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America Must Prepare to Test Nuclear Weapons

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KEY TAKEAWAYS

China is the fastest growing nuclear power on the planet—on track to become a nuclear peer of the United States within a decade.

Nuclear explosive testing may be necessary to convince America's adversaries that it has the necessary resolve and a credible nuclear arsenal.

The U.S. nuclear enterprise needs to be prepared to conduct a nuclear test in a timely fashion if ordered to do so by the President.

The United States has not tested a nuclear weapon since 1992.[1] However, given the deteriorating security environment, it may need to do so once again.

The Summer 2024 Proposal to Restart Nuclear Testing

In the July/August 2024 issue of *Foreign Affairs*, former Trump National Security Advisor Robert O'Brien argued that the United States should consider restarting nuclear testing, in part due to Russian and Chinese refusal to engage in nuclear arms control talks.[2]

Indeed, not only have Russia and China refused to engage in even preliminary arms control discussions over the past decade,[3] but they have also increasingly

engaged in reckless nuclear behavior. Russia has conducted a campaign of nuclear coercion meant to intimidate Washington and the entire Western world,[4] while China is the fastest growing nuclear power on the planet—on track to become a nuclear peer of the United States within a decade.[5]

The reaction from the professional arms control community to O'Brien's suggestion was both swift and predictable. The Arms Control Association responded with an article stating that "resuming U.S. nuclear testing is technically and militarily unnecessary. Moreover, it would lead to a global chain reaction of nuclear testing, raise global tensions, and blow apart global nonproliferation efforts at a time of heightened nuclear danger."[6] Leadership from the Center for Nonproliferation Studies responded to O'Brien's piece with a *Foreign Affairs* piece of its own, suggesting that U.S. nuclear testing would simply incentivize testing by Russia and China.[7] The *Bulletin of the Atomic Scientists* in September called proposals to conduct nuclear testing "a tremendous step backwards."[8] Many suggest that a resumption of nuclear testing by the United States would give China and Russia justification to resume nuclear testing—and as China has conducted far fewer nuclear explosive tests than the United States has, they would garner far greater benefit from such tests than would the United States.[9]

But the most favored response to the proposal by O'Brien comes from those who echo the administrator of the National Nuclear Security Administration, Jill Hruby, who noted in an interview with *Arms Control Today* that "from a technical perspective, there has not been a reason to resume testing."[10] Hruby notes that advances in supercomputing, non-critical subcomponent testing, and other types of computer modelling means that the United States does not require live, yield-producing nuclear explosive testing to ensure the reliability of the existing American nuclear arsenal.

And, indeed, it may be true that there are no technical reasons why the United States would need to test an existing nuclear weapon. But it also misses the point.

History of U.S. Nuclear Testing

At the dawn of the atomic age, the United States conducted roughly 200 nuclear explosive tests above ground, underwater, and in the open air.[11] In the early 1960s following concerns about the long-term environmental and health effects of extensive open-air testing, the United States and the Soviet Union negotiated the Test Ban Treaty, which prohibited above-ground nuclear explosive testing.[12] Instead, nuclear testing was moved to sites—primarily the Nevada Test Site (now called the Nevada National Security

Site), north of Las Vegas—deep underground, where nuclear effects could be better controlled and where there would be less lasting long-term environmental damage, as the blast and associated radiological impact would be contained underground.

Over the next 30 years, the United States conducted roughly 800 underground tests.[13] In 1992, at the end of the Cold War, the United States unilaterally began an indefinite testing moratorium. Since that time the United States has not detonated a nuclear weapon but instead has relied upon computer modelling and simulation techniques to assess the viability of America's arsenal.

The 1990s saw the rise of a new treaty, the Comprehensive Test Ban Treaty, which outlawed all explosive nuclear testing, including those conducted at underground sites. While the United States signed the treaty and largely abides by the terms of the agreement, Washington never ratified the treaty, as the U.S. Senate has preferred to keep open the option to test during an unforeseen crisis.[14]

Why the United States May Need to Restart Nuclear Explosive Testing

There are two major reasons why the United States may want to restart nuclear testing in the coming years.

First, it may be technically correct that the United States does not need to test its current arsenal, but the United States is building new warheads as part of the nuclear modernization effort.[15] It may, in fact, be necessary to test these new systems to ensure that they work as designed. Modelling and simulation may be sufficient to assess the viability and characteristics of these new warheads—but that is not a proven proposition.

Moreover, the purpose of nuclear weapons is to deter one's adversaries from carrying out breathtaking acts of aggression. In that sense, even if nuclear explosive testing is not necessary to convince *American* policymakers that next-generation nuclear systems work, it may be necessary to convince America's *adversaries* that its nuclear arsenal is credible.

