GAO Highlights

Highlights of GAO-23-105698, a report to congressional committees

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# NUCLEAR ARMS CONTROL

## U.S. May Face Challenges in Verifying Future Treaty Goals

## Why GAO Did This Study

New START limits the number of U.S. and Russian strategic delivery vehicles—such as intercontinental ballistic missiles (ICBM)—and the total number of nuclear weapons that each party is allowed to deploy on those vehicles. New START also details a collection of verification measures—such as inspections and the use of satellites—intended to provide confidence that parties are complying with treaty limits. The U.S. has sought to negotiate a New START successor with Russia and aspires to pursue future arms control with China.

The Senate report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2022 includes a provision for GAO to review technologies that could support verification of future nuclear arms control treaties. This report describes (1) U.S. goals and likely verification measures for future nuclear arms control treaties, including a successor to New START; (2) the extent NNSA has planned for or developed verification technologies to support future arms control goals; and (3) challenges stakeholders have identified to implementing verification measures to support future treaties.

GAO reviewed U.S. government plans and reports pertaining to nuclear arms control treaty verification, as well as relevant studies. GAO also interviewed 43 stakeholders, including U.S. government officials, representatives from the Department of Energy's national laboratories, and nuclear arms control experts.

View GAO-23-105698. For more information, contact Allison Bawden at (202) 512-3841 or bawdena@gao.gov.

## What GAO Found

New START, a treaty that limits U.S. and Russian strategic nuclear forces, will expire in 2026. The U.S. has established three goals for a nuclear arms control treaty with Russia to follow New START:

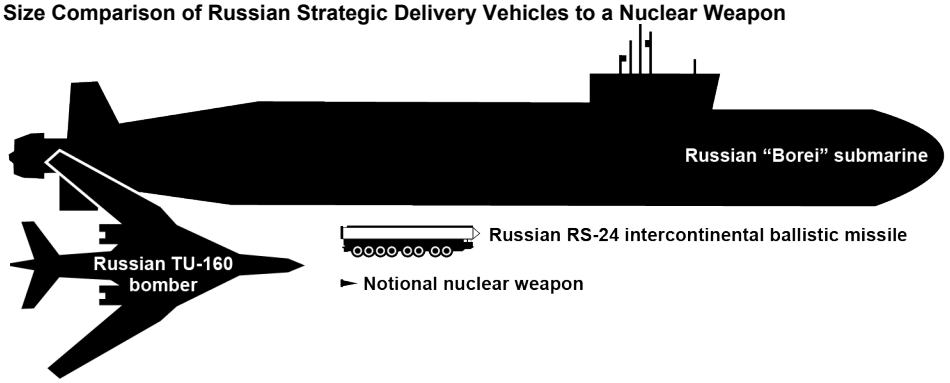
- Retain limits on systems capable of delivering nuclear weapons at intercontinental ranges, or "strategic delivery vehicles";
- Address all nuclear weapons, including nonstrategic nuclear weapons and weapons in storage; and
- Address new and novel Russian delivery vehicles, such as a nuclear-powered and nuclear-armed cruise missile.

According to U.S. officials, the measures for verifying compliance with a New START successor are likely to be similar to those employed for New START, including exchanges of data about deployed strategic delivery vehicles, inspections at relevant bases, and use of satellites. In the long term, the U.S. has aspirational goals—such as nuclear weapons reductions—that may require more extensive verification using more intrusive technologies.

The National Nuclear Security Administration (NNSA) has a plan for developing verification technologies that would support an array of possible treaty scenarios. NNSA's plan groups these technologies into three "approaches" based on increasing levels of intrusiveness and confidence in compliance. Officials stated that technologies in the first, "baseline" approach are largely proven or already used under New START and are ready to support a potential successor treaty. More intrusive technologies—such as devices to measure weapons' radiation signatures—would provide increased confidence in compliance and support longer-term treaty goals but may require 5 to 10 more years of development.

Stakeholders GAO interviewed and studies GAO reviewed noted likely challenges to verifying Russian compliance with future treaties that address U.S. nuclear arms control goals. For example, nuclear weapons are smaller than strategic delivery vehicles and would thus be harder to monitor using satellites. Verifying Russian compliance with limits on nonstrategic nuclear weapons may also be challenging, in part because many Russian nonstrategic delivery vehicles can carry nuclear or conventional weapons, making visual differentiation difficult.

**Size Comparison of Russian Strategic Delivery Vehicles to a Nuclear Weapon**




Sources: GAO analysis of publicly available information; and GAO (icons). | GAO-23-105698