Subcommittee on Strategic Forces, *Strategic Forces/Nuclear Weapons Fiscal Year 2006 Budget*, hearing, Apr. 4, 2005.

planning, cost and risks analyses; and phenomenology studies. The study is scheduled for completion in FY 2007. In FY 2006, activities include conduct of a B83 impact test, analyzing test data, and supporting integration meetings with the DOD.<sup>34</sup>

The Senate Armed Services Committee stated that the funding is “to prepare and execute the sled track impact test at Sandia National Laboratories on the feasibility of case hardening and target penetration.”<sup>35</sup>

DOD also requested FY2006 funds for RNEP, included in the Air Force budget. According to an Air Force legislative liaison officer:

The Air Force will spend \$4.5M in FY 2006 and \$3.5M in FY 2007 to complete the joint study that began in FY 2003. As part of the joint study in these years, the Air Force will perform analysis and specify requirements for integrating the conceptual weapon on the B-2 platform (e.g., software and hardware modifications), identify environments the weapon would have to withstand (e.g., temperature, acceleration, and shock and vibration), and define capabilities needed for the navigation, guidance and control (NG&C) — (e.g., accuracy and impact parameters). We will also develop estimates of the associated costs.<sup>36</sup>

An Air Force document provides further details on the FY2006 DOD RNEP request. The document states that Nuclear Weapons Support

Supports pre-acquisition studies/analyses to determine feasibility and develop definition, and cost of navigation, guidance, and control (NG&C) concepts as well as evaluate B-2 aircraft integration issues associated with the joint Department of Defense (DOD) and Department of Energy (DOE) Robust Nuclear Earth Penetrator (RNEP) concept as approved/directed by the Nuclear Weapons Council (NWC).

FY 2006 funding is a combination of \$1.0M in RDT&E-AF [research, development, test, and evaluation, Air Force] and \$3.5M in O&M-AF [operation and maintenance, Air Force] funding. The RDT&E-AF funding will complete logistics and aircraft integration planning as well as develop nuclear certification criteria. The O&M funding will support the development of a conceptual NG&C design and risk assessment, identification of B-2 software/hardware issues, and other related B-2 logistics and integration efforts. (FY 2005 Base \$0)<sup>37</sup>

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<sup>34</sup> U.S. Department of Energy, Office of Management, Budget and Evaluation/CFO, *FY 2006 Congressional Budget Request*, vol. 1, National Nuclear Security Administration, DOE/ME/0046, Feb. 2005, pp. 82-83.

<sup>35</sup> U.S. Congress, Senate Committee on Armed Services, *National Defense Authorization Act for Fiscal Year 2006*, S.Rept. 109-69, to accompany S. 1042, 109<sup>th</sup> Congress, 1<sup>st</sup> Session, 2005, pp. 202, 482.

<sup>36</sup> E-mail from Lt. Col. Joseph Cappello, USAF, to Jonathan Medalia, Feb. 16, 2005. The funds are contained in the FY2006 Air Force Research, Development, Test, and Evaluation Program under Advanced Component Development and Prototypes as a part of Program Element 0604222F, “Nuclear Weapons Support.”

<sup>37</sup> U.S. Department of the Air Force. *Fiscal Year (FY) 2006/FY2007 Budget Estimates*: (continued...)

The \$1.0 million is included in \$15.4 million for program element 0604222F, “Nuclear Weapons Support,” within RDT&E, Air Force.<sup>38</sup> The \$3.5 million is included in \$287.2 million for program element 3400F, line 020, “Primary Combat Weapons,” within O&M, Air Force.<sup>39</sup>

A question that arose in 2004 was if DOD supported RNEP. In 2005, DOD answered affirmatively. NNSA Administrator Linton Brooks testified in April 2005,

After last year’s action by the Congress [on RNEP], we asked the Department of Defense to review the continuing need. The Secretary of Defense personally reviewed that, and at his direct personal request we have included the money in the budget for this year. He did this not because he’s particularly interested in developing a new weapon, but because there are adversaries who are building deeply buried facilities, and it is unwise for there to be anything that’s beyond the reach of U.S. power.<sup>40</sup>

