



Department of Energy
National Nuclear Security Administration
Washington, DC 20585

March 31, 2004

OFFICE OF THE ADMINISTRATOR

The Honorable Duncan Hunter
Chairman, Committee on Armed Services
U.S. House of Representatives
Washington, D.C. 20515-6015

Dear Mr. Chairman:

Section 3116 of the National Defense Authorization Act for Fiscal Year 2004 requires that the Secretary of State, the Secretary of Defense, and the Secretary of Energy submit jointly to Congress a report assessing whether or not the repeal of section 3136 of the National Defense Authorization Act for Fiscal Year 1994 ("the Prohibition on Low-Yield Warhead Development") will affect the ability of the United States to achieve its nonproliferation objectives and whether or not any changes in programs and activities would be required to achieve those objectives.

The enclosed report, prepared jointly by the Departments of State, Defense and Energy, is forwarded to meet this requirement. It concludes that although repeal will slightly complicate U.S. nonproliferation diplomacy, we anticipate no significant impact on U.S. ability to achieve our objectives at the 2005 Nuclear Nonproliferation Treaty Review Conference. Moreover, there is no reason to believe that repeal has had or will have any practical impact on the pursuit of nuclear weapons by proliferating states, on the comprehensive diplomatic efforts ongoing to address these threats, or on the possible modernization of nuclear weapons by China or Russia.

This report is being provided to the committee chairs, and ranking minority members, of the foreign relations, armed services, and appropriations committees of the House and Senate. If you have questions, please contact me or Anson Franklin, Director, Office of Congressional, Intergovernmental and Public Affairs, at (202) 586-8343.

Sincerely,

Linton Brooks
Administrator

Enclosure

cc: The Honorable Ike Skelton
Ranking Minority Member



Printed with soy ink on recycled paper



Report to Congress on:

**An Assessment of the Impact of Repeal of the
Prohibition on Low Yield Warhead
Development on the Ability of the United States
to Achieve Its Nonproliferation Objectives**



Jointly Submitted by:

**The Secretary of State
The Secretary of Defense
The Secretary of Energy**



*A Report Submitted to Congress in Response to the National
Defense Authorization Act for Fiscal Year 2004, Public Law No.
108-136, Section 3116.*

March 2004

**Report to Congress: An Assessment of the Impact of PLYWD Repeal on the
Ability of the United States to Achieve Its Nonproliferation Objectives**

March 2004

Introduction

Section 3136 of the National Defense Authorization Act for Fiscal Year 1994 ("the Prohibition on Low-Yield Warhead Development" or "PLYWD") prohibited the Secretary of Energy from conducting or providing for the conduct of "research and development which could lead to the production by the United States of a new low-yield nuclear weapon, including a precision low-yield warhead which as the of the date of enactment of this Act [30 November 1993], has not entered production." "Low-yield nuclear weapon" was defined in the section as "a nuclear weapon that has a yield of less than 5 kilotons." "New" referred to any weapon not in production prior to 30 November 1993. Section 3136 did not prohibit research and development (R&D) necessary to (1) design a testing device that has a yield of less than 5 kilotons, (2) modify an existing weapon to address safety and reliability concerns, or (3) address proliferation concerns.

At the request of the Administration, Congress repealed the PLYWD restriction by section 3116 of the National Defense Authorization Act for Fiscal Year 2004. The following limitations were included in section 3116:

Nothing in the repeal . . . shall be construed as authorizing the testing, acquisition, or deployment of a low-yield nuclear weapon.

The Secretary of Energy may not commence the engineering development phase, or any subsequent phase, of a low-yield nuclear weapon unless specifically authorized by Congress.

In addition, section 3116 directed that:

(1) Not later than March 1, 2004, the Secretary of State, the Secretary of Defense and the Secretary of Energy shall jointly submit to Congress a report assessing whether or not the repeal of section 3136 of the National Defense Authorization Act for Fiscal Year 1994 will affect the ability of the United States to achieve its nonproliferation objectives and whether or not any changes in programs and activities would be required to achieve those objectives.

(2) The report shall be submitted in unclassified form, but may include a classified annex if necessary.

