

Fact Sheet: The Threshold Test Ban Treaty (TTBT)

[The Treaty on the Limitation of Underground Nuclear Weapon Tests](#), commonly known as the Threshold Test Ban Treaty (TTBT), is a bilateral agreement between the United States and Soviet Union (now Russia). Signed in 1974, the Treaty prohibits underground nuclear weapons tests greater than 150 kilotons, approximately 10 times larger than the bomb used against Hiroshima.

Prior to the treaty, there was no limit to the size of nuclear explosive tests. On March 1, 1954, the United States tested their most powerful nuclear weapon, called *Castle Bravo*, which had a yield of 15,000 kilotons (15 megatons). On October 31, 1961, the Soviet Union tested *Tsar Bomba* - the largest nuclear weapon ever detonated. It had a yield of approximately 50,000 kilotons (50 megatons), over 3,000 times more powerful than the bomb used against Hiroshima.

In 1963, the [Limited Test Ban Treaty](#) (LTBT) came into force, prohibiting all explosive testing everywhere, except for underground. It also contained language committing parties to work towards future arms control agreements. In the spring of 1974, the U.S. and Soviet Union agreed to work to pursue further restrictions on nuclear testing, and an agreement on a threshold ban was reached in July 1974. Before the treaty could be ratified, both countries had to agree on a verification system. The two countries collaborated on a set of experiments, known as the Joint Verification Experiments, which allowed nuclear experts to assess nuclear weapon yield measurement methods of the other country. The success of the Joint Verification Experiments led to the ratification of the TTBT on December 11, 1990.

Why the Treaty Matters

The Threshold Test Ban Treaty restricts the explosive force of nuclear warheads and bombs that could be tested in the United States and Russia, further laying the groundwork for the negotiation of the [Comprehensive Nuclear-Test-Ban Treaty](#) (CTBT). It was also the first time that the United States and Soviet Union agreed to share nuclear testing program data with each other.

Verification

The verification protocol for the treaty includes using national technical means of verification and mutually exchanging the data.

This includes:

- [Seismic monitoring](#): for all tests having a planned yield exceeding 50 kilotons.
- [Hydrodynamic yield measurement method](#): for all tests having a planned yield exceeding 50 kilotons.
- [Geographical data](#): sharing of test boundaries and geological conditions of the testing areas, to better understand the seismic data.
- [On-site inspections](#): for all planned tests exceeding 35 kilotons.

Sources: U.S. State Department, [Verification of Arms Reductions: Nuclear, Conventional and Chemical](#) by Jürgen Altmann and Joseph Rotblat