

The Comprehensive Test Ban Treaty

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In Brief

- The Comprehensive Test Ban Treaty prohibits nuclear tests of any yield in any environment.
- The U.S. has observed a moratorium on nuclear testing for twenty years, but has not yet ratified the CTBT.
- Many national security and technical experts assess that ratifying the CTBT would enhance U.S. national security interests.

Background: Elements of the Treaty

The Comprehensive Nuclear Test Ban Treaty (CTBT) is a zero-yield treaty, that is, it prohibits testing of any kind of nuclear device, in any environment, for any purpose.¹

- As a zero-yield treaty, the CTBT differs from past test ban treaties, which prohibited nuclear testing in certain environments or above certain thresholds.
- A total ban on testing denies states who would seek nuclear weapons the ability to use nuclear test data for weaponization purposes.



The Comprehensive Nuclear Test Ban Treaty is not currently in force.

In order to enter into force the treaty must be signed and ratified by the 44 states that participated in the negotiation of the treaty from 1994-1996 and that possessed nuclear power or research reactors at the time.²

- Eight of these 44 states (sometimes referred to as the Annex 2 states) have not yet ratified the CTBT: China, Egypt, India, Iran, Israel, North Korea, Pakistan, and the United States.³
- A total of 157 states have both signed and ratified the CTBT.⁴

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The U.S. signed the CTBT on 24 September 1996, but has not yet ratified the treaty. However, the U.S. has observed a moratorium on nuclear testing since October 1992.

Monitoring and Verification

The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) implements the International Monitoring System, a worldwide monitoring and verification regime comprised of 321 monitoring facilities and 16 laboratories.⁵ Today, the IMS is about 85 percent complete.⁶

- The system uses seismic, hydroacoustic, and infrasound stations to detect signs of an explosion from the land, sea, and air respectively; radionuclide stations are used to detect radioactive debris from explosions.⁷
- The IMS can detect with high degree of confidence fully coupled explosions with yields above 1 kiloton.⁸ This data can be collected and analyzed within two hours of the explosion.
- To supplement this detection capability, on-site inspections can be conducted in the event of a suspected test.

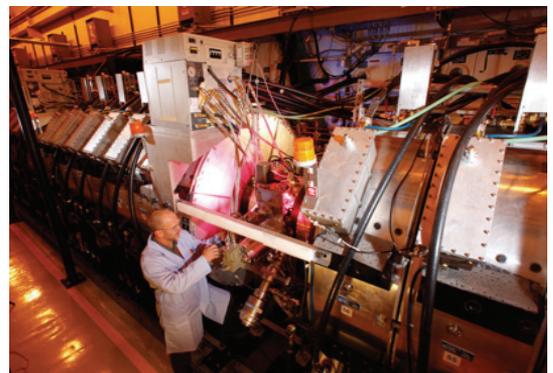
Stockpile Stewardship

As a practical matter, it is almost certain that the United States will not test again. The political bar against testing is extremely high... in recent years I never met anybody who advocated that we seek authorization to return to testing.

- Former Undersecretary of Energy for Nuclear Security Ambassador Linton Brooks, 2011⁹

The United States has observed a moratorium on nuclear testing for twenty years. Instead of testing, the U.S. ensures the safety and security of the nuclear arsenal through a vigorous Stockpile Stewardship Program (SSP).

According to the National Academy of Sciences, the United States “has the technical capabilities to maintain a safe, secure, and reliable stockpile of nuclear weapons into the foreseeable future without nuclear-explosion testing,” assuming adequate investment in the SSP.¹⁰



Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) at Los Alamos National Laboratory

The Case for CTBT Ratification

Ratifying [the CTBT] will be to the international advantage of the United States... By actively seeking ratification, the U.S. will be more able to persuade Nuclear Non-Proliferation Treaty member states to erect stronger barriers against the acquisition of nuclear weapons.

- Brent Scowcroft, Joseph Nye, Nicholas Burns, and Strobe Talbott, 2009¹¹

Ratification of the CTBT would enhance U.S. national security.

- The U.S. would continue to maintain a robust nuclear deterrent.
- With over 1,000 nuclear tests and a robust program to ensure the continued safety and security of its nuclear arsenal, the U.S. has a distinct advantage that the CTBT would ensure.

The treaty would deter those who seek to develop nuclear weapons.

- Nuclear technology is complex. States with nuclear ambitions must test to develop a reliable arsenal.
- States that chose to pursue a nuclear weapons program would run the risk of deploying an untested – and possibly unreliable – weapon.
- If an extreme case required a return to testing, the U.S. could withdraw from the CTBT under the “supreme national interest” clause.¹²

Verification and monitoring capabilities would almost certainly catch cheaters.

