



Verification of New START

NEW TREATY VERIFICATION ESTABLISHES VITAL TRANSPARENCY BETWEEN U.S. AND RUSSIA

The New Strategic Arms Reduction Treaty (New START) between the United States and Russia was signed on April 8, 2010. When it enters into force, it will limit U.S. and Russian deployed long-range nuclear forces to 1,550 warheads and 700 delivery vehicles. The treaty is a follow-on to the 1991 Strategic Arms Reduction Treaty (START I), which expired along with its monitoring and verification regime on December 5, 2009, and the 2002 Moscow Treaty, which has no verification measures.

One of the primary accomplishments of the new treaty is that it streamlines the verification measures from START I without sacrificing any essential information, while adding the most intrusive verification system ever implemented for counting nuclear warheads. Secretary of Defense Robert Gates testified to Congress that the formal verification assessment should find that the inspections regime in New START will give the United States all the data necessary to verify treaty compliance, while significantly reducing the complexity of the inspections process and the burden on the operators of U.S. strategic forces.

The treaty adds several new provisions that significantly improve confidence in U.S. knowledge about Russia's nuclear arsenal. For example, each country must place a unique identifier tag on each of its missiles, associated launchers, and bombers, and notify the other party when delivery vehicles are moved. This helps inspectors ensure that every delivery vehicle can be counted.

More significantly, the new treaty for the first time includes verification of actual warhead numbers, rather than simply counting delivery vehicles as carrying a pre-determined number of warheads based on maximum loading. While START I's reentry vehicle inspections only verified that a missile did not exceed the maximum number attributed to that missile type, New START requires each party to specify the number of warheads on each individual missile, which can then be verified by inspections. This major improvement greatly increases U.S. confidence in the accuracy of data provided by Russia. Simultaneously, it eliminates the over-counting of de-

ployed warheads that resulted from earlier counting rules. For example, the last data exchange under START I in July 2009 reported the United States as deploying over 5,900 warheads, when the Pentagon said that the number was under the 2,200 limit of the Moscow Treaty.

To verify the data provided by both countries, New START uses an updated on-site inspection regime, "exhibitions" of new or converted systems, and national technical means such as satellite surveillance. START I specified nine different types of inspections (plus additional exhibitions). New START has only two types of inspections (in addition to exhibitions): Type One inspections verify declared data at ICBM bases, submarine bases and air bases as well as the

number of warheads on deployed ICBMs and SLBMs and number of nuclear armaments associated with deployed heavy bombers, and Type Two inspections verify data regarding non-deployed strategic offensive arms at other locations. However, these two types collect all of the information provided by the START I inspections, except for data that is

Figure 1: Comparing Inspection Types in New START

✓ Type One Inspection ✓ Type Two Inspection ✗ Not replicated	
START I Inspection	Addressed in New START?
Baseline data inspections	✓ ¹
Data update inspections	✓ ²
Suspect site inspections	✓
New facility inspections	✓
Re-entry vehicle inspections	✓ +
Formerly-declared facilities inspections	✓
Conversion or elimination inspections	✓
Post-exercise dispersal inspections	✗ ³
Close-out inspections	✗ ⁴

In one of New START's major breakthroughs, all inspections of deployed launchers now include inspections of re-entry vehicles as well.

no longer necessary to verify the treaty. (See Figure 1.)

Under the verification regime, the total number of inspections has decreased, but each one is more far-reaching—in some cases gathering information that would have required two inspections under START I. In addition, the number of Russian strategic offensive arms facilities has declined greatly since START I, meaning that fewer inspections are required to get a clear picture of Russian forces.

For example, START I allowed 28 short-notice on-site inspections per year, divided into four different types. Under New START, there are only two types of inspections, Type One and Type Two, which can be conducted ten times per year and eight times per year, respectively. However, each Type One inspection includes both a data-update and a re-entry vehicle inspection. Thus, this one inspection gathers

information that would have required two separate START I inspections to collect, as illustrated in Figure 2.1. As a result, the amount of inspection activity is less but the outcome is identical—and thus more efficient—under New START, as shown in Figure 2.2.

The continued strength of the New START inspections is also apparent when one accounts for the reduced number of Russian facilities. START I had more inspections, but U.S. inspectors had over twice as many facilities to check. Thanks to cooperative efforts since the breakup of the Soviet Union, many facilities previously associated with strategic offensive arms have been closed. Inspectors under New START will only be concerned with 35 Russian facilities, compared to around 70 under START I, including sites in other countries of the former Soviet Union that were party to that treaty. As a result, New START allows the United States to inspect a greater percentage of Russian facilities every year as under START I, as illustrated by Figure 3.

