

the safety and security of our weapons designs. For example, Project 56, Project 57, and Project 58 shot series all sought to ensure the safety and security of the US stockpile. Most of these tests were designed to ensure that our weapons are one point safe, ensuring that if one conventional explosive detonates inside the warhead, then it will not spark a chain reaction and cause the warhead to go off. China may be pursuing similar technical assurances for its modernizing arsenal. If China is conducting safety and security experiments in a decoupled manner, it is trying to hide them.

2. To enhance weapons designs: The 2025 China Military Power Report from the US Department of Defense states that China “is probably pursuing nuclear weapons with yields below 10 kilotons,” allowing for more flexible options in a regional conflict. Using a low-yield weapon on the battlefield could force adversaries to make a difficult choice — escalate dramatically with higher-yield weapons or back down. Alternatively, China may want to conduct more nuclear tests to create smaller warheads. Miniaturization of warhead technology

could allow China to fit more warheads on missiles, enhancing their ability to deploy a technology called multiple independently targetable reentry vehicles (MIRV). It is worth noting that China only conducted 64 nuclear tests before its alleged moratorium. If China wants to push warhead design parameters, testing covertly would probably be beneficial for Chinese weaponeers.

3. To detect proliferation: If a country wanted to covertly develop a nuclear weapons program, decoupling experiments might be the best way to test a nuclear device without detection. Chinese weapons experts may have conducted a decoupling experiment to learn what the signatures of such an experiment look like. The US Department of Energy’s National Nuclear Security Administration conducted several experiments between 2021 and 2023 with conventional explosives to detect and characterize low-yield, evasively conducted underground nuclear explosions. Interestingly, some of those tests may have provided more conclusive evidence to support Undersecretary DiNanno’s claims about China’s nuclear

testing. If these experiments provided electromagnetic or atmospheric signatures that better characterized data from China’s June 22, 2020, test, then it might explain why the language in Undersecretary DiNanno’s speech was so much more definitive than previous Department of State compliance reports.

4. Because it was an accident: The US nuclear testing history is full of accidents and failures. Most famously, the largest US nuclear test, Castle Bravo in 1954, had an explosive yield of 15 megatons, while its designers thought it would only yield 6 megatons. Several of the US safety tests also achieved unexpected yields. For example, the Coulomb-C test in the Project 58 shot series produced an unanticipated yield of 500 tons, forcing the evacuation of significant parts of Yucca Flats on December 6, 1957. Similarly, experiment 4 in Project 56 was a safety test that produced a slight unanticipated yield. It is possible that China conducted a safety test that accidentally produced a nuclear yield. In security studies, it is easy to assume malice, but the United States should not discount the role of incompetence.

Ending an era of ambiguity

Regardless of Chinese activities, the United States should not return to the era of full-scale explosive testing. Having conducted 1,054 nuclear tests between 1945 and 1992, the US possesses the most advanced data and computer modeling in the world. If the United States reopens the door to testing, its adversaries — who have far more to learn from nuclear physics than the United States does — will gain more than the United States will. Beyond the strategic rationale, widescale nuclear testing carries high costs. Legacy nuclear testing was expensive and included high environmental and humanitarian costs. To move beyond the current test-for-test tit-for-tat rhetoric, the United States should consider the following policy pathways:

1. Establish a P5 nuclear testing transparency initiative: As the United States works with the P5 (China, France, Russia, the United Kingdom, and the United States), it should lead formal efforts to define nuclear testing. By negotiating a definition agreed to by the P5, the United States could fill a vital hole in the nonproliferation regime.

2. Formalize nuclear test site visit reciprocity: President Trump or senior administration leadership could propose a program of reciprocal site visits to Novaya Zemlya, Lop Nur, and the Nevada National Security Sites. These visits could be limited in scope but would provide assurance and transparency regarding nuclear testing behavior.

3. Restrain future nuclear testing: If the administration remains determined to test “on an equal basis” with its peers, the interagency should work toward an agreement where very small nuclear tests — perhaps below a 500-ton threshold — are permissible and transparently monitored. Alternatively, as other analysts have suggested, the international community could allow a caveat for tests strictly meant to enhance the safety and security of an arsenal. While this might slightly weaken the normative prohibition on testing, it is preferable to a world of unrestrained, secret, and escalatory nuclear explosions.

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Three arms control proposals for post-New START world

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OPINION

The expiration on February 5 of the New START treaty — the last arms control agreement between the United States and Russia — is indicative of a broader shift currently happening in nuclear policy. The international system is moving toward a fragmented and competitive multipolarity. Intensifying territorial disputes, unraveling alliance structures, and the steady erosion of international institutions raise questions about core assumptions of international relations. Nuclear policy analysts are beginning to question long-standing assumptions, including whether strategic stability is inherently good and whether arms racing is actually dangerous. By this, it means the overall concept of arms control is in question.

