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## **Robust Nuclear Earth Penetrator Budget Request and Plan, FY2005-FY2009**

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# Report Documentation Page

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# Robust Nuclear Earth Penetrator Budget Request and Plan, FY2005-FY2009

## 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).

Congress debated RNEP in 2003. In that year, the Secretary of Defense said RNEP was a study. NNSA’s FY2005 budget document, though, shows funding rising after FY2005 for a five-year total of \$484.7 million if RNEP proceeds beyond the study phase. NNSA states that no decision has been made to proceed with RNEP and that out-year figures are shown to meet congressionally-mandated budgeting requirements and are not a request. If the program proceeds beyond FY2009, cost would rise further. RNEP must penetrate into harder terrain than can the B61-11, so it requires more elaborate design, testing, manufacturing, and certification. A cost estimate must await a feasibility and cost study, to be completed in late FY2006. NNSA projected that study would cost \$45 million between FY2003 and FY2005; in June 2004, it projected a cost of \$71 million between FY2003 and FY2006. RNEP requests are subject to congressional approval, rejection, or modification.

RNEP remained at issue in 2004. Some Members questioned whether there was a military need for it and stated that developing it would impair U.S. nonproliferation efforts. Others supported it; the House Armed Services Committee “strongly reaffirm[ed]” its importance. The FY2005 defense authorization act contained the full RNEP request, \$27.6 million. On May 20, the House rejected, 204-214, an amendment by Representative Tauscher to transfer funds from RNEP and the Advanced Concepts Initiative (ACI), another nuclear program, to Air Force conventional munitions. On June 15, the Senate rejected, 42-55, an amendment by Senators Kennedy and Feinstein to delete funds for RNEP and ACI. P.L. 108-447, the FY2005 Consolidated Appropriations Act, contained no funds for RNEP, and transferred the \$9.0 million requested for ACI to a new Reliable Replacement Warhead program.

This report explains the budget request and provides details on the plan. It will be updated to track developments, and will reflect action on the FY2006 request. CRS Report RL32130, *Nuclear Weapon Initiatives: Low-Yield R&D, Advanced Concepts, Earth Penetrators, Test Readiness*, discusses technical background, history, and issues. See also CRS Report RL32599, *‘Bunker Busters’: Sources of Confusion in the Robust Nuclear Earth Penetrator Debate*.

## Contents

Background .....	1
The RNEP Budget and Plan, and NNSA's Explanation .....	2
Criticisms, Questions, and Responses .....	6
Programmatic Questions .....	7
RNEP Budget and Need for Congressional Approval .....	9
Is There a Military Requirement for RNEP? .....	10
Legislative Activity on RNEP, FY2005 .....	11

# Robust Nuclear Earth Penetrator Budget Request and Plan, FY2005-FY2009

## Background

Nuclear earth penetrator weapons burrow into the ground some tens of feet before detonating, greatly increasing their ability to destroy hardened underground targets. 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 Robust Nuclear Earth Penetrator (RNEP) is at present a study, begun in May 2003, of modifications to convert existing B61 or B83 nuclear bombs to an earth penetrator configuration. While the Air Force is leading the study, the National Nuclear Security Administration (NNSA) — a semiautonomous agency in the Department of Energy (DOE) responsible for nuclear warheads — is in charge of studying modifications of specific warheads.

RNEP is controversial. 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. (For technical background, history, and issues, see CRS Report RL32130, *Nuclear Weapon Initiatives: Low-Yield R&D, Advanced Concepts, Earth Penetrators, Test Readiness*.) 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 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,

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

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 plans 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 is being conducted by Lawrence Livermore National Laboratory, in Livermore, CA, and Sandia National Laboratories' Livermore branch; the B61 study is the responsibility of Los Alamos National Laboratory, Los Alamos, NM, and Sandia National Laboratories' headquarters facility in Albuquerque, NM.

## **The RNEP Budget and Plan, and NNSA's Explanation**

Congress required NNSA — and required 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, Sec. 3155), FY2000 (P.L. 106-65, Sec. 3253), and FY2001 (P.L. 106-398, Sec. 3154 and 3155). The FY2005 budget cycle is the first in which NNSA presented the out-year projection along with the current request. For RNEP, the projected figures are: 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>5</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 is currently 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 proceeds through development and production, additional costs would include the cost to complete production engineering and the cost to manufacture components to convert the selected weapon into an earth penetrator. Further, there would be a division of labor between NNSA and the Air Force, with NNSA responsible for the penetrator case and the Air Force responsible for the guidance unit (tail assembly, guidance computer, etc.) The foregoing figures exclude Air Force costs.