According to a press report, Secretary of Defense Donald Rumsfeld wrote a memo in January 2005 to then-Secretary of Energy Spencer Abraham that stated “I think we should request funds in FY06 and FY07 to complete the [RNEP] study. ... You can count on my support for your efforts to revitalize the nuclear weapons infrastructure and to complete the RNEP study.”<sup>41</sup>

There was also a suggestion that DOD’s request was crucial to DOE’s decision to include RNEP in the FY2006 budget. According to a press report, “The reason the money was put in the budget was the result of a direct request from [the Defense Department] to finish the study,’ said Anson Franklin, a spokesman for the Energy Department’s National Nuclear Security Administration. ‘The Secretary of Defense was consulted, and based on that information we put it back in the budget.’”<sup>42</sup>

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<sup>37</sup> (...continued)

*Operation and Maintenance, Air Force, Volume I*, Feb. 2005, p. 87. Available at [[https://www.saffm.hq.af.mil/FMB/pb/2006/afoandm/AF\\_FY06\\_PB\\_OM\\_Vol%201.pdf](https://www.saffm.hq.af.mil/FMB/pb/2006/afoandm/AF_FY06_PB_OM_Vol%201.pdf)].

<sup>38</sup> U.S. Department of Defense, Office of Under Secretary of Defense (Comptroller). *RDT&E Programs (R-1)*, Fiscal Year 2006, Feb. 2005, p. F-5, [[http://www.dod.mil/comptroller/defbudget/fy2006/fy2006\\_r1.pdf](http://www.dod.mil/comptroller/defbudget/fy2006/fy2006_r1.pdf)].

<sup>39</sup> U.S. Department of Defense, Office of Under Secretary of Defense (Comptroller). *Operations Programs (O-1)*, Fiscal Year 2006, Feb. 2005, p. 10, [[http://www.dod.mil/comptroller/defbudget/fy2006/fy2006\\_o1.pdf](http://www.dod.mil/comptroller/defbudget/fy2006/fy2006_o1.pdf)].

<sup>40</sup> U.S. Congress, Senate Committee on Appropriations, Subcommittee on Energy and Water Development, *FY2006 Appropriations for the National Nuclear Security Administration*, hearing, Apr. 14, 2005.

<sup>41</sup> Walter Pincus, “Rumsfeld Seeks to Revive Burrowing Nuclear Bomb,” *Washington Post*, Feb. 1, 2005, p. 2.

<sup>42</sup> Bill Gertz, “Defense Seeks Raise, Rock-Penetrating Nuke,” *Washington Times*, online edition, February 8, 2005.

## Legislative Activity

The House Appropriations Committee recommended eliminating NNSA funds for RNEP from the Energy and Water Development Bill, H.R. 2419, as it did in the FY2005 bill. The report stated,

The Committee continues to oppose the diversion of resources and intellectual capital away from the more serious issues that confront the management of the nation's nuclear deterrent, primarily the transformation of the Cold War nuclear weapons complex and existing stockpile into a sustainable enterprise. The Committee has been disappointed at the bureaucracy's adherence to an initiative that threatens Congressional and public support for sustainable stockpile initiatives that will actually provide long-term security and deterrent value for the Nation.<sup>43</sup>

The House passed the bill, 416-13, on May 24, with no amendments on RNEP, and only a few brief mentions of it in prepared remarks. (Note that the bill did not address the Air Force RNEP request, which fell under the jurisdiction of the DOD Appropriations Subcommittee.)

The House Armed Services Committee recommended providing the DOD RNEP funds as requested, but transferring the \$4.0 million in NNSA funds to a separate program in DOD. In explaining the transfer, the committee's report stated, "Based on the applicability of the sled test results to various options for HDBT [hard and deeply buried target] defeat, the committee believes that this [NNSA RNEP] study is more appropriately conducted under a program element within the Department of Defense."<sup>44</sup> Accordingly, "The committee authorizes \$4.0 million in PE [program element] 64327F for a penetrator test that would evaluate the feasibility of various options for different types of penetrators that could hold HDBTs at risk. The committee intends that this study be completed by the end of fiscal year 2006."<sup>45</sup> However, 23 of the 28 committee Democrats stated that the report language "could be construed to allow the sled test to inform whether a nuclear payload could be used in high-speed penetration of hard geologies," and urged that the test "should be conducted in a manner that only informs conventional payloads."<sup>46</sup> The House passed the bill, H.R. 1815, 390-39, on May 25 with no amendment or debate on RNEP. Representative Heather Wilson, in discussing the energy and water bill, stated, "It is my understanding that this study will now move to the Department of Defense and outside of the jurisdiction of the Energy and Water Appropriations

