For A Safer America: The Case for the Comprehensive Nuclear Test Ban Treaty
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To achieve a global ban on nuclear testing, my Administration will immediately and aggressively pursue U.S. ratification of the Comprehensive Test Ban Treaty. After more than five decades of talks, it is time for the testing of nuclear weapons to finally be banned.
– President Barack Obama, April 5, 2009

“[Republican Senators] might have been right voting against it some years ago, but they would be right voting for it now, based on these new facts.”
– former Secretary of State George Shultz, April 17, 2009

A global halt to nuclear weapons testing has been a central, bipartisan national objective of the United States since the late-1950s when President Dwight Eisenhower sought a comprehensive test ban. Without the ability to conduct nuclear weapons test explosions, a country cannot proof-test new warhead designs and engage in arms races by building more capable nuclear arsenals.

Following the end of the Cold War, the world’s nations finally came together to negotiate the Comprehensive Nuclear Test Ban Treaty (CTBT) to help curb the spread of nuclear weapons and ensure an end to superpower nuclear arms competition. In September 1996, the United States was the first nation to sign the Comprehensive Test Ban Treaty (CTBT), which “prohibits any nuclear weapon test explosion or any other nuclear explosion,” and establishes a global monitoring network and the option of short-notice on-site inspections that improves capabilities to detect and deter cheating.

Today, the CTBT is more important than ever. U.S. approval of the Treaty would substantially constrain the ability of other nuclear-armed states to perfect new and more deadly nuclear bombs, and reestablish U.S. leadership on stopping the spread of nuclear weapons—enhancing U.S. security for years to come.

To date, the CTBT has been signed by 182 nations, including Russia, China, Great Britain and France, and ratified by 150, including all of the United States’ other NATO allies. The CTBT’s entry into force awaits ratification by nine key countries, including the United States.

Unfortunately, the U.S. Senate declined to give its advice and consent to ratification when it briefly considered the Treaty in October 1999. Many Senators who voted “no” expressed concerns about the ability of the United States to maintain its arsenal in the absence of testing and verify compliance with the Treaty. Some pro-testing senators will try to urge their colleagues not to reconsider the CTBT. That would be a mistake. The security value of the CTBT is greater than ever, and significant technical advances address earlier concerns about the treaty.
The time has come for U.S. policy makers to reconsider and ratify the CTBT. There is neither the need nor the political support for renewed U.S. nuclear weapons testing, and it is in the national security interest to help prevent nuclear weapons testing by others. Though the United States has already assumed most CTBT-related responsibilities, it cannot reap the full security benefits of the CTBT until the Senate approves the Treaty by a two-thirds majority.

With the support of President Barack Obama, bipartisan support from opinion leaders, and significant improvements and greater confidence in the United States’ ability to maintain its existing nuclear arsenal and detect nuclear weapons test explosions, the argument for reconsideration and ratification of the CTBT is strong.

Key Reasons Why the United States Should Approve the Comprehensive Test Ban Treaty:

1. The Comprehensive Test Ban Treaty Increases U.S. Security

- By banning the “bang,” the CTBT makes it harder for nations already possessing nuclear weapons—like China, India, Pakistan, and Russia—to field new, more sophisticated nuclear warheads. In China’s case, a new round of nuclear weapon test explosions would allow it to miniaturize warhead designs and allow it to put multiple warheads on its relatively small arsenal of strategic ballistic missiles—a move that could allow it to rapidly increase its nuclear strike capability.

- Without nuclear weapon test explosions, could-be nuclear-armed nations—like Iran—would not be able to proof test the more advanced, smaller nuclear warheads designs that are needed in order to deliver such weapons using ballistic missiles. The CTBT helps block new nuclear threats from emerging, thereby enhancing U.S. and global security.

- U.S. ratification of the CTBT will restore U.S. global leadership and strengthen international support for the Nuclear Non-Proliferation Treaty (NPT), the bedrock of all efforts to stop the spread of nuclear weapons. In 1995, the U.S. and the other nuclear powers promised to deliver on the CTBT in exchange for the indefinite extension of the NPT—a good deal that must be honored. U.S. progress toward reconsideration and ratification of the CTBT before the May 2010 NPT Review Conference will be essential to achieving agreement on new measures to strengthen global nonproliferation rules.

The UN Security Council unanimously adopted Resolution 1887 on September 24, 2009, which outlines a practical and comprehensive action plan to prevent the spread and use of nuclear weapons. Resolution 1887 “…calls upon all States to refrain from conducting a nuclear test explosion and to sign and ratify the Comprehensive Nuclear Test Ban Treaty (CTBT), thereby bringing the treaty into force at an early date.”

- With or without the Treaty, it is highly unlikely that the United States will ever conduct another nuclear explosive test. Thus, it is in the U.S. interest to ensure that other nations are not conducting nuclear tests.