New START includes some changes to the verification of mobile missiles. First, the post-dispersal inspection of mobile missiles has been eliminated. However, mobile missiles are still tracked using their unique identifiers and inspected at missile bases in the same manner as other systems. Second, there is no longer continuous monitoring of Russia's mobile missile production plant at Votkinsk, as there was under START I. The Bush administration agreed to end such monitoring and Russia rebuffed U.S. efforts to restore it under New START. Instead, Russia must notify the United States 48 hours before any missile leaves the plant, allowing U.S. national technical means of verification to come to bear. Together with data exchanged on the location and movement of systems, the unique identifiers described above, and periodic on-site inspections at missile bases, the regime will allow the

United States to track the numbers of Russia's mobile missile forces and detect any militarily significant breach of the treaty.

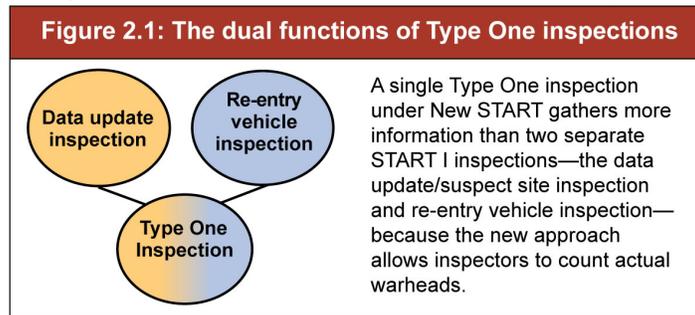


Figure 2.2: Comparing short-notice, on-site inspections

START I		New START	
Data update / suspect site inspection	15	Type One inspections ⁵	10 + 10
Re-entry vehicle inspections	10	Type Two inspections	8
Formerly declared facilities inspections	3	Total	18 + 10
Total	28		

Telemetry exchange is also different between START I and New START. Verification of START I relied heavily on exchange of telemetry—the technical data that a missile sends back about its operation during a flight test. Verifying START I required this data since the treaty did not directly verify how many warheads a missile carried, but counted each type of missile as carrying the maximum number of warheads it had carried in tests; this number was determined in part by telemetry. Telemetry was also used to verify that tests were not being used to develop new types of missiles that were banned under the treaty. Since New START counts actual warheads and does not contain limits on new missile types, telemetry is not needed for verification, and the limited telemetry exchanges are an extra, confidence-building measure between the two countries.

Figure 3: Comparing inspections per facility per year

Treaty	Number of inspections	Total Russian facilities ⁶	Inspections per facility per year
START I	28	70	0.40
New START	18	35	0.51

The reduced number of Russian facilities allows the U.S. to inspect a higher percentage of the Russian forces every year.

In sum, the United States will be able to verify Russian compliance with New START with equal confidence than under START I. All necessary data will be gathered in a more streamlined fashion, sparing time and resources. Inspectors will make fewer but more comprehensive inspections, and will be able to inspect a greater percentage of Russian facilities per year than previously.

1. Specific baseline inspections will not occur because the U.S. already has baseline data on Russian facilities from START I inspections taking place from 1994-2009.
 2. There is no longer a list of suspect sites to inspect, as there was under START I (which specified three sites for each party). Instead, all sites are treated the same under either a Type One or Type Two inspection.
 3. New START removes provisions specific to mobile ICBMs, including this inspection. However, mobile ICBMs must be located at missile bases, and inspectors will be able to verify their presence there.
 4. Specific close-out inspections no longer exist, because fewer facilities are being closed. However, previously closed facilities can be inspected under Type Two inspections
 5. New START allows for 10 Type One inspections, but since each one gathers information that required two inspections under START I, they can be doubled for the purpose of comparison, making the number of inspections under New START effectively the same as under START I.
 6. Under START I, this included facilities in Kazakhstan, Belarus, and Ukraine, which contained former Soviet bases that were subject to inspection.

To learn more, visit our website at www.ucsusa.org

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world.



National Headquarters
Two Brattle Square
Cambridge, MA 02238-9105
Phone: (617) 547-5552
Fax: (617) 864-9405

Washington, DC, Office
1825 K St. NW, Ste. 800
Washington, DC 20006-1232
Phone: (202) 223-6133
Fax: (202) 223-6162

This fact sheet was prepared by Mark Donaldson, Scoville Fellow in the UCS Global Security Program. For more information, contact Mark Donaldson at (202) 331-5659 or mdonaldson@ucsusa.org.