Second, and more importantly, a nuclear explosive test may be necessary to demonstrate resolve. In recent years, autocrats have increasingly leveraged nuclear coercion or nuclear threats in an attempt to intimidate the West or secure geopolitical concessions.[16] There may be a time in the coming years when the United States is in an acute crisis with a nuclear-armed adversary. That actor may—in order to demonstrate stake—conduct a nuclear explosive test as a means to convey stake.

An American President may respond to an adversary's nuclear test in any number of ways. He may back down; he may continue the established course of action and ignore the test; he could respond asymmetrically through actions in another domain. Or he may decide that he wants to convey that the United States will not be intimidated or coerced by nuclear weapons and order a test of an American nuclear weapon as a means to demonstrate stake. By demonstrating American stake or interest in the conflict through a nuclear test, the President could demonstrate that an adversary will not be able to escalate its way out of a crisis or, ideally, convince an adversary that the path it is on—one of attempting nuclear coercion—will not enable it to achieve its objectives.

This is, of course, a fictional scenario—but it is plausible. And the U.S. nuclear enterprise needs to be prepared to conduct a nuclear test in a timely fashion if ordered to do so by the President.

Prepping for a Nuclear Test

So, if a President ordered a nuclear test, how long would it take to conduct a live explosive nuclear test? It is unclear.

Some estimates from the Department of Energy (DOE) suggest that it could take three years to get the Nevada National Security Site ready to conduct a nuclear explosive test.[17] However, the Fiscal Year 2024 Stockpile Stewardship and Management Plan (SSMP) published by the DOE notes that "assuring full compliance with domestic regulations, agreements, and laws related to worker and public safety and the environment, as well as international treaties, would significantly extend the time required to execute a nuclear test."[18] Thus, a nuclear explosive test could take significantly longer than three years.

Alternatively, a Congressional Research Service report notes that "the President can declare a national emergency and waive all 'applicable statutory and regulatory restrictions.'"[19] Such a statement is included in the Fiscal Year 2024 SSMP—but it is unclear what impact such a presidential declaration would have on timelines. Some interviews with the author suggest that such a waiver could reduce the time frames by as much as two years, while others suggest that it would be opposed by civil society groups in America's courtrooms and actually have no effect on testing timelines.[20]

Ultimately, it is unclear how long it would take to re-establish the National Security Site such that it could handle an explosive nuclear test if ordered to do so by a President. But it should prepare itself to conduct a test within six months from the moment a President gives the order.

Failure to Be Prepared to Test

If the DOE tells a President that the Nevada underground test site cannot be made ready, and a test is therefore impossible, the President would have to either abandon the idea of conducting a nuclear explosive test or seek alternative locations to conduct the test.

If told that the Nevada test site cannot be made ready inside a year, the President may order the above-ground testing of a nuclear weapon—an action prohibited by the aforementioned 1963 Test Ban Treaty, which prohibits the testing of nuclear weapons above ground, in the atmosphere, in outer space, or underwater.[21]

While the United States signed and ratified the treaty under President Kennedy—and has adhered to its requirements for over six decades—the treaty allows a state to withdraw with three months notification if it deems it in its national interests to do so.

In an acute crisis, a President may withdraw the United States from the Test Ban Treaty and conduct an above-ground test either at the National Security Site or in the Pacific Ocean over open water, where nuclear fallout can be minimized. Like the Intermediate-Range Nuclear Forces (INF) Treaty, from which the United States withdrew in 2019 following Russian cheating on the treaty,[22] the Test Ban Treaty does not require Senate action for withdrawal—an American President through the Secretary of State can simply give notice of the United States leaving the treaty. And while the United States leaving the Test Ban Treaty may not be optimal and may indeed have negative downstream effects, doing so may be necessary to stave off further adversary escalation.

Arguments Against Nuclear Testing

There are, again, opponents to the United States resuming nuclear testing. Some suggest that China or Russia may believe that they have the "green light" to test if the United States tested first.[23] They go further to suggest that China or Russia would gain more from testing than the United States would, as they would collect data from their own tests that they currently cannot gather due to the de facto nuclear testing moratorium.[24] They go on to say that the United States can gain all the data it needs through nuclear computational modelling and simulation—and that therefore restraining from nuclear explosive testing gives the United States a comparative advantage.[25]

One problem with these lines of argument is that there is no indication that Beijing and Moscow are not testing simply because the United States has not tested. Indeed, Beijing and Moscow seem to be taking the steps they deem necessary—to include building and fielding modernized nuclear forces—to secure their own interests irrespective of American actions.[26] In that sense, if China and Russia believe that they will benefit from restarting explosive nuclear testing, then they will do so whether the United States tests or not. Washington's decision to test or not test will likely have little to no effect on such decisions in Moscow—and certainly not on Beijing, which is not a signatory to the Test Ban Treaty.