NNSA cannot provide an estimate of the total program cost at this time. Current work on RNEP is a study of feasibility, design definition, and cost of two candidate weapons for conversion to RNEP. The study will generate data to support a choice of one of these designs (assuming that at least one is shown to be feasible). Cost will depend, for example, on the complexity of design, manufacture, and certification, and

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

<sup>5</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>].

on the number of units produced. Until the study is completed, NNSA will not have enough data to provide an estimate of the total cost of the RNEP program.

NNSA stated, though, that the RNEP project will cost much more than the B61-11 conversion.<sup>6</sup> (Figures for the B61-11 are not yet available.) RNEP will be more costly for several reasons.<sup>7</sup> The B61-11 was a minimal change, mainly inserting the nuclear explosive package from an older B61 bomb into a new penetrator case. In contrast, RNEP is intended to penetrate terrain that the B61-11 cannot, so RNEP will face a deceleration force much greater than that intended for any other nuclear weapon. While the nuclear explosive package is to remain unchanged, many nonnuclear components must be redesigned, at considerable cost, to withstand this high stress. The stress and redesign would make it more difficult, and thus more costly, to certify the performance of RNEP than the B61-11 without nuclear testing.

Several technical difficulties, advances, and uncertainties also make the cost of RNEP and B61-11 hard to compare:

- The B61-11 conversion was done in the field. NNSA built the conversion kits and provided them to the Air Force. Air Force personnel then installed the kits at Air Force bases. (The cost of conversion is not included in NNSA's total.) In contrast, should RNEP proceed, NNSA would convert existing weapons (B61 or B83 bombs) to RNEPs at NNSA facilities.
- RNEP could draw on the experience gained with conventional penetrating weapons. In particular, the enhanced guided bomb unit-28 (EGBU-28) is, like RNEP, in the 5,000-pound class.<sup>8</sup> EGBU-28 has an inertial navigation system aided by a global positioning system navigation system for all-weather delivery.<sup>9</sup> It is said to be highly accurate.<sup>10</sup> However, components for nuclear weapons must meet special standards for qualification. Accordingly, NNSA and the Air Force indicate that at a minimum there would be some modifications to the EGBU-28 guidance system. It is possible that a different system would be used.

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<sup>6</sup> Information provided by NNSA staff, Apr. 9, 2004.

<sup>7</sup> Information provided by NNSA staff, Apr. 8, 2004.

<sup>8</sup> Information on RNEP provided by NNSA staff, Apr. 1, 2004. Information on EGBU-28 from U.S. Air Force, Materiel Command. 2<sup>nd</sup> Lt. Brooke Davis, "Edwards B-2 Test Program Drops Live 5,000-Pound Weapons," Air Force Flight Test Center Public Affairs, AFMC News Service Release 0833, Aug. 20, 2003.

<sup>9</sup> U.S. Department of Defense, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, *Report of the Defense Science Board Task Force on Future Strategic Strike Forces*, Feb. 2004, p. 5-5.

<sup>10</sup> "Enhanced Guided Bomb Unit (EGBU)-28," GlobalSecurity.org, Apr. 21, 2003.

- The Air Force stated that the B-2 bomber would carry RNEP.<sup>11</sup> An Air Force officer reportedly said, “There were no physical modifications done on the B-2 rotary launcher assembly” to enable it to carry the EGBU-28. “There was only a small software change ... to integrate the weapon onto the B-2.”<sup>12</sup> It is too early to say what modifications, if any, the B-2 would require in order to carry RNEP.
- The RNEP would require various tests to develop and validate its ability to penetrate. Lessons learned from developing the EGBU-28, other conventional penetrating weapons, and the B61-11 should accelerate progress on RNEP and might reduce costs that would otherwise be incurred.

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. NNSA stated the performance targets for RNEP are 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>13</sup>

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<sup>11</sup> Information provided by U.S. Air Force, Apr. 7, 2004.

<sup>12</sup> “Edwards B-2 Test Program Drops Live 5,000-Pound Weapons.”

<sup>13</sup> Department of Energy, *FY 2005 Congressional Budget Request*, vol. 1, p. 69, 70, 76.

The FY2005 request document therefore seems 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>14</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 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 face two choices that it deems 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 be implemented until the second fiscal year. (2) Alternatively, without the placeholder, a decision to proceed with RNEP could be implemented promptly only by taking the needed funds out of other programs. The budget projection reflects costs that might be expected if RNEP proceeds to Phases 6.3 and 6.4. The official emphasized that no decision has been made on whether or not to proceed with those phases pending completion of the Phase 6.2/6.2A study.<sup>15</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, Sec. 3146) delayed the start of NNSA's RNEP study; as a result, \$6.1 million was spent of the \$15.0 million appropriated. For FY2004, Congress cut the RNEP appropriation to \$7.5 million. For FY2005, the request is \$27.6 million, vs. the \$15.0 million originally planned. Finally, FY2006, not FY2005, will be the last year of the RNEP study; NNSA estimates the FY2006 request at \$30 million. The four-year total is about \$71 million.