This report is provided in response to this Congressional requirement. In the following, we address briefly the rationale for the Administration's request that PLYWD be repealed, and then proceed to identify U.S. non-proliferation objectives and assess the degree to which repeal would affect the ability of the United States to achieve those objectives.

Rationale for PLYWD Repeal

The Administration supported repeal of PLYWD because of the adverse impact on DoD's and DOE's efforts to support the national strategy to counter WMD and implement the Nuclear Posture Review (NPR). PLYWD undercut efforts that could strengthen our ability to deter, or respond to, new or emerging threats.

A key strategic goal of the United States is to deter aggression; deterrence is in the eye of the adversary leadership and involves its perception of both the capability and will of the United States to respond to aggression. In light of the widely-held view that the United States goes to great lengths to limit collateral damage, would a rogue state leader contemplating use of WMD consider credible a response employing warheads with yields in the range of tens or hundreds of kilotons that could cause considerable collateral blast damage and radioactive contamination to civilian populations? Would such a leader think that the United States would risk a large number of unintended casualties? There is no way of knowing. In seeking, however, to minimize any misperceptions about U.S. capabilities or resolve, it is prudent, as called for in the NPR, at least to explore whether there are ways to provide the nuclear weapons stockpile with capabilities more appropriate for deterring 21st century threats in such areas as precision delivery, reduced collateral damage, earth penetration, and agent defeat.

PLYWD has had a "chilling effect" on advanced concepts work. It has impeded our scientists and engineers from exploring the full range of technical options. It did not simply prohibit research on new, low-yield warheads, but prohibited activities "which could lead to production by the United States" of such a warhead. The fact is that most nuclear weapons research could be characterized as fitting that criterion. The result has been, quite literally, that our design teams have had to check with lawyers before starting computer calculations exploring certain concepts—even with yields greater than 5 kilotons—simply because such calculations "*could lead to*" production of lower-yield systems.

A U.S. nuclear weapons advanced concepts effort is critical to our efforts to restore a responsive nuclear weapons enterprise as called for in the NPR. Specifically, advanced concepts work is a core element of our ability to:

- respond, in a timely manner, to DoD's nuclear weapons needs,
- maintain competence by training the next generation of nuclear weapons scientists and engineers,
- restore a nuclear weapons enterprise able to respond rapidly and decisively to relevant changes in the international security environment or to stockpile "surprise" (such activities may well pave the way for even deeper reductions in the nuclear stockpile), and
- understand possible military applications of atomic energy before anyone else does.

This last point is sometimes overlooked: No novel nuclear weapons concept that may be deployed by any other nation should ever come as a surprise to us.

It is important to point out that repeal of PLYWD falls far short of committing the United States to developing, producing and deploying new, low-yield warheads. Such warhead concepts could not proceed to full-scale development, much less production and deployment, unless Congress

authorizes and appropriates the substantial funds required to do this. This is again made clear in section 3116 and has been repeatedly acknowledged in Administration testimony.

Finally, to our knowledge, no other nuclear weapons possessing state has imposed upon itself a comparable restriction on basic exploratory research on nuclear weapons.

U.S. Nonproliferation Objectives

Nonproliferation is part of a broader strategy to counter WMD as outlined in the National Strategy to Combat Weapons of Mass Destruction issued in December 2002. Specifically, that strategy has three main pillars:

- *Counterproliferation* to combat WMD use including active measures: (1) to prevent the threat from occurring via effective interdiction of WMD systems, materials, technology, and expertise being transferred to hostile states and terrorist organizations, (2) to seek to deter the threat if it materializes, and (3) to defend against the threat if it is employed against the U.S., its allies and friends.
- *Strengthened nonproliferation efforts* involving active diplomacy, multilateral and bilateral regimes, nonproliferation and threat reduction cooperation, controls on nuclear materials, export controls, and nonproliferation sanctions.
- *Consequence management* to respond to WMD use.

Within this framework, and as elaborated by the President in his speech at Ft. McNair on 11 February 2004, the major objective of nonproliferation—the second pillar—is to dissuade, prevent, or delay rogue states and terrorist groups from acquiring WMD, WMD-related materials, technology, expertise, and systems for their delivery. More broadly, the United States seeks to cultivate an international environment that is more conducive to nonproliferation. The task, therefore, is to assess whether the political, diplomatic and economic means to achieve this objective, are affected by repeal of PLYWD and to understand whether any changes in programs or activities could mitigate potential negative consequences of the repeal.

