IRREVERSIBILITY AND VERIFICATION

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Ambassador Salander, distinguished delegates, and NGO colleagues,

On May 5, 2000, at the conclusion of the first Review of the Nuclear Non-Proliferation Treaty (NPT) since its indefinite extension in 1995, under enormous international pressure, the nuclear weapon States agreed to 13 practical steps for the systematic and progressive implementation of Article VI, which requires them to negotiate in good faith the cessation of the nuclear arms race and nuclear disarmament. One of the most important, yet least examined of these steps is: The principle of irreversibility to apply to nuclear disarmament, nuclear and other related arms control and reduction measures. Closely related is the commitment to: The further development of the verification capabilities that will be required to provide assurance of compliance with nuclear disarmament agreements for the achievement and maintenance of a nuclear-weapon-free world.

According to Webster’s Dictionary, a principle is “[a] fundamental truth, law, or postulate.” Irreversible means, simply, “[i]npossible to reverse.” While the principle of irreversibility obviously applies to the dismantlement of warheads, the long-term disposition of fissile materials including those removed from dismantled warheads, and the physical destruction of delivery systems, it applies equally to retention of large “responsive” forces and expanding laboratory capabilities including research, development, testing and production of both new and improved warheads and delivery systems. More fundamentally, the principle of irreversibility is a commitment not to backtrack on the Article VI obligation itself. Are the nuclear weapon States adhering to the “fundamental truth” of irreversibility? Judge for yourselves. The January 2002 U.S. Nuclear Posture Review (NPR), amounts to an unequivocal rejection of most of the 13 steps agreed to just two years ago in this forum, as well as of nuclear disarmament itself. The NPR is virtually a blueprint to ensure that any and all nuclear and related arms control and reduction measures undertaken by the United States are fully reversible for the foreseeable future.

Contrary to another of the pledges made here in May 2000, the NPR reaffirms the centrality of nuclear weapons in U.S. national security policy. Its basic orientation is to maintain maximum flexibility with regard to arsenal size and capabilities, with minimum treaty limitations. While unilateral cuts in deployed U.S. strategic arms are anticipated over the next 10 years, the capability to rapidly reconstitute the arsenal size is emphasized. The capability to modify existing nuclear weapons or develop new weapon types will be retained, along with an upgraded capacity to resume full scale underground nuclear tests. The policies declared in the NPR are designed to make the use of nuclear weapons more credible. The NPR relocates nuclear weapons within a broad spectrum of war fighting capabilities including not only missile
defenses, but new military systems ranging from more sophisticated long range, accurate conventional missiles to weapons designed to disrupt or destroy electronic command, control, and air defense systems. The NPR also calls for the modernization of the research laboratories and production plants needed to design and build new nuclear warheads and other strategic weapons along with the means of their delivery. While U.S. officials claim that the new NPR approach to “deterrence” will de-emphasize nuclear weapons – mainly by developing an array of more powerful, accurate conventional weapons with global reach – research is going forward on improving nuclear weapons for new missions, including the destruction of deeply buried targets and chemical and biological weapons and materials.

While the Bush Administration has announced that the U.S. will unilaterally slash its nuclear arsenal by two-thirds, this claim is illusory. At best, it could be argued that the NPR “cuts” – to 1700 to 2200 deployed strategic warheads – will reduce the operational status of a significant number of nuclear weapons. But instead of being destroyed, many of the warheads withdrawn from deployment will be retained as part of a “responsive force,” enabling the U.S. to re-deploy an expanded nuclear arsenal far into the future. Also uncounted in the U.S. arms reductions are nuclear weapons that were designated as “tactical” for Cold War arms control purposes. An authoritative independent source estimates that the U.S. nuclear arsenal after the proposed “reductions” may, including all categories, total nearly 15,000 nuclear warheads.\textsuperscript{iv}

The NPR in general does not call for destruction of delivery systems or dismantlement of warheads. 50 MX “Peacekeeper” missiles are to be deactivated, but their silos will be retained, as will missile stages and the warheads. Four of 18 U.S. Trident submarines will be withdrawn from the strategic nuclear force, but will be converted to carry conventional cruise missiles. No additional strategic delivery platforms are scheduled to be eliminated. In contrast, START I requires, and START II would have required, the destruction of delivery systems, and the 1997 Helsinki commitment to START III additionally envisaged accounting for and dismantling of warheads. In addition, the U.S. is planning for a new intercontinental ballistic missile (ICBM) to be operational after 2020, a new nuclear-powered, ballistic-missile submarine (SSBN) and submarine-launched ballistic missile (SLBM) in 2029, and a new heavy bomber in 2040, as well as new warheads for all of them.