Owing to the uncertainties of the program, NNSA could not, as of early March 2004, project an RNEP budget for FY2007-FY2009. Indeed, a purpose of the 6.2/6.2A study is to provide a firm estimate of the cost of the project in Phase 6.3 and beyond. Thus no firm estimate is likely for some time. There is likely to be a schedule disconnect between submission of the FY2007 request, which in the normal course of the budget process would occur in early February 2006, and completion of

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<sup>14</sup> Letter from Linton F. Brooks, Administrator, NNSA, to Honorable Ellen O. Tauscher, Mar. 17, 2004.

<sup>15</sup> Telephone interview, Feb. 10, 2004.

the Phase 6.2/6.2A study, which will probably occur several months later, late in FY2006. It is unclear how NNSA would propose to handle a possible FY2007 request for 6.3 funds for RNEP.

According to NNSA, the study's cost has grown for several reasons.<sup>16</sup> The \$45 million did not take into account the need for participation in the study by the production plants (Y-12 Plant and Kansas City Plant) that would make RNEP components, or by Pantex Plant, which would convert existing weapons into RNEPs; their participation adds approximately \$9 million. NNSA has imposed additional project management requirements that add approximately \$3.5 million. The rest of the increase comes from (1) refinements of cost estimates due to better definition of the requirements of the study, (2) inflation, (3) a requirement for an independent review of the weapons under consideration,<sup>17</sup> and (4) a decision to address new requirements such as surety (safety, security, and use control) in the proposed draft Military Characteristics.<sup>18</sup> NNSA states that no additional subsystem or full-scale sled track testing will be performed as part of the Phase 6.2/6.2A study beyond those tests noted below, nor will the production plants be authorized to begin any production development activities in Phase 6.2/6.2A. Regarding surety, DOE requires that any modification of a nuclear weapon includes looking for ways to increase its surety.<sup>19</sup> An NNSA source reports, "NNSA and the Air Force are committed to exploring ways to increase surety in a cost effective manner, consistent with DOE and military requirements."<sup>20</sup>

## Criticisms, Questions, and Responses

Critics have reacted to the RNEP budget projection and plan. 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

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<sup>16</sup> NNSA amplified on information in this paragraph on Apr. 1, 2004.

<sup>17</sup> For most nuclear weapons in the past, the two nuclear design laboratories (Lawrence Livermore National Laboratory and Los Alamos National Laboratory) would offer competing designs. DOE would select one design at the end of Phase 2 or 6.2, and designers from the other laboratory, at that laboratory's expense, would review the winning design. For RNEP, with two designs carried through Phase 6.2A, NNSA plans to form an Independent Review Team of representatives from Livermore, Los Alamos, and Sandia National Laboratories who were not directly involved with the design of either RNEP candidate. This team would review both designs and identify any items that would prevent either candidate design from proceeding to Phase 6.3.

<sup>18</sup> "Military Characteristics" are contained in a DOD document that presents NNSA with detailed requirements for the performance of a nuclear weapon to be designed. Military Characteristics might include requirements for a weapon to have a certain maximum weight, to be able to penetrate certain geologies, to have a specified type of fuzing, and to be compatible with the electrical system of a particular aircraft.

<sup>19</sup> U.S. Department of Energy, "Nuclear Explosive and Weapon Surety Program," Order DOE O 452.1B, approved Aug. 6, 2001, section 4(f).

<sup>20</sup> Information provided Mar. 22, 2004.

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>21</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>22</sup> Another critic, Jay Coghlan, director of Nuclear Watch of New Mexico, was quoted as saying, “The present administration is definitely seeking to expand U.S. nuclear capabilities — while at the same time it denounces any kind of effort by others to do the same.”<sup>23</sup>

**Programmatic Questions.** The following paragraphs present questions from Representative Tauscher’s letter, responses from Administrator Brooks,<sup>24</sup> and additional information based on discussions with staff from NNSA, Los Alamos National Laboratory, and Lawrence Livermore National Laboratory. Representative Tauscher wrote:

For FY 2005 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 FY 2007?

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

<sup>21</sup> Letter from Representative Ellen Tauscher to Linton Brooks, Administrator, National Nuclear Security Administration, March 8, 2004.