Implications of PLYWD Repeal for Achieving U.S. Nonproliferation Objectives

The “tools” that we apply to the problem of reducing incentives to proliferate, or mitigating the risks of proliferation, include bilateral and multilateral diplomacy, multilateral regimes such as the Nuclear Non-Proliferation Treaty (NPT), threat reduction cooperation, nuclear materials controls, export controls on WMD-related technologies and sanctions. We offer analysis and insights into potential impacts from PLYWD repeal on our ability to exploit each of these tools.

Will PLYWD repeal stimulate vertical proliferation among nuclear weapons possessing states, or cause other states to seek to acquire nuclear weapons capabilities? Will it increase incentives for rogue states or terrorists to acquire nuclear weapons?

With the end of the Cold War came the cessation of the nuclear arms competition between the United States and Soviet Union in which one side’s weapons modernization cycle generated a

reaction in the other. Modernization efforts were terminated or considerably reduced in scope. Subsequent efforts by the United States have been aimed more at sustainment of capabilities than modernization. Today, although Russia states that U.S. nuclear capabilities are still a factor in its decisions about nuclear forces, we believe there is relatively weak coupling between Russian and U.S. nuclear weapons R&D efforts.

Moreover, the Administration does not expect that repeal of PLYWD, in itself, would have any affect on vertical proliferation among nuclear weapons possessing states. First, no such state other than the U.S. has had a self-imposed restraint on nuclear weapons exploratory research. Russia, for example, has a very active (and unrestrained) exploratory nuclear research program that has accelerated over the past several years. The repeal of PLYWD by the U.S. literally cannot motivate others to remove similar restraints because no other state has a comparable restraint. Second, even if repeal of PLYWD led to concepts that the Administration would seek to develop and field, and for which Congress would authorize and appropriate funds, any presumed nonproliferation implications would depend on the specific nature of the concept under consideration. For example, R&D on designs that could increase confidence in stockpile safety and reliability under a test moratorium would be unlikely to generate a comparable reaction from nuclear weapons possessing states, who typically base their nuclear R&D programs on their own perceived security needs not on the specifics of U.S. nuclear R&D.

Repeal of PLYWD is unlikely to increase incentives for terrorists to acquire WMD—those incentives are already high and are unrelated to U.S. nuclear (or conventional) defense capabilities. Nor is it likely to have any impact on rogue state proliferation, which marches forward independently of the U.S. nuclear program. Indeed, there is no indication at all that very significant reductions in the numbers of U.S. (and Russian) nuclear weapons, and in the alert levels of nuclear forces, over the past decade, coupled with no U.S. nuclear testing and very little U.S. nuclear modernization, has caused North Korea or Iran to slow down covert programs to acquire capabilities to produce nuclear weapons. On the contrary, these programs have accelerated during this period. Nor did such U.S. restraint convince India and Pakistan not to test in 1998. Rather, North Korea and Iran appear to seek WMD in response to their own perceived security needs, in part, to deter the United States from taking steps to protect itself and allies in each of these regions. In this regard, their incentives to acquire WMD may be shaped more by U.S. advanced conventional weapons capabilities and our demonstrated will to employ them to great effect—in Bosnia, Kosovo, Afghanistan, and during both wars with Iraq—than to anything the United States has done, or is doing, in the nuclear weapons arena.

It is important to note that the credibility of the U.S. extended nuclear umbrella is extremely significant to the restraint of proliferation. Continued U.S. engagement in security cooperation with allies including a military presence, modern and flexible U.S. military forces, and the extension of a smaller but safe, reliable and capable nuclear deterrent to allies are key elements in *assuring* allies that they can count on the United States, and do not need to seek alternatives to the U.S. extended deterrent.

Would new, low-yield warheads, whose development could be stimulated by repeal of PLYWD, blur the distinction between nuclear and conventional weapons, making nuclear use more likely?