These plans read like a deadly game of disarmament deception. In one illustrative example:

“The elimination of the Peacekeeper ICBM will be phased to correspond with the introduction of the Trident II (D-5) missile in the Pacific. As they are eliminated, those Peacekeeper missiles remaining during the elimination process will be kept on alert to provide a necessary contribution to the U.S. portfolio of capabilities.” (p. 54)

Although U.S. Defense Secretary Donald Rumsfeld stated at a March 13 press briefing that “the Nuclear Posture Review is not an operational planning document,” evidence points to the contrary. The National Nuclear Security Administration (NNSA) relied on the NPR as a primary budget justification in its $5.9 billion request to the U.S. Congress for nuclear weapons activities – not including delivery systems – in Fiscal Year (FY) 2003 As described in the Budget request:
“The centerpiece of the NPR is the New Triad of flexible response capabilities consisting of the following elements:
• non-nuclear and nuclear strike capabilities including systems for command and control,
• active and passive defenses including ballistic missile defenses, and
• R&D [research and development] and industrial infrastructure needed to develop, build, and maintain nuclear offensive forces and defensive systems

Of particular interest... is that the New Triad reflects a broad recognition of the importance of a robust and responsive nuclear weapons infrastructure in sustaining deterrence and dissuasion. In this connection,... the flexibility to sustain our enduring nuclear weapons stockpile, to adapt current weapons to new missions, or to field new weapons, if required, depends on a healthy program for stockpile stewardship... as well as a robust infrastructure for nuclear weapons production.”

According to the NPR: “[T]he technology base and production readiness infrastructures of both DoD [Department of Defense] and NNSA must be modernized so that the United States will be able to adjust to rapidly changing situations .... a need may arise to modify, upgrade, or replace portions of the extant nuclear force or develop concepts of follow-on nuclear weapons better suited to the nation’s needs. It is unlikely that a reduced version of the Cold War nuclear arsenal will be precisely the nuclear force that the United States will require in 2012 and eyond.” (p. 23)

The “Stockpile Stewardship” program referred to in the Budget document is the enormous, misleadingly named program to modernize U.S. nuclear weapons research facilities and production plants. Work is already underway at the weapons labs to develop the capability for expedited production, without underground testing, of existing and new design plutonium “pits”— the cores of hydrogen bombs. And plans are on the drawing board for a much larger pit factory to be built in the future. The FY 2003 Budget requests $190 million for manufacturing and certifying a new plutonium pit for the W88 Trident warhead, at the Los Alamos National Laboratory in New Mexico. The Budget provides for adding as many as 10 new W88 warheads to the stockpile per year, beginning as early as 2007. The U.S. already has approximately 12,000 pits from dismantled nuclear weapons in storage, kept in condition for re-use in new bombs and warheads if desired. Tritium (radioactive hydrogen – the “H” in H-bomb), with a radioactive half-life of about 12.5 years, decays in natural accordance with the principle of irreversibility, and this should be taken advantage of. Instead, the Budget requests $126 billion to begin replenishing supplies of tritium gas for nuclear weapons in 2006. If the U.S. merely recycled the tritium from its already dismantled warheads, it would have sufficient tritium to maintain as many as 10,000 nuclear warheads for more than a decade.vi

As described in the NPR: “The current nuclear planning system, including target identification, weapons system assignment, and the nuclear command and control system requirements, is optimized to support large, deliberately planned nuclear strikes. In the future, as the nation moves beyond the concept of a large, Single Integrated Operation Plan (SIOP) and moves toward more flexibility, adaptive planning will play a much larger role.”(p. 29) Part of that “adaptive planning” involves updating the current U.S. nuclear warhead structure: “The need for a revitalized nuclear weapons complex that will: ...be able, if directed, to design, develop,
manufacture, and certify new warheads in response to new national requirements; and maintain readiness to resume underground nuclear testing if required.” (p. 30)

