nuclear watch new mexico

# The Robust Nuclear Earth Penetrator:
## A More Usable Nuclear Weapon?

In January 2002 the Department of Defense and the National Nuclear Security Administration (NNSA) of the Department of Energy released a new Nuclear Posture Review (NPR). These reviews are periodically required by Congress (the last was in 1994) and essentially set the military forces that the Pentagon deems necessary for nuclear warfighting. During the Clinton administration nuclear targeting policy was expanded from deterrence only against nuclear weapons to also include perceived biological and chemical threats. The new NPR took the additional step of adding five countries as potential targets for U.S. nuclear weapons. In addition to Russia and China, now North Korea, Iraq, Iran, Syria, and Libya are on the target list. The 2002 NPR even contemplates a nuclear response to open-ended "surprising military developments." Much of this new focus is on attacking Hardened Deeply Buried Targets (HDBTs) (underground reinforced bunkers and facilities) with earth-penetrating nuclear weapons. Overarching all of this is a broad policy shift from one of declared deterrence to planning possible preemptive attacks.

**Excerpts from the January 2002 Nuclear Posture Review:**

> The United States currently has a very limited ground penetration capability with its only earth penetrating nuclear weapon, the B61 Mod 11 gravity bomb… With a more effective earth penetrator, many buried targets could be attacked using a weapon with a much lower yield than would be required with a surface burst weapon. This lower yield would achieve the same damage while producing less fallout (by a factor of ten to twenty) than would the much larger yield surface burst. For defeat of very deep or larger underground facilities, penetrating weapons with large yields would be needed to collapse the facility... One effort to improve the U.S. capability against HDBTs is a joint DoD/DOE phase 6.2/6.2A [feasibility and engineering] Study to be started in Apri1 2002. This effort will identify whether an existing warhead in a 5,000 pound class penetrator would provide significantly enhanced earth penetration capabilities compared to the B61 Mod 11."

In alignment with the NPR, the 2003 DOE budget specifically requests funding for a "Robust Nuclear Earth Penetrator" (RNEP). The B61 Mod 11 referred to in the NPR excerpts is a modification of an existing gravity bomb that DOE rushed to the stockpile in 1997. Despite having its bomb case hardened and its nose pointed, an unarmed B61-11 dropped during bomb tests could reportedly penetrate only 10 - 20 feet into a dry lake bed. Because any weapon's destructive force is multiplied the deeper it burrows into the earth, the NNSA is aggressively seeking to develop an improved earth-penetrator. Toward this end, the NNSA has already formed "red teams" at the two nuclear weapons design labs, Los Alamos in New Mexico and Lawrence Livermore in California, to aggresively engage in RNEP modifications beyond just design work. As General John Gordon, ex-NNSA Administrator, said while referring to "advanced warhead concepts:" "In some instance, these activities would proceed beyond the mere 'paper' stage and include a combination of component and subassembly test and simulation..." Furthermore, Sandia National Laboratories (which is responsible for the non-nuclear components in U.S. nuclear weapons) has applied for a patent on an improved earth-penetrating bomb case (please see the graphic on the next page) involving high-strength steel casting of the bomb case around a very heavy ballast (perhaps the same or similar to the 5,000 pound penetrator referred to in the NPR).

### Problems with the RNEP

- The RNEP has been portrayed in the media as a low-yield or "mini" nuclear weapon designed to destroy deeply buried or hardened targets with limited collateral damage (please see the graphic on the back page). However, Dr. Robert Nelson of the Federation of American Scientists has published a study demonstrating the physical impossibility of penetrating deeply enough underground to avoid widespread collateral damage, contamination and fallout. He writes, "Even for the strongest of materials impact velocities greater than a few kilometers per second will substantially deform and even melt the penetrator." The point is that there is a threshold at which increased velocities no longer result in greater penetration before the warhead is destroyed upon impact. The overarching point is that any RNEP modification would never be able to burrow deeply enough to contain radioactive fallout.

- The NNSA has now made clear in testimony before Congress that it is no longer specifically seeking a low-yield earth-penetrating nuclear weapon. Instead, it is seeking to modify two existing warheads, the B61 and B83, with upper yields in the hundreds of kilotons, many times the destructive power of bombs dropped on Hiroshima and Nagasaki. In combination with limited burrowing capabilities, the notion that a RNEP can somehow be a "clean" nuclear weapon for "surgical" use is a dangerous and provocative myth.

- The United States does not really need to develop a RNEP as it already possesses conventional "bunker-busters." While these weapons have limited penetrating and destructive abilities, they can be "laddered" in by using a number of weapons in succession to defeat a hardened or deeply buried target without the use of a nuclear weapon.