The United States is not blurring the line between the use of conventional and nuclear weapons, making nuclear use more likely. This is not simply an assertion, but is empirically based. Recall that from the 1950's and continuing through today, the U.S. nuclear stockpile has contained warheads capable of producing very low nuclear yields. At the height of the Cold War many thousands of these warheads were deployed, but never used—even in regional confrontations where their use would not necessarily have provoked a Soviet response. There is no evidence that the simple possession of these weapons made nuclear use by the United States more likely. It is noteworthy that the Administration's NPR emphasized an increasing potential to base deterrence more on non-nuclear and missile defense capabilities, and called for development of high-precision, advanced conventional weapons to replace nuclear systems, where possible, to further reduce our reliance on nuclear forces to deter aggression.

Regarding nuclear use threshold, there is a seeming tension between the credibility of nuclear deterrence capabilities and the perceived threshold of nuclear use. Some will argue that if a nuclear capability is more credible (e.g. reduced collateral damage), the U.S. would be more likely to use it. Others counter that if it's more credible, the adversary will be deterred and the U.S. would never need to use it. The fallacy, however, is to suggest that an adversary's view that the deterrent is more credible is necessarily linked to a lower U.S. threshold of use. Nuclear modernization efforts may well strengthen deterrence by altering an adversary's perception of what the United States is able to do, or might be prepared to do in a crisis, and do so without increasing the actual likelihood of use. To understand how this might occur, we must be clear about the means for U.S. nuclear weapons employment—only the President can authorize use of U.S. nuclear weapons and no President would be inclined to employ any nuclear weapon, irrespective of its explosive power, in anything but the gravest of circumstances. Simply put, the nuclear threshold for the United States has been, is, and always will be very high.

Will PLYWD repeal complicate U.S. multilateral efforts to advance the NPT regime in the upcoming 2005 Review Conference? Specifically, will it provide non-aligned states with ammunition to charge that the United States is inconsistent with its obligations under Article VI of the NPT?

Article VI of the NPT states that:

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

Nothing in the NPT, including Article VI, or any other Treaty, however, prohibits the United States from carrying out nuclear weapons exploratory research or, for that matter, from developing and fielding new or modified nuclear warheads. That said, we should, of course,

expect that several countries, in particular, those from the non-aligned movement, perhaps citing inaccurate or misleading press reports, will call attention to certain U.S. nuclear weapons R&D efforts, including research formerly prohibited by the PLYWD law, in questioning the U.S. commitment to Article VI and to nonproliferation in general. Of course, such criticism is not new. We deal with this challenge to U.S. diplomacy by calling attention to our leadership in supporting nonproliferation efforts worldwide, and by citing the solid record of accomplishments in nuclear reductions and other threat reduction activities.

Debate on the fulfillment of U.S. obligations under Article VI of the NPT has been a salient issue since inception of the Treaty. We accept that others will find fault with certain U.S. nuclear policies and will be disappointed that more progress has not been achieved toward nuclear disarmament. U.S. efforts over the years to strengthen the effectiveness of the NPT have always taken place in the context of spirited debate over Article VI. We understand the importance of Article VI and recognize that the Treaty can remain strong only if all parties take their obligations seriously. However, we also stress in our diplomacy that Article VI does not exist in a vacuum and that the pace and nature of progress toward nuclear disarmament depends on the international security environment, including the proliferation of WMD. Moreover, we continue to put forward a strong record of actions and policies that demonstrate unambiguously U.S. compliance with Article VI, and seek to correct misperceptions about aspects of U.S. nuclear policies and programs.

In this regard, in 1995, when the NPT was indefinitely extended, the United States reiterated its commitment under Article VI to work toward the ultimate goal of eliminating nuclear weapons, and to general and complete disarmament. Over the past 20 years, remarkable progress has been made in fulfilling this commitment. The nuclear arms race has, in fact, been halted. The United States has been reducing its nuclear forces and nuclear weapons stockpile in a consistent fashion through both unilateral and bilateral initiatives, and working cooperatively with allies and partners to further reduce nuclear threats. In particular:

- The INF Treaty, which entered into force in 1988, eliminated two whole classes of U.S. and Russian nuclear delivery vehicles—short-range and intermediate-range nuclear missiles.
- In 1991, the United States and its NATO allies unilaterally made the decision to retire all nuclear artillery shells, all nuclear warheads for short-range ballistic missiles, and all naval nuclear anti-submarine warfare weapons. None of these weapons are deployed today, and all of them have been eliminated.
- Also in 1991, the U.S. unilaterally:
 - removed all non-strategic nuclear weapons on a day-to-day basis from surface ships, attack submarines, and land-based naval aircraft bases;
 - removed strategic bombers from alert;
 - stood down the Minuteman II ICBMs scheduled for deactivation under START I;
 - terminated the mobile Peacekeeper and mobile Small ICBM programs; and
 - terminated the SRAM-II nuclear short-range attack missile.

- In January 1992, further unilateral steps were taken which included:
 - limiting B-2 production to 20 bombers;
 - stopping new production of Peacekeeper ICBMs;
 - canceling the entire Small ICBM program;
 - ceasing production of W88 Trident SLBM warheads; and
 - halting purchases of advanced cruise missiles.
- The 1994 NPR eliminated the capability to deploy nuclear weapons (bombs and cruise missiles) on surface ships.
- The United States has not enriched uranium for nuclear weapons since 1964, nor produced plutonium for nuclear weapons since 1988. Nor do we have plans to produce these materials for weapons in the future.
- Since 1992, the United States has maintained a unilateral moratorium on nuclear testing.
- The START Treaty, which entered into force in December 1994, reduced each side's deployed strategic weapons from well over 10,000 to 6,000 accountable weapons with full reductions implemented, on schedule, at the end of 2001.
- The 2001 NPR articulated a reduced reliance on nuclear forces in achieving U.S. national security objectives in light of a growing ability to achieve these objectives with conventional capabilities including an increased role for missile defenses.
- The 2001 NPR also articulated a vision, embodied in the Moscow Treaty, for additional deep reductions to a level of 1700-2200 operationally deployed strategic nuclear warheads by 2012.
- Under the START Treaty and the Moscow Treaty, the United States will have decommissioned, over the period of two decades, more than three-quarters of its strategic nuclear warheads attributed to its delivery vehicles.
- The Moscow Treaty entered into force last year; the following reductions under the Treaty have already begun:
 - all 50 Peacekeeper missiles are to be deactivated by the end of 2005;
 - three Trident missile submarines have been removed from strategic service, with one more to follow;
 - we will no longer maintain the ability to return the B-1 bomber to nuclear service.
- As a result of these significant changes, the U.S. nuclear stockpile has decreased by more than 50% since 1990.
- The most dramatic transformation has been in non-strategic nuclear forces, or NSNF, which have unilaterally been reduced to less than one-tenth of Cold War levels.

- The only nuclear weapons available for deployment that remain in the U.S. stockpile today are those carried by our strategic triad of ICBMs, SLBMs, and heavy bombers equipped with gravity bombs and air-launched cruise missiles, as well as non-strategic bombs and currently non-deployed nuclear-tipped sea-launched cruise missiles.
- U.S. defense spending on strategic nuclear forces has declined from 7% of the total DoD budget in 1991 to less than 3% today. The development programs we do have are designed to sustain the safety, reliability, and effectiveness of our remaining forces, and to ensure their continued high quality.

This is not all. Our threat reduction cooperation with Russia has made remarkable progress in further reducing nuclear threats. Among other things:

- We have worked together to eliminate (as of December 2003):
 - 27 Russian strategic ballistic missile submarines with 408 SLBM launchers,
 - 455 ICBM silo launchers, and
 - 124 strategic bombers.
- In all, over 6000 former Soviet nuclear warheads have been deactivated.
- We have improved physical security at 30 of 39 Russian naval warhead storage sites, and 3 Russian Strategic Rocket Forces sites, putting several thousand nuclear warheads into centralized storage.
- We have accelerated by two years, to 2008, the timeline for securing 600 MT of HEU and weapons-grade plutonium at 55 sites in Russia and the Newly Independent States of the former Soviet Union (FSU). This includes strengthened security for storing an estimated 60 MT of HEU in 34 buildings at 11 naval fuel storage facilities and shipyards, and an estimated 500 MT of HEU and weapons-grade plutonium under MINATOM control at 133 buildings in 10 “closed” nuclear cities.
- We have employed over 13,000 former weapons scientists at 180 institutes across the FSU in non-military, commercial pursuits.
- We have converted over 550,000 sq. ft. of floor space of Russia’s nuclear weapons complex to civilian industry. Nuclear weapons assembly at the Avangard plant was shut down ahead of schedule, reducing to three the number of such facilities in Russia.
- We have let contracts to facilitate the shut down of Russia’s last three plutonium-producing reactors at Seversk and Zeleznogorsk by replacing those reactors with fossil fuel plants.