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<sup>43</sup> U.S. Congress, House Committee on Appropriations, *Energy and Water Development Appropriations Bill, 2006*, report to accompany H.R. 2419, 109<sup>th</sup> Congress, 1<sup>st</sup> Session, H.Rept. 109-86, (Washington: GPO, 2005), p. 131.

<sup>44</sup> U.S. Congress, House Committee on Armed Services, *National Defense Authorization Act for Fiscal Year 2006*, report to accompany H.R. 1815, 109<sup>th</sup> Congress, 1<sup>st</sup> session, H.Rept. 109-89, (Washington: GOP, 2005), p. 463.

<sup>45</sup> *Ibid.*, p. 211.

<sup>46</sup> *Ibid.*, p. 513.

subcommittee.”<sup>47</sup> It is unclear whether the move of RNEP funds from NNSA to DOD was done with that purpose in mind.

The House Appropriations Committee’s FY2006 DOD Appropriations Bill, H.R. 2863, contained \$4.0 million for a “conventional penetrator study” as a new program under “Hard and Deeply Buried Target Defeat System.”<sup>48</sup> Further, it retained \$4.5 million within the categories “Nuclear Weapons Support” and “Primary Combat Weapons” that was requested for integrating RNEP with the B-2.<sup>49</sup> Committee staff explained that the committee intended that the study be of nonnuclear means of hard and deeply buried target defeat, and not of RNEP. As a corollary, the staff continued, since the RNEP study was not funded but the \$4.5 million was linked to the B-2, the committee intended that the latter sum be used to study integrating conventional earth penetrators with the B-2.<sup>50</sup> The House passed H.R. 2863, 398-19, on June 20, with no change to the foregoing provisions.<sup>51</sup>

The Senate Armed Services Committee reported the defense authorization bill, S. 1042, on May 17. It recommended eliminating the \$4.5 million in DOD funding on grounds that “evaluation of RNEP feasibility by the Department of Energy is not scheduled to be completed prior to 2007.”<sup>52</sup> Further, “The committee does not believe that these activities are necessary to evaluate the feasibility of RNEP.”<sup>53</sup> The committee recommended providing the \$4.0 million that NNSA requested for RNEP.<sup>54</sup> The Senate began considering the bill on July 20. On July 22, the Senate debated an amendment (SA 1415) by Senator Kennedy to transfer NNSA RNEP funds to the Washington, DC, Army National Guard. The amendment was withdrawn on November 4, and the bill passed, 98-0, on November 15.

The Senate Appropriations Committee reported the energy and water bill, H.R. 2419, on June 16. The committee recommended \$4.0 million for NNSA for the RNEP study, and urged that sled tests be conducted at Sandia National Laboratories in Albuquerque, NM, as planned.<sup>55</sup> On June 30, the Senate rejected, 43-53, an

<sup>47</sup> “Speech of Hon. Heather Wilson,” in U.S. Congress, *Congressional Record*, May 25, 2005, p. E1091.

<sup>48</sup> U.S. Congress, House Committee on Appropriations, *Department of Defense Appropriations Bill, 2006*, H.Rept. 109-119 to accompany H.R. 2863, 109<sup>th</sup> Congress, 1<sup>st</sup> Session, 2005, pp. 266, 275.

<sup>49</sup> *Ibid.*, pp. 65, 275.

<sup>50</sup> Information provided by House Appropriations Committee staff, June 21 and 23, 2005.

<sup>51</sup> For a colloquy and statement on H.R. 2863 regarding RNEP, see U.S. Congress, *Congressional Record*, June 20, 2005, pp. H4736, H4738-H4739.

<sup>52</sup> Senate Committee on Armed Services, *National Defense Authorization Act for Fiscal Year 2006*, pp. 202, 292.

<sup>53</sup> *Ibid.*, p. 483.

<sup>54</sup> *Ibid.*, p. 482.