It has been more than 17 years since the last U.S. nuclear test explosion. In 1992, following the end of the Cold War and a Russian nuclear test moratorium, President George H. W. Bush announced a halt to the development of new types of nuclear warheads and that same year, Congress mandated a 9-month moratorium on nuclear weapon test explosions. In 1993 President Bill Clinton extended the moratorium and in 1994 he initiated global test ban treaty negotiations. The United States was the first nation to sign
the CTBT in September 1996. President George W. Bush did not support the CTBT, but did not resume U.S. testing. Now, President Barack Obama supports reconsideration and ratification of the CTBT.

- Ratification of the CTBT by the United States will prompt other hold-out states, including China, to ratify, and will put pressure on India, Iran, Israel, and Pakistan, to follow suit.

On September 24, 2009, Representatives from the 150 ratifying states, in including U.S. Secretary of State Hillary Clinton and a large number of other Foreign Ministers, as well as representatives from Signatory States and from non-signatory States, gathered at the UN Headquarters in New York to find ways to accelerate the process of entry into force of the CTBT.

The prospect of U.S. ratification has already begun to spur new thinking in India. In response to claims that India’s 1998 tests were unsuccessful, India’s National Security Advisor M. K. Naranyanan said in an August 30 interview in The Hindu: “As of now, we are steadfast in our commitment to the moratorium. At least there is no debate in the internal circles about this.” Asked if India would have no problem signing the treaty if the others whose ratification is required for the CTBT to enter into force — especially the U.S. and China — did so, Mr. Narayanan responded: “I think we need to now have a full-fledged discussion on the CTBT. We’ll cross that hurdle when we come to it.”

Ratification of the CTBT by these states would help head-off and deescalate regional tensions. With no shortage of conflict and hostility in the Middle East, ratification by Israel, Egypt, and Iran would reduce nuclear weapons-related security concerns and bring those states further into the nuclear nonproliferation mainstream. Action by Israel to ratify could put pressure on other states in the region to do so. Iranian ratification would help address concerns that its nuclear program could be used to develop and deploy deliverable nuclear warheads. India and Pakistan could substantially ease regional tensions by converting their unilateral test moratoria into a legally-binding commitment to end nuclear testing.

- The United States’ capability to detect and deter possible clandestine nuclear testing by other states will be significantly greater with the CTBT in force than without it. U.S. ratification of the CTBT is essential to making short-notice, on-site inspections possible and maintaining long-term political and financial support from other nations for the operation of the CTBT’s International Monitoring System and International Data Center.

2. The United States Can Maintain an Effective Arsenal Without N-Test Explosions

Over the past decade, the success of the U.S. stockpile stewardship program has demonstrated that the nuclear arsenal can be effectively and reliably maintained under a permanent CTBT.

- Maintaining the reliability of proven U.S. nuclear warhead designs does not depend on a program of nuclear test explosions. Instead, the U.S. nuclear arsenal can be maintained through non-nuclear tests and evaluations, combined with the replacement or remanufacture of key components to previous design specifications. Since 1994, each warhead type in the U.S. nuclear weapons arsenal has been determined to be safe and reliable through a rigorous certification process instituted following the end of U.S. nuclear testing.

- For more than fifteen years, a nationwide infrastructure of nuclear weapons research, evaluation, and manufacturing sites and laboratories has been maintained and enhanced for this purpose under the Stockpile Stewardship Program. Currently, the United States spends more than $6 billion annually on its Stockpile Stewardship Program, which includes nuclear weapons surveillance and maintenance, non-
nuclear and subcritical nuclear experiments, sophisticated supercomputer modeling, and life-extension programs for the existing warhead types in the enduring U.S. nuclear stockpile.

- A 2002 National Academy of Science panel, which included three former nuclear weapons lab directors, found that the current Stockpile Stewardship Program provides the technical capabilities that are necessary to maintain confidence in the safety and reliability of the existing seven types of nuclear warheads in the active stockpile, "provided that adequate resources are made available...and are properly focused on this task." According to the NAS panel, age-related defects mainly related to non-nuclear components can be expected, "but nuclear testing is not needed to discover these problems and is not likely to be needed to address them."

- Though the U.S. nuclear arsenal is aging, more is known today about the U.S. nuclear weapons arsenal than ever before and confidence in the ability to maintain the warheads is increasing at a faster rate than the uncertainties. For example, in 2006 the Department of Energy announced that studies by Lawrence Livermore and Los Alamos National Laboratories show that the plutonium primaries, or pits, of most U.S. nuclear weapons “will have minimum lifetimes of at least 85 years,” which is about twice as long as previous official estimates.

- Over time, the reliability of existing warheads can be maintained by replacing non-nuclear parts that can be validated through non-nuclear testing and evaluation. And, in recent years, the weapons labs have begun to increase the reliability of existing warheads by adding more boost gas to increase the explosive energy of the primary stage of the weapon well above the minimum needed to ignite the secondary, or main, stage of the warhead.