- We have downblended more than 200 MT of HEU from Russia's dismantled nuclear weapons for use in U.S. nuclear power plants—enough material for about 8000 nuclear weapons.
- We have committed to disposing of 68 total tons of excess weapons-grade plutonium by converting it to mixed-oxide (MOX) fuel for burning in commercial power reactors (34 tons each from both Russia and the United States)

Finally, the Administration signed the IAEA Additional Protocol and President Bush submitted it to the Senate in May 2002 for ratification. We are encouraging other states to sign and adhere to the Additional Protocol.

Articulation of this strong record will not eliminate criticism of the United States, but should counter any negative sentiments expressed at the NPT Review Conference along the lines that specific U.S. nuclear weapons R&D activities demonstrate that the United States is not serious about its Article VI obligations.

Will PLYWD repeal affect other U.S. diplomacy in advancing nonproliferation? Will it affect threat reduction cooperation with allies and partners? Will it impede multilateral efforts to strengthen export controls and nonproliferation sanctions?

We should, of course, expect that rogue states will seize on public debates about U.S. nuclear R&D as a means to deflect attention from, or serve as an excuse for, their own nuclear weapons programs. That said, there is no indication that PLYWD repeal, the debate over PLYWD repeal, or U.S. nuclear weapons programs in general, have had, or will have, any adverse impact, or complicate progress on, any bilateral and multilateral efforts to advance the U.S. nonproliferation agenda including the following:

- the 6-party talks to denuclearize North Korea,
- the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction launched by President Bush and other G-8 leaders in June 2002,
- the Proliferation Security Initiative,
- efforts of the U.S. and UK to negotiate the terms of removal of WMD equipment and technologies from Libya and subsequent removal,
- U.S. bilateral efforts to engage Russia to end its nuclear assistance to Iran,
- U.S. partnership with, and support to, the IAEA,
- ongoing threat reduction cooperation with Russia and other former Soviet states,
- an initiative among the U.S., Russia and the IAEA to address transparency measures associated with HEU blenddown,
- strengthening the Nuclear Suppliers Group, and
- UN sanctions on Iraq prior to the Iraq war.

Nor does PLYWD repeal require any changes in programs or related activities in order to achieve U.S. nonproliferation objectives.

Conclusion

Although PLYWD repeal will slightly complicate U.S. nonproliferation diplomacy, particularly in the NPT review process, we anticipate no significant impact on U.S. ability to achieve our objectives at the 2005 NPT Review Conference. Moreover, there is no reason to believe that repeal has had or will have any practical impact on the pursuit of nuclear weapons by proliferating states, on the comprehensive diplomatic efforts ongoing to address these threats, or on the possible modernization of nuclear weapons by China or Russia.

The United States will continue to lead the way to a safer world through the deep reductions in nuclear forces undertaken in the Moscow Treaty, through Nunn-Lugar and other cooperative threat reduction efforts, and through other actions. At the same time, although conventional forces will assume a larger share of the deterrent role, we will maintain a smaller nuclear force as a hedge against a future that is uncertain and in a world in which substantial nuclear arsenals remain. A modest nuclear weapons advanced concepts effort, carried out without vague and arbitrary legal limitations, is a prudent step toward ensuring that U.S. nuclear scientists and engineers will be able to explore the full range of technical options in seeking to strengthen deterrence and restore a responsive nuclear weapons infrastructure. Moreover, we expect to achieve this without risk to critical nonproliferation objectives. At the same time, we will be working in the years ahead to further reduce the U.S. nuclear arsenal, consistent with national security requirements.