<sup>55</sup> U.S. Congress, Senate Committee on Armed Services, *Energy and Water Appropriations Bill, 2006*, S.Rept. 109-84, to accompany H.R. 2419, 109<sup>th</sup> Congress, 1<sup>st</sup> Session, 2005, pp.

amendment by Senator Feinstein to eliminate the \$4.0 million from the bill.<sup>56</sup> The Senate passed the bill, as amended, 92-3, on July 1.

The Senate Appropriations Committee reported the FY2006 DOD appropriations bill, H.R. 2863, on September 29. It eliminated the \$3.5 million for RNEP in the Air Force operation and maintenance account under line 20, “Robust Nuclear Earth Penetrator Support,” and eliminated the \$1.0 million for RNEP in the Air Force research, development, test, and evaluation account under line 66, “Nuclear Weapons Support.” Also under line 66, it eliminated another \$1.4 million requested for counterproliferation support to counter future threats such as deeply buried targets.

While the conference on the energy and water bill was underway, Senator Domenici issued a press release stating that NNSA had dropped its request for continued research on RNEP, and that conferees had therefore dropped RNEP funding. According to the Senator,

The focus will now be with the Defense Department and its research to earth penetrating technology using conventional weaponry. The NNSA indicated that this research should evolve around more conventional weapons rather than tactical nuclear devices. With this department change in policy, we have agreed not to provide DOE with funding for RNEP.<sup>57</sup>

The conference report (H.Rept. 109-275) provided no funds for RNEP. The Energy and Water Development Appropriations Act was signed into law (P.L. 109-103) November 19, 2005.

The authorization conference report provided no funds for RNEP, but instead added \$4.0 million to DOD in program element 64327F, Hard and Deeply Buried Target Defeat System, “to conduct a sled test and a study on the physics of penetrating geologic media, to be completed by the end of fiscal year 2006.”<sup>58</sup> The measure was signed into law (P.L. 109-163) January 6, 2006.

The DOD appropriations conference report deleted \$3.5 million for RNEP Support under Primary Combat Weapons within the Operation and Maintenance, Air Force, account. Under the Research, Development, Test, and Evaluation, Air Force, account, it provided \$4.0 million for a conventional penetrator study under Hard and

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<sup>55</sup> (...continued)  
155-156.

<sup>56</sup> For debate on the amendment, see U.S. Congress, *Congressional Record*, June 30, 2005, pp. S7781-S7794. Amendment text is on p. S7781; vote on the amendment is on p. S7794.

<sup>57</sup> “Domenici: RNEP Funds Dropped from Appropriations Bill,” press release, Senator Pete Domenici, Oct. 25, 2005. For further details on NNSA’s position, see Jeffrey Lewis, “NNSA Denies Axeing RNEP,” *ArmsControlWonk.com*, November 15, 2005, available at [<http://www.armscontrolwonk.com/855/nnsa-denies-dropping-rnep>].

<sup>58</sup> U.S. Congress. Committee of Conference. *National Defense Authorization Act for Fiscal Year 2006*, H.Rept. 109-360, to accompany H.R. 1815. 109<sup>th</sup> Congress, 1<sup>st</sup> Session, 2005, p. 592, 902.

Deeply Buried Target Defeat System and deleted \$1.0 million for RNEP under Nuclear Weapons Support.<sup>59</sup> The measure was signed into law (P.L. 109-148) December 30, 2005.

## Clarification of Key Points in FY2006 Hearings

Hearings in 2005 added information on topics that may arise in any future debate, such as the yield of RNEP, the collateral damage the weapon would likely cause, and the military requirement for RNEP. The following colloquy occurred at a hearing in February:

Representative Terry Everett: ... Could you please tell me directly if there's a military need for this, for robust earth — nuclear earth penetrator?

Secretary of Defense Donald Rumsfeld: ... It is a question that's difficult to answer, because sometimes they say "military requirement". And that's a formal process. There was no military requirement for military aircraft, for example. There was no military requirement for unmanned aerial vehicles until they came along. And so, what I believe, there is a need for the study — which is what we're talking about here, and not a weapon. We're talking about taking existing weapons and doing a study to see if they can be reduced in their power, their lethality to a level that's lower than the current weapons are so that they might have the ability to penetrate the earth in a way that could help protect the United States of America. I think that it is clearly in our country's interest to do the study. Has it — [speaking to General Richard Myers, Chairman, Joint Chiefs of Staff] You want to comment on whether there's a, quote, "military requirement" specifically?