- Contrary to the concerns of some CTBT skeptics, the cessation of nuclear-explosion testing has not caused the laboratories to lose technical competence. Rather, significant advances have been achieved as researchers were able to study the physics underlying weapon performance in greater depth, undistracted by the demands of a nuclear weapons test explosion program.

- Senate approval of the CTBT would further strengthen bipartisan support for effective stockpile stewardship efforts to ensure that so long as the United States has nuclear weapons, they remain safe and reliable without the resumption of nuclear testing, and if the United States ever decides to exercise the CTBT “supreme national interest” withdrawal clause, to ensure that the United States has the competence to resume testing.

### 3. The Comprehensive Test Ban Treaty Is Effectively Verifiable

Monitoring for nuclear weapon test explosions has become so effective that no would-be cheater could be confident that a nuclear explosion of sufficient yield to possibly threaten U.S. security would escape detection.

- The CTBT allows the United States and other member states to monitor CTBT compliance with their own, highly-sophisticated satellites and other national intelligence means. New technologies, such as INSAR (Interferometric Synthetic Aperature Radar) can now provide detailed monitoring of vertical deformations caused by underground nuclear test explosions. Thousands of high-quality civilian seismic stations around the world provide further detection capabilities.
• The CTBT establishes a far-reaching International Monitoring System (IMS) to detect potential nuclear explosions using four technologies: seismic, hydroacoustic, radionuclide, and infrasound. Since 1999, many more of these stations have been built and are delivering data. To date, more than 280 of the planned IMS stations have been built, including a new array of highly-capable “noble gas” monitoring stations that can detect minute amounts of the radioactive gases emitted by underground explosions into the atmosphere. An International Data Center based in Vienna collects and analyzes information from the IMS and disseminates the raw and processed data to member states for their own evaluation.

• In the event of a suspected nuclear explosion that cannot be resolved by remote sensing means, CTBT states may call for a short-notice, on-site inspection (OSI) of a suspected test site.

• During the Senate debate on the CTBT in 1999, some critics claimed that the IMS could only monitor for underground explosions at yields at or above one kiloton TNT equivalent. In reality, actual nuclear test explosion monitoring capabilities were much better and have only improved since then.

• A 2002 National Academy of Sciences panel determined that “underground nuclear explosions can be reliably detected and can be identified as explosions, using IMS data down to a yield of 0.1 kilotons (100 tons) in hard rock if conducted anywhere in Europe, Asia, North Africa and North America.” Advances in regional seismology have provided additional confidence. For some locations (such as Russia’s former nuclear test site at Novaya Zemlya) the use of new seismic arrays and regionally located seismic stations has lowered the detection threshold to below 0.01 kilotons. Advances in new technologies, such as noble gas monitoring, provide powerful new detection capabilities.

• For example, when North Korea conducted its first nuclear weapons test explosion in October 2006, the extensive network of sensors in the International Monitoring System (IMS) set up to monitor CTBT compliance easily detected the relatively low-yield (0.6 kiloton) blast. (Most first nuclear tests are at least 10-15 kilotons.) This nuclear explosion was promptly detected and identified from signals recorded at 31 seismic stations in Asia, Australia, Europe, and North America, including 22 IMS stations. An IMS radionuclide monitoring station in Yellowknife, Canada detected the tell-tale xenon gas from the North Korean nuclear test blast. In May of 2009, when North Korea conducted a second nuclear test, even more (39) of the CTBTO’s monitoring stations detected the signal.

• A major argument leveled against the CTBT by some skeptics is that very low-yield nuclear explosions, including so-called hydronuclear tests, cannot be detected with absolute certainty. However, this argument misses the point on verification and implies that low-yield tests are militarily significant. Explosions below a few hundred tons in yield—potentially at a low enough yield to evade detection—are not very useful in assessing a new nuclear warhead design.

• CTBT skeptics have also suggested that it may be possible for some states to use evasion techniques to try to hide full-scale nuclear tests. But according to the NAS panel report, “those countries that are best able to successfully conduct such clandestine testing already possess advanced nuclear weapons of a number of types and could add little, with additional testing, to the threats they already pose to the United States. Countries of lesser nuclear test experience and/or design sophistication would be unable to conceal tests in the numbers and yields required to master weapons more advanced than the ones they could develop and deploy without any testing at all.”

• Another misconception that is repeated by some CTBT critics is that some countries, such as Russia, consider hydronuclear experiments (which produce an low energy yield from a self-sustained chain
reaction) to be a "permitted" activity under the Treaty.