The types of traditional arms control that sought to quantitatively reduce the size of nuclear arsenals are now gone and unlikely to return. In the near term, a buildup of nuclear capabilities by China, Russia, and the United States seems almost inevitable. Without New START, the United States and Russia will likely upload or deploy more warheads to exceed the New START limit of 1,550 deployed warheads. The United States has already announced a new class of guided missile battleships, which the Navy stated would be equipped with the non-strategic nuclear-armed sea-launched cruise missile proposed during the first Trump administration, and Russia has reportedly tested a new nuclear-armed, nuclear-powered underwater drone. China continues the massive expansion of its nuclear arsenal. In this environment, arms control is not useless, but it may be different.

Arms control can still contribute to enhancing global security by creating meaningful guardrails that prevent the most dangerous pathways to nuclear use or limit certain types of weapons systems. To manage strategic competition in a multipolar world, arms control must reform itself. Here’s a pragmatic starting point.

• Place no nuclear weapons in space: Modern civilization depends on space-based assets. Detonating a nuclear weapon in space could result in an electromagnetic pulse capable of crippling satellites that underpin global communication, finance, and navigation. Nuclear weapons



in space serve no national interest; their use would cause indiscriminate and potentially global harm without providing any meaningful military advantage. No country has placed a nuclear weapon in space yet. This reflects the long-standing recognition among nuclear-armed powers that the risks of such systems far outweigh any strategic benefits. But Russia is allegedly building a nuclear weapon to be placed in space, and China has tested fractional orbital bombardment systems. The United States also experimented with space-based nuclear technologies decades ago. While the Outer Space Treaty of 1964 already bans weapons of mass destruction from being placed in orbit, it

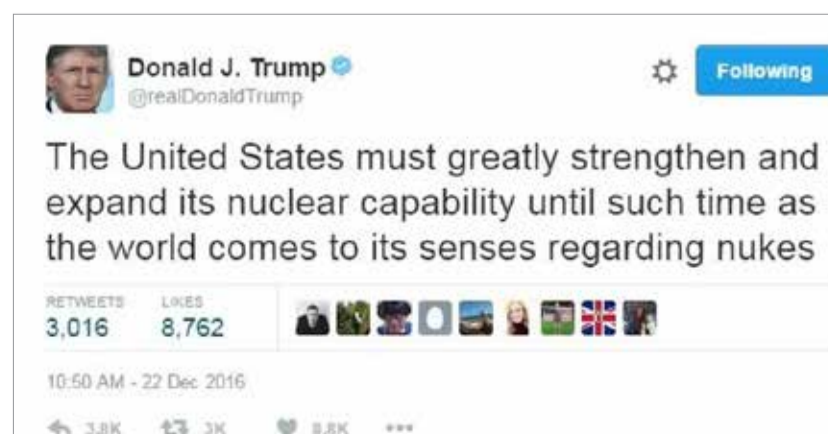
would be worthwhile for nuclear-armed states to re-emphasize arms control that prohibits nuclear weapons from being placed in outer space. A clear, verifiable agreement banning nuclear weapons in space could reinforce this norm and reduce the risk of an arms race in space while reassuring all states of mutual restraint.

• Create greater transparency around nuclear testing activities: Since 2019, the US arms control compliance report has repeatedly raised concerns that Russia and China may be testing nuclear weapons at very low yields. In 2025, President Donald Trump said that the United States would resume nuclear test-

ing on an “equal basis” with Russia and China. To make it even more ambiguous, the Comprehensive Nuclear Test Ban Treaty (CTBT), which prohibits nuclear testing, does not define what constitutes a nuclear test. (Many interpret the CTBT as being “zero yield,” meaning it bans any type of nuclear test explosion that involves a self-sustaining fission chain reaction, irrespective of its yield. But in practice, countries interpret “zero yield” as not strictly forbidding the creation of nuclear fission yield during an experiment.) This problem of definition creates ambiguity and mistrust, leading to allegations that Russia and China may have different interpretations of the treaty. To bridge this gap, the five permanent members of the UN Security Council, or P5, should seek to negotiate a verification regime and a common understanding of their respective moratoria on nuclear testing. Immediate steps could include convening a P5 working group to clarify definitions, discuss shared reporting practices, and identify measures that increase transparency without new treaty commitments.

• Ban AI-controlled nuclear launch authority: In 2024, Chinese President Xi Jinping and US President Joe Biden agreed on the “need to maintain human control over the decision to use nuclear weapons”. The United Kingdom and France have also said that they will maintain a human in the loop of nuclear decision-making. Russia, however, has resisted this trend, claiming that the use of AI technologies in the command and control of nuclear weapons is not verifiable. But if a human-in-the-loop is already the norm in several nuclear-armed states, an international ban on AI-only launch would only codify and reinforce existing practice rather than introduce radical new constraints. Issuing international statements and domestic policy guidance to ensure that AI should not make decisions to launch nuclear weapons should be an easy win for arms control and could help place meaningful guardrails on nuclear escalation dynamics. Realism and hard power appear to dominate the current international system. Ensuring that major nuclear powers have effective nuclear deterrent capabilities will likely drive strategic competition soon. At the same time, arms control can put valuable limits and guardrails on competition, creating rules of the road and preventing the development of the most destabilizing technologies. These three arms control proposals can help move the international system toward a model of controlled multipolar competition.

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The photo shows an alarming tweet by US President Donald Trump just after his first win in the presidential elections.



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