General Myers: You bet. Our combatant commander that is charged by this nation to worry about countering the kind of targets, deeply buried targets certainly thinks there's a need for this study. And General Cartwright has said such. I think that. I think the Joint Chiefs think that. And so, the study is that. It's not a commitment to go forward with a system, it's just to see if it's feasible.<sup>60</sup>

This colloquy occurred at a hearing in March:

Representative Ellen Tauscher: I just want to know is there any way an RNEP of any size that we would drop will not produce a huge amount of radioactive debris?

NNSA Administrator Linton Brooks: No, there is not.

Representative Tauscher: Secretary Rumsfeld last week confused the debate over the RNEP when he told our committee that the RNEP study, "is taking existing weapons and doing a study to see if they can be reduced in their power, lethality, to a level that is lower than current weapons." My understanding was that the RNEP study was not going to change the physics

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<sup>59</sup> U.S. Congress. Committee of Conference. *Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 2006, and for Other Purposes*, H.Rept. 109-359, to accompany H.R. 2863, 109<sup>th</sup> Congress, 1<sup>st</sup> Session, 2005, p. 219, 222, 404, 416.

<sup>60</sup> Testimony of Donald Rumsfeld, Secretary of Defense, and General Richard Myers, Chairman, Joint Chiefs of Staff, in U.S. Congress, House Committee on Armed Services, *FY2006 Defense Budget Request*, Feb. 16, 2005. Transcript by Federal News Service, pp. 30-31.

package of the warhead but simply look at ways to repackage the device so it can penetrate hard geologies. Am I right or are you also looking at lowering the yield of, say, the B83 to perhaps under five kilotons?

Administrator Brooks: We are not looking at changing the yield of the physics package. ...

Ambassador Brooks: I really must apologize for my lack of precision if we in the administration have suggested that it was possible to have a bomb that penetrated far enough to trap all fallout. I don't believe that — I don't believe the laws of physics will ever let that be true. ...

This is a nuclear weapon. This is a nuclear weapon that is going to be hugely destructive and destructive over a large area. No sane person would use a weapon like that lightly, and I regret any impression that anybody, including me, has given that would suggest that this is going to be any easier a decision — I mean if this weapon were in the arsenal today, it would still be a hugely difficult decision for any president to even contemplate it. So I — the administration believes and I personally believe that this study should continue, but it — I want to — I do want to make it clear that any thought of sort of nuclear weapons that aren't really destructive is just nuts.<sup>61</sup>

To summarize, the foregoing passages, by clarifying several points that were at issue in earlier debates on RNEP, may help focus any future debate.

- There is no formal military requirement for RNEP.
- There is considerable interest by DOD and the armed services in learning, through the proposed RNEP study, whether RNEP is feasible.
- The possible conversion of a B83 bomb to an RNEP would not involve changing the yield of the weapon.
- RNEP — and probably any other nuclear earth penetrator — would not penetrate the ground deeply enough to contain fallout. Use of RNEP would therefore cause a “huge” amount of fallout and destruction.
- Because RNEP, if it is deployed, would be a nuclear weapon, a presidential decision to use it would be very difficult.

## Developments in the FY2007 Budget Cycle

NNSA requested no funds for RNEP for FY2007. The program appears nowhere in its FY2007 request document.<sup>62</sup> NNSA stated in January 2006 that it

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<sup>61</sup> Testimony of Ambassador Linton Brooks, House Committee on Armed Services, Mar. 2, 2005, pp. 15-16.

<sup>62</sup> U.S. Department of Energy. Office of Chief Financial Officer. *FY2007 Congressional Budget Request*, Volume 1, National Nuclear Security Administration. DOE/CF-002, (continued...)



disbanded the RNEP teams in March 2005, and stated in February 2006 that it has closed out the project.<sup>63</sup>

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<sup>62</sup> (...continued)  
February 2006, 683 p.

<sup>63</sup> Information provided by NNSA, January 27 and February 17, 2006.