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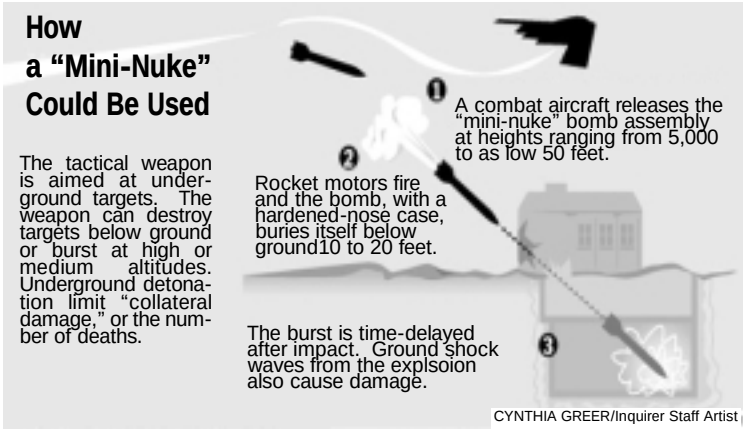
*"Test site workers flee the area after the unexpected venting of a 1 kiloton nuclear test. A one kiloton explosion will produce 41 billion curies one minute after detonation… In [this] photograph, test site workers are fleeing the area after the unexpected release of radioactive material from the Des Moines test on June 13, 1962… Approximately 11,000,000 Curies were released unexpectedly into the atmosphere."*
*Photograph: courtesy of J.E. Carothers, Lawrence Livermore National Laboratory.*
*From: "Nuclear Testing and Nonproliferation," a report requested by Congress. Prepared by Gregory E. van der Vink for the IRIS Consortium, in cooperation with the Lawrence Livermore National Laboratory, USGS and Princeton University; 1993.*

If this photograph demonstrates the dangers of an accidental release from a one kiloton underground test, what can we expect in collateral damage and fallout from a Robust Nuclear Earth Penetrator of higher yield and little or no containment?

- Tactical or battlefield nuclear weapons are commonly understood to be the most prone to potential theft and use by terrorists because of their relative compactness and lower security. Clearly the U.S. would have an adverse impact on global efforts to control tactical nuclear weapons by pursuing a new one of its own.

- Since the RNEP will be based on the modification of existing weapons, extensive design changes in the development of the RNEP could precipitate a return to full-scale nuclear testing. If the U.S. tested, surely other countries would follow. The collapse of the present international testing moratorium would have a long-term, strongly negative impact on our own national security and global security in general.

- While the U.S. has sent delegations at the highest levels to India and Pakistan to press for the avoidance of nuclear war in South Asia, at the same time the U.S. is planning research and development of more "usable" nuclear weapons. The U.S., particularly in its leadership role, needs to make logical and consistent policy decisions while working globally to prevent nuclear war. Low-yield nuclear weapons are inherently more usable and can severely erode the international norms against the use of weapons of mass destruction.




*This graphic perpetrates the myth that a bunker-buster could destroy a deeply buried and hardened target without causing massive collateral damage.*

- As recently as the year 2000 the U.S. and the other nuclear powers repledged as an "unequivocal commitment" to their NonProliferation Treaty (NPT) obligation to disarm their nuclear stockpiles. U.S. pursuit of "advanced nuclear weapons concepts" can lead to the unraveling of the NPT. The RNEP is the most visible example of the Adminstration's plan to spend billions of dollars upgrading and modifying every weapon in the U.S. nuclear arsenal. Unless Congress hears a public outcry, the nation will continue on an expensive and provocative plan to expand the United State's nuclear weapons complex and keep nuclear weapons forever.

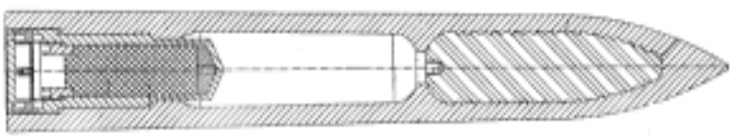
## Present Status of Funding for the RNEP

In its 2003 budget the NNSA requested from Congress $15.5 million for the RNEP. In May the House approved RNEP funding in its 2003 Defense Authorization Act. However, in its sister bill the Senate deleted funding and asked for formal justification for this provocative nuclear weapons modification. The two differing bill versions will be reconciled in House/Senate conference. The final decision on spending for the RNEP will be made in Energy and Water Appropriations. Legislators will be handling the appropriations bill in July and September. Even in the event that the RNEP is not specifically funded by Congress the nuclear weapons labs could well find alternative means to pursue RNEP research and development within their own discretionary budgets.

## What You Can Do

Call or write your senators and representatives to state your adamant opposition to funding for any research and development of the Robust Nuclear Earth Penetrator. In order to ensure that it can't take place, tell them that you want a legislative ban against such R&D. Call the Capitol Switchboard to be routed to your senators and representatives at 202.224.3121. Write your legislators at The Honorable (Name), U.S. Senate (or House of Representatives), Washington, DC 20510 (for the Senate) or 20515 (for the House). For more information, go to the web site for the Alliance for Nuclear Accountability at www.ananuclear.org.

*"… the thought of nuclear conflict in the year 2002 - with what that would mean with respect to loss of life, what that would mean with respect to the condemnation, the worldwide condemnation that would come down on whatever nation chose to take that course of action…I can see very little military, political, or any other kind of justification for the use of nuclear weapons… to think of using them as just another weapon in what might start out as a conventional conflict in this day and age, seems to me to be something that no side should be contemplating."*
--- Secretary of State Colin Powell, in response to a question about nuclear war between India and Pakistan.



U.S. patent #6,186,072, Sandia Corporation, Albuquerque, NM, February 2001, for an improved earth penetrating bomb case with "optional payload." Sandia Corporation is a subsidiary of Lockheed Martin, the manager of Sandia National Laboratories (a nuclear weapons lab).

Sources: 1) Leaked excerpts from the classified Nuclear Posture Review at www.globalsecurity.org. 2) "Low-Yield Earth-Penetrating Nuclear Weapons," Dr. Robert Nelson, Federation of American Scientists Public Interest Report, February 2001, www.fas.org/faspir/2001/v54n1/weapons.html. The reader is urged to read this groundbreaking report for the technical underpinnings of why an earth-penetrating nuclear weapon is limited in its burrowing capabilities and therefore cannot contain collateral damage and fallout. July 17, 2002