As a primary component of Stockpile Stewardship, the U.S. is building an array of new nuclear weapons research facilities of unprecedented sophistication, which will allow the continued testing of many aspects of nuclear weapons in the laboratory. Together with the world’s most powerful super-computers, these devices will allow the U.S. to train a new generation of nuclear weapons designers and to explore new weapons concepts, despite the moratorium on full scale underground nuclear testing, essentially reversing the historical intent of the CTBT. The centerpiece of the Stockpile Stewardship program is the National Ignition Facility (NIF), a multi-billion dollar stadium-sized laser facility, under construction at the Lawrence Livermore National Laboratory in California. By blasting a radioactive fuel pellet with 192 tuned laser beams the goal is to create a nuclear fusion explosion inside a reactor vessel. The NIF is slated to be used for a wide range of applications from training nuclear weapons designers to studying the effects of radiation, heat and blast on weapons components, sensors, communications satellites, and underground structures. NIF weapons effect experiments, including “laser/fireball” tests, may be used in connection with the development of low-yield nuclear weapons and missile defense concepts. The mini-fusion explosions planned for NIF could, in the long term, lead to the development of pure fusion weapons, not requiring plutonium or highly enriched uranium. Britain has invested a substantial amount, on the order of at least 100 million pounds, to expand the NIF’s experimental capabilities. France, in close cooperation with the U.S., is building a virtually identical laser facility, the Projet Megajoule, in Bordeaux. Other states parties to the NPT are supporting these projects, at least indirectly. A U.S. subsidiary of the Hoya Corporation, a Japanese optical glass giant, and a U.S. subsidiary of the Schott Group, headquartered in Germany, are producing laser glass slabs — key components — for the NIF and the Megajoule. France is currently engaged in developing and deploying a new generation of nuclear-powered ballistic-missile submarines (SSBN’s), submarine-launched ballistic missiles (SLBM’s), and air-launched weapons.

The NPR explicitly rejects the CTBT and endorses a higher level of readiness for nuclear testing. Since signing the CTBT in September 1996, the U.S. has detonated 16 “subcritical”, or zero yield, nuclear explosions underground at the Nevada Test Site. These tests, involving plutonium and high explosives, stop just short of achieving self-sustaining nuclear chain reactions. In addition to providing information relevant to nuclear weapons design, these experiments help to keep Test Site personnel prepared for full-scale underground nuclear tests, should they be desired. The February 14, 2002 subcritical test was a joint U.S.-U.K. experiment, conducted according to the NNSA “...under the terms of the 1958 Mutual Defense Agreement.” Cooperation between the U.K. and U.S. teams working on the design and testing of nuclear warheads has increased significantly in recent years. Presumably this work is on extending the life of Trident, or on a replacement warhead for Trident, or both. The number of visits by UK personnel to the Nevada Test Site increased from four in 1999 to 20 in 2001. This gives rise to fears that the U.K. may abandon its commitments under the CTBT and resume testing, should the U.S. do so. The U.S. currently maintains the capability to return to full scale nuclear testing within 24 - 36 months, however the DoD and the NNSA are conducting a study to reevaluate this capability. An influential former Livermore Lab director, John Foster, recently told the House
Armed Services Committees that the U.S. should reduce the time needed to prepare a warhead test to 3 - 12 months.

Under Stockpile Stewardship, programs to upgrade existing nuclear weapons, in many cases giving them enhanced military capabilities, are underway for every weapon type in the U.S. arsenal. As stated in the NPR: “A major challenge for nuclear weapons programs over the next two decades will be to refurbish, and thereby extend the life of, at least seven types of nuclear warheads.” These include gravity bombs, cruise missiles, and Trident warheads. The NPR also supports continued research on nuclear weapons with new military capabilities. Research is ongoing on both low-yield nuclear warheads and on targeting techniques to make nuclear weapons more useful, particularly against deeply buried targets and against chemical and biological weapons facilities. One such weapon, the B61-11 earth penetrator was developed after the 1991 Gulf War, and deployed in 1997, without a nuclear explosive test, using the existing warhead component testing and simulation capabilities of the weapons labs. The NNSA is requesting funding in FY 2003 to begin study of a new or modified “Robust Nuclear Earth Penetrator.”