<sup>22</sup> Paul Richter, “Questions Raised about Bomb Plan,” *Los Angeles Times*, Mar. 11, 2004, p. 12.

<sup>23</sup> Jeff Tollefson, Santa Fe New Mexican.com, Mar. 11, 2004.

<sup>24</sup> Letter from Linton F. Brooks, Administrator, NNSA, to Honorable Ellen O. Tauscher, Mar. 17, 2004.

would be assembled in a penetrator body (a strong, heavy, pointed metal case) without a guidance system or fissile materials.<sup>25</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 tests are scheduled to start in the third quarter of FY2005, and will be held at Sandia's sled track, located at Kirtland Air Force Base in Albuquerque, NM.

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, but it is too early in the process to say which tests would be conducted when.

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."

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<sup>25</sup> Information provided Mar. 11 and 12, 2004.

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 is projected to occur in FY2007 because the Phase 6.2/6.2A study is expected to conclude late in FY2006.

**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>26</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>27</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>28</sup>

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<sup>26</sup> U.S. Congress, Senate Committee on Appropriations, Subcommittee on Energy and Water Development, Hearing on the FY2005 budget of the National Nuclear Security Administration, Mar. 23, 2004, p. 2. Transcript by Federal News Service, Inc.

<sup>27</sup> Ibid., p. 5.

<sup>28</sup> U.S. Congress, Senate Committee on Armed Services, Hearing on the FY2005 (continued...)

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?

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>29</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>30</sup>

NNSA has further stated that the term "requirement" has been used in two senses.<sup>31</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

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<sup>28</sup> (...continued)

Department of Energy defense-related activities budget request, Mar. 23, 2004, p. 15. Transcript by Federal News Service, Inc.

<sup>29</sup> Ibid., p. 8.

<sup>30</sup> Ibid., p. 18.

<sup>31</sup> NNSA provided the information in this paragraph on April 1, 2004.

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>32</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.”

## 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>33</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.

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<sup>32</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.

<sup>33</sup> U.S. Congress, House Committee on Armed Services, *National Defense Authorization Act for FY2005*, 108<sup>th</sup> Cong., 2<sup>nd</sup> sess., H.Rept. 108-491 (Washington: GPO, 2004) p. 431.

(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.

(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>34</sup> See CRS Report RL32130, *Nuclear Weapon Initiatives: Low-Yield R&D, Advanced Concepts, Earth Penetrators, Test Readiness.*)

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.

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<sup>34</sup> Department of Energy, *FY 2005 Congressional Budget Request*, vol. 1, p. 76.

On June 9, 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>35</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 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>36</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>37</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>38</sup> However, a compromise worked out at the last minute permitted

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<sup>35</sup> U.S. Congress, House Committee on Appropriations, "Statement of Chairman Dave Hobson — 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)].

<sup>36</sup> U.S. Congress, House Committee on Appropriations, *Energy and Water Development Appropriations Bill, 2005* H.Rept. 108-554, 108<sup>th</sup> Cong., 2<sup>nd</sup> sess., June 2004 (Washington, GPO, 2004), p. 115.

<sup>37</sup> For details on Yucca Mountain, see U.S. Congress. Congressional Research Service. *Civilian Nuclear Waste Disposal*, CRS Issue Brief IB92059, 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*, November 27, 2004: 2787.

<sup>38</sup> Joseph Schatz, "Thorny Issues, Multibillion-Dollar Gap Divide Chambers' Fiscal Spending Bills," *CQ Today*, October 22, 2004.

inclusion of energy and water appropriations in H.R. 4818, Consolidated Appropriations Act, 2005.<sup>39</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 Alamos and Sandia National Laboratories.<sup>40</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>41</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>42</sup>

As of early January 2005, it is unclear whether NNSA will request funds for RNEP for FY2006.

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<sup>39</sup> For text of this measure, see U.S. Congress. *Congressional Record*, November 19, 2004, Book II (entire volume). For text of Weapons Activities, see pages H10273-H10274, H10556-H10557, and H10566-H10569.

<sup>40</sup> Amol Sharma, "Energy and Water Appropriations: The Battle for Yucca Mountain," *CQ Weekly*, November 27, 2004: 2787.

<sup>41</sup> John Fleck, "Nuclear Weapons Budget Grows Despite Cuts to Bomb Modernization Plans," *Albuquerque Journal*, November 23, 2004.

<sup>42</sup> Keith Costa, "Lawmakers Scuttle FY-05 Funding for Nuclear 'Bunker Busters,'" *Inside the Pentagon*, November 25, 2004.