- In 1999, when an attempt to ratify the CTBT failed in the U.S. Senate by a vote of 51-48, none of the International Monitoring System facilities had been certified. Today, significant improvements to the IMS ensure with a high degree of certainty that nuclear testers cannot escape detection.

Efforts for a CTBT have a long bipartisan history.

- The Comprehensive Test Ban Treaty builds on decades of efforts to halt nuclear testing.
- President Dwight Eisenhower once said that not achieving a test ban “would have to be classified as the greatest disappointment of any administration of any decade of any time and of any party.”¹³
- President John F. Kennedy signed a treaty banning nuclear tests in the atmosphere, in outer space and under water. President Richard Nixon signed a treaty prohibiting nuclear tests with yields greater than 150 kilotons.

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Endnotes

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2. U.S. Department of State, "CTBT: Annex-2 States." 6 December 2011, <http://www.state.gov/t/avc/rls/159264.htm> [16 September 2011]
3. Department of State, "Scope of the CTBT." 29 September 2011, <http://www.state.gov/t/avc/rls/173944.htm> [16 September 2012]
4. The Comprehensive Nuclear-Test Ban Treaty Organization, "CTBTO Status." 2012, <http://www.ctbto.org/map/> [16 September 2012]
5. The Comprehensive Nuclear-Test Ban Treaty Organization, "Verification Regime." 2012, <http://www.ctbto.org/verification-regime/> [16 September 2012]
6. Nuclear Age Peace Foundation, "CTBT Article XIV Conference." 28 September 2011, http://www.wagingpeace.org/articles/db_article.php?article_id=294 [17 September 2012]
7. The Comprehensive Nuclear-Test Ban Treaty Organization, "Verification Regime." 2012, <http://www.ctbto.org/verification-regime/> [16 September 2012]
8. "The 90 percent confidence levels for IMS seismic detection are well below 1 kiloton (kt) worldwide for fully coupled explosions. With the inclusion of regional monitoring and improved understanding of backgrounds, an evasive tester in Asia, Europe, North Africa, or North America would need to restrict device yields to levels below 1 kt (even if the explosion were fully decoupled) to ensure no more than a 10 percent probability of detection by the IMS." The National Academy of Sciences, "The Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States," page 1. 2012, http://www.nap.edu/openbook.php?record_id=12849&page=119 [16 September 2012]
9. Project for the Comprehensive Nuclear-Test Ban Treaty, "Statements of Support for the CTBT." <http://www.projectforth-ctbt.org/support> [17 September 2012]
10. The National Academy of Sciences, "The Comprehensive Nuclear Test Ban Treaty: Technical Issues for the United States." 2012, http://www.nap.edu/openbook.php?record_id=12849&page=119 [16 September 2012]
11. Politico, "U.S., Russia Must Lead on Arms Control," Oct. 13, 2009. <http://www.politico.com/news/stories/1009/28201.html> [17 September 2012]
12. U.S. Mission to the UN, "Fact Sheet: National Security Benefits of the CTBT." 26 September 2011, <http://geneva.usmission.gov/2011/09/26/national-security-ctbt/> [16 September 2012]
13. White House Working Group on the Comprehensive Test Ban Treaty, "Comprehensive Nuclear-Test Ban News." 28 October 1997, <http://dosfan.lib.uic.edu/acda/ctbtpage/tbn01.htm> [17 September 2012]

Building a New American Arsenal

The American Security Project (ASP) is a nonpartisan initiative to educate the American public about the changing nature of national security in the 21st century.

Gone are the days when a nation's strength could be measured by bombers and battleships. Security in this new era requires a New American Arsenal harnessing all of America's strengths: the force of our diplomacy; the might of our military; the vigor of our economy; and the power of our ideals.

We believe that America must lead other nations in the pursuit of our common goals and shared security. We must confront international challenges with all the tools at our disposal. We must address emerging problems before they become security crises. And to do this, we must forge a new bipartisan consensus at home.

ASP brings together prominent American leaders, current and former members of Congress, retired military officers, and former government officials. Staff direct research on a broad range of issues and engages and empowers the American public by taking its findings directly to them.

We live in a time when the threats to our security are as complex and diverse as terrorism, the spread of weapons of mass destruction, climate change, failed and failing states, disease, and pandemics. The same-old solutions and partisan bickering won't do. America needs an honest dialogue about security that is as robust as it is realistic.

ASP exists to promote that dialogue, to forge consensus, and to spur constructive action so that America meets the challenges to its security while seizing the opportunities the new century offers.



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