In reality, the Russian government made it clear when it ratified the CTBT in 2000 that: “Qualitative modernization of nuclear weapons is only possible through full-scale and hydronuclear tests with the emission of fissile energy, the carrying out of which directly contradicts the CTBT.” In other words, it is clear to all that the CTBT establishes a “zero-yield” prohibition on nuclear test explosions.

• The CTBT would provide, for the first time, the option of short-notice inspections—an an important deterrent against potential clandestine nuclear testing. Critics complain that because the CTBT requires 30 of 51 nations on its executive council to agree to an on-site inspection, states unfriendly to the United States could block such inspections. In reality, the CTBT’s On-Site Inspection (OSI) provisions were established to balance the need for rapid response to a suspected test against the possibility of “frivolous or abusive” inspections. The approval of 30 out of 51 members of the CTBTO’s Executive Council was designed to give nations like the United States confidence that OSIs would be approved as needed, but not by a small minority with questionable motives.

Similarly, to protect national security interests unrelated to the OSI, states are allowed to restrict access to parts of the inspection area no larger than four square kilometers or a total of no more than 50 sq. km. However, if an inspected state restricts access it must provide alternative ways for the inspection team to carry out its mission. If the bar for OSIs had been set much lower, or if no allowances had been made for unrelated national security interests, one could imagine that there might be concerns in the Senate that CTBT on-site inspections unduly infringe on U.S. (or Israeli) national sovereignty.

4. Support for the Comprehensive Test Ban Treaty is Strong and Growing

• Support is growing across the political spectrum for Senate reconsideration of the CTBT. In 2007, a bipartisan group of four senior statesmen, including former Secretaries of State George Shultz and Henry Kissinger, former Secretary of Defense William Perry, and former Senator Sam Nunn (D-Ga.), called for the Senate to re-examine and ratify the treaty. President George H. W. Bush’s National Security Advisor, Gen. Brent Scowcroft, and former National Nuclear Security Administrator Linton Brooks have recently endorsed U.S. ratification of the Test Ban Treaty.

• An overwhelming majority of Americans support a global, verifiable treaty banning all nuclear weapons test explosions. A 2004 public opinion poll found that 87 percent of respondents support U.S. ratification of the CTBT. Public support for the nuclear test ban has remained high since the early days of the Cold War.

• Generals John Shalikashvili, Colin Powell, David Jones and Admiral William Crowe, all former chairmen of the Joint Chiefs of Staff, have endorsed the Treaty. These military leaders served under Presidents George W. Bush, Bill Clinton, George H. W. Bush, Ronald Reagan, and Jimmy Carter.

• Since the Treaty was opened for signature in September 1996, the United States and over 180 nations have signed, including the other major nuclear powers (Russia, China, France and Great Britain). All NATO members—except for the United States—have ratified the Treaty.

5. There Is Nothing to Gain and Much to Lose by Delaying Action on the CTBT

• Without U.S. ratification of the CTBT, the Treaty would never enter into force since U.S. ratification is a legal requirement and U.S. leadership is a political requirement for moving ahead.
• While it might be possible to sustain the unilateral moratoria undertaken by the nuclear testing states for several years, uncertainties and the risk of a resumption of testing will only grow over time. Without the CTBT in force, concerns about clandestine nuclear testing might arise that could not be resolved in the absence of inspections provided for under the Treaty. Leaving the Treaty unratiﬁed would increase uncertainty, and reduce U.S. security.

• If Washington fails to fulﬁll its commitment to join the CTBT, U.S. efforts to call on other states to take on additional responsibilities and commitments that are necessary to strengthen the beleaguered nuclear Nonproliferation Treaty will be severely weakened.

• U.S. Senate inaction on the CTBT would undermine global efforts to rein in further, dangerous nuclear arms competition between India and Pakistan. India conducted nuclear tests in May 1998, provoking Pakistan to conduct its own nuclear tests. Further testing by either country would accelerate their nuclear arms race and increase the risk of nuclear war.

• U.S. Senate inaction on the CTBT would leave open the possibility that China might resume nuclear testing and be able to build a more sophisticated and powerful nuclear force consisting of ballistic missiles armed with multiple warheads, and slow momentum toward reducing the still enormous stockpiles of U.S. and Russian nuclear weapons.

It Is Time for Careful Reconsideration and Ratification of the CTBT.
Some past Treaty opponents may try to urge their Senate colleagues not to reconsider the CTBT. That would be a mistake because the security value of the CTBT is greater than ever and there have been significant technical advances that address earlier concerns about the Treaty. As Secretary of State Hillary Clinton suggested at her conﬁrmation hearing Jan. 13, "we need to ensure that the administration works intensively with Senators so they are fully briefed on key technical issues ... and receive the best scientiﬁc evidence available ...."

The choice is clear: a world without nuclear testing is a safer world. The United States stands to lose nothing and gain an important constraint on the nuclear weapons capabilities of others that could pose a threat to America’s security. The time for the CTBT is now.