On February 14, NNSA head John Gordon, told the Senate Arms Services Committee that the NPR endorsed plans to “[r]eestablish nuclear warhead advanced concepts teams” at the nuclear weapons laboratories. The eventual goal “is to maintain sufficient R&D [research and development] and production capability to be able to design, develop, and begin production on the order of five years from a decision to enter full-scale development of a new warhead.” This is roughly the same length of time it took to design and produce a new nuclear weapon during the Cold War.

The NPR projects “follow-ons” that extend far into the future, to all three legs of the “old” strategic triad. This is tantamount to a policy of “nuclear weapons forever” – surely and irrevocably inconsistent with the principle of irreversibility. Consider the following examples:

“Follow-on ICBM: The Air Force Systems Command... documented a number of needs beyond the current baseline ICBM mission, such as extended range, trajectory shaping, strategic relocatable targets, and hardened deeply buried targets, that the next generation ICBM could address.” This section goes on to state “the need for ICBMs beyond 2020.” (p.41)

“Follow-on SSBN: ... DoD assumes the continued requirement for a sea-based strategic nuclear force. Therefore, the time frame when the next generation SSBN will need to be deployed is about 2029 when the first of the remaining operational Trident SSBNs is planned to be retired. The Navy is currently studying two options for future follow-on SSBNs.... If the decision made to develop a new dedicated SSBN, a program would have to be initiated around 2016 to ensure that a new platform is available in 2029.” (p. 42)

“Follow-on Strategic Bombers: ... a new bomber will need to be operational by approximately 2040. A need for additional or improved bomber capabilities could,
however, move the ‘need date’ closer to the present... The Air Force recently funded a science and technology effort... to further explore options.” (p. 43-44)

The United States is working in close cooperation with its allies, Britain and France, to share the backwards principle of full “reversibility” of nuclear disarmament and related measures. But what about the two nuclear weapon states that appear on the NPR’s “target list?”

In the days following the “leak” of the classified NPR to the press, China expressed its “deep shock” that it was listed as a U.S. nuclear target, while both Russia and China demanded full explanations of their appearances on the list. Russian Defense Minister Sergei Ivanov told the New York Times that Russian policy “is based on the irreversibility of the reduction of strategic weapons,” and called the U.S. plan to store the warheads, “unacceptable.” He asked: “Can such a reduction be considered a real one? Make your own judgement.” And he warned that the U.S. plan would lead to a new kind of arms race by forcing other nations to develop their own plans for reversible disarmament. xiii China’s Foreign Ministry issued a statement on March 11, warning: “Any Cold War mentality goes against the global trend of peace and development through cooperation, and is doomed to failure.” xiv

Looking beyond these statements, it’s easy to see the seeds of new arms races as terrible and terrifying as any that have gone before. While the NPR exposes the breadth and scope of U.S. nuclear weapons policies, it does not represent a radical break with the past. Rather it is a continuation of policies that began in 1945 and adapted with the end of the Cold War. This adaptive process has not been one-sided. For example, in April 1999, the Russian Security Council approved a concept for developing and using non-strategic low-and flexible-yield battlefield weapons. According to a Russian policy analyst, “Nuclear Power Ministry plans speak, using exactly the same language as their U.S. counterparts, of making new low-yield bunker busters and of surgical strikes by bombs with an explosive yield of ‘just’ tens or hundreds of tons of TNT.” And, he warns, “Now the Nuclear Posture Review will give Russian bomb makers additional arguments to press ahead with testing and deployment. If the United States resumes real nuclear tests to make the new weapons, Russia will soon follow” at its Novaya Zemlya test site in the Arctic. He concludes: “It seems bomb makers on both sides of the Atlantic are members of one trade union and are closely coordinating their moves. It’s also clear they do not care much about the potential fallout.” xv

If the programs and policies advocated in the NPR go forward, Russia will retain an arsenal large enough to destroy the U.S. and China will likely modernize and expand its own relatively small nuclear forces and modest delivery capabilities. Moreover, additional countries, which have so far refrained from developing nuclear weapons may be prompted to enter the race, thereby dooming hopes for real progress on arms control and disarmament for the foreseeable future. This is not irreversible disarmament.

Turning again to Webster’s Dictionary, to verify means “[t]o prove the truth of by presenting evidence or testimony.” The further development of the verification capabilities that will be required to provide assurance of compliance with nuclear disarmament agreements for the achievement and maintenance of a nuclear-weapon-free world is enormously complicated by the programs and policies exemplified in the nuclear posture of the world’s leading super power.
The irreversibility of the disarmament process is essential to the long-term viability of the NPT. This will require a major departure from the approach taken thus far in reviewing the operation of the NPT, which has relied upon declaratory statements not backed by quantifiable and verifiable measures. This has allowed the nuclear weapon states, and most egregiously the United States, to circumvent meaningful compliance with the historical intent of the Treaty.

_Nuclear disarmament, nuclear and other related arms control and reduction measures_ will only be effective if they can be adequately verified, both in political and technical terms. Verification policies that will assure early detection and interpretation of information necessary for preventing prohibited activities or permitting timely response must be put in place. It is essential, in this regard, that the closure and monitoring of the nuclear weapons infrastructure in all nuclear weapons states must begin early in the process of disarmament. _Nuclear weapons research, testing, and component production should be halted while reductions are in progress, not after, with nuclear weapons production and research facilities subject to intrusive verification regimes at the earliest possible time._ Fissile materials accounting, for example, already a challenging task, is rendered more so by the continued fabrication and testing of weapons components in classified facilities. Early cessation of both research and production activities also makes evasion of emerging verification regimes and covert production of components or manufacturing equipment substantially more difficult. The continued pursuit of increased nuclear weapons knowledge by one state – including everything from systematization of fissile materials understanding to more rapid, flexible, and easily scaled production techniques – will be matched to a greater or lesser degree by others. The longer such activity continues prior to achievement of an abolition regime, the greater and more widespread the technical capability for breakout and the concomitant proliferation of nuclear weapons is likely to be.

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2. Id., 15. 13., p. 15

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The classified Nuclear Posture Review (NPR) was submitted to the U.S. Congress on December 31, 2001. It was subsequently “leaked” to the Los Angeles Times and the New York Times, who reported on it starting March 10, 2002. The Pentagon held a briefing on January 9, 2002, at which the broad outlines of the NPR were presented to the press. Excerpts from the classified NPR, including those quoted here, are available on line at [http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm](http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm). More resources on the NPR including all publicly available documents and Congressional testimony, relevant NGO publications, and newspaper articles are available on line at [http://www.wslfweb.org/nukes/npr.htm](http://www.wslfweb.org/nukes/npr.htm)
These include “deployed, strategic” warheads, “nonstrategic” bombs and warheads, strategic and non-strategic “responsive” forces, “spare” warheads, “inactive reserve” stockpile, and some 5,000 stored plutonium and/or uranium “primary” and “secondary” components that could be reassembled into weapons. Faking Nuclear Restraint: The Bush Administration’s Secret Plan for Strengthening U.S. Nuclear Forces, Natural Resources Defense Council, February 2002, available on line at http://www.nrdc.org/media/pressreleases/020213a.asp

Weapons Activities/Executive Summary, FY 2003 Congressional Budget, available on line at http://www.cfo.doe.gov/budget/03budget/content/weapons/weapons.pdf


Sipri Yearbook 2001, Appendix 6A. Tables of nuclear forces, by Hans M. Kristensen and Joshua M. Handler, available on line at http://projects.sipri.se/nuclear/index.html Note: This chapter provides a detailed analysis, as of January 2001, of the nuclear forces of the United States, Russia, Great Britain, France, China, India, Pakistan, and Israel.


The UK’s Record on Nuclear Disarmament: Moving towards the 7th UN Review Conference on Nuclear Non-Proliferation Treaty (NPT) in 2005, Campaign for Nuclear Disarmament (CND) Briefing, Sixth Edition, available on line at http://www.cnduk.org/briefing/npt2002.htm. It is noteworthy that there are no specifically U.S. or UK Trident II missiles, but a pool of SLBMs at the Strategic Weapons Facility Atlantic at the Kings Bay Submarine Base, in Georgia. The UK has title to 58 SLBMs but does not actually own them. A missile that is deployed on a US SSBN may at a later date deploy on a British one or visa versa. (Sipri, p. 470)

A table in the NPR lists these as B61-3, 4, 10; B61-7, 11; W76; W78; W80-0, 1; B83-1; W87; and W88.