Others suggest that such testing would undermine one of the last nuclear arms control agreements still in existence following Russia's unwillingness to engage in post–New START arms control discussions,[27] Russian cheating on the INF Treaty,[28] and Chinese unwillingness to engage in any kind of meaningful arms control talks.[29] While a U.S. withdrawal from the Test Ban Treaty may be unfortunate, it may nevertheless be necessary to secure American interests during a nuclear crisis. And, indeed, if one side adheres to a treaty and the other does not, it makes little sense for the treaty to continue. As such, if the United States finds itself in a place where China or Russia is conducting nuclear explosive testing as part of a campaign of nuclear coercion, it makes no sense for the United States to sustain a treaty that is de facto dead.

Conclusion

Without question, it would be good if the United States did not have to test nuclear weapons again. But the goal of testing a nuclear weapon is *not* to undermine arms control agreements or give a green light for further testing by Moscow or Beijing. It would be done in service of a larger, more important goal: successfully deterring a strategic attack on the United States or one of its closest allies by a nuclear-armed adversary. And if an American President deems it necessary to conduct a nuclear explosive test in order to convince an adversary that it cannot escalate its way out of a conflict, the U.S. nuclear enterprise should be ready to respond.

The United States should therefore take the steps it needs to do so now and prepare the Nevada National Security Site. Otherwise, it should be prepared to walk away from the 1963 Test Ban Treaty.

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Endnotes

1. Los Alamos National Lab, "Divider, 30 Years Later: Los Alamos Marks Three Decades Since Its Last Nuclear Test," November 28, 2022, https://www.lanl.gov/media/publications/national-security-science/2022-winter/divider-30-years-later (accessed December 20, 2024).
2. Robert O'Brien, "The Return of Peace Through Strength: Making the Case for Trump's Foreign Policy," *Foreign Affairs* (July/August 2024), https://www.foreignaffairs.com/united-states/return-peace-strength-trump-obrien (accessed December 20, 2024).
3. Jake Sullivan, "Remarks by National Security Advisor Jake Sullivan at the Arms Control Association," The White House, June 2, 2023, https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/06/02/remarks-by-national-security-advisor-jake-sullivan-for-the-arms-control-association-aca-annual-forum/ (accessed December 20, 2024).
4. Hanna Notte, "The West Cannot Cure Russia's Nuclear Fever," War on the Rocks, July 18, 2023, https://warontherocks.com/2023/07/the-west-cannot-cure-russias-nuclear-fever/ (accessed April 9, 2024).
5. U.S. Department of Defense, "DOD Official Briefs on 2023 China Military Power Report," October 18, 2023, https://www.defense.gov/News/Transcripts/Transcript/Article/3562254/dod-official-briefs-on-2023-china-military-power-report/ (accessed February 14, 2024).
6. Daryl Kimball, "The Looking Threat of Renewed U.S. Nuclear Testing," Arms Control Association, July/August 2024, https://www.armscontrol.org/act/2024-07/focus/looming-threat-renewed-us-nuclear-testing (accessed December 20, 2024).
7. Jeffrey Lewis, "Why America Stands to Lose If It Resumes Nuclear Testing," *Foreign Affairs* (July 30, 2024), https://www.foreignaffairs.com/united-states/why-america-stands-lose-if-it-resumes-nuclear-testing (accessed December 20, 2024).
8. Tom Armbruster, "Project 2025's Stance on Nuclear Testing: A Dangerous Step Back," *Bulletin of the Atomic Scientists*, September 6, 2024, https://thebulletin.org/2024/09/project-2025s-stance-on-nuclear-testing-a-dangerous-step-back/#post-heading (accessed December 20, 2024).
9. Deep State Radio, "From the Election to the End of the World," YouTube, November 8, 2024, https://www.youtube.com/watch?v=Hbcw2IpT33M (accessed December 20, 2024).
10. Arms Control Association, "Managing an Arsenal Without Nuclear Testing: An Interview with Jill Hruby of the U.S. National Nuclear Security Administration," December 2023, https://www.armscontrol.org/act/2023-12/interviews/managing-arsenal-without-nuclear-testing-interview-jill-hruby-us-national (accessed December 20, 2024).
11. Anya L. Fink and Mary Beth D. Nikitin, "U.S. Nuclear Weapons Tests," Congressional Research Service *Report for Congress*, updated December 16, 2024, https://crsreports.congress.gov/product/pdf/IF/IF11662 (accessed December 20, 2024).
12. U.S. Department of State, "Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water," October 10, 1963, https://2009-2017.state.gov/t/avc/trty/199116.htm (accessed December 20, 2024).
13. Fink and Nikitin, "U.S. Nuclear Weapons Tests."
14. Steven Pifer, "The Logic for US Ratification of the Comprehensive Nuclear Test Ban Treaty," *Bulletin of the Atomic Scientists*, March 7, 2024, https://thebulletin.org/premium/2024-03/the-logic-for-us-ratification-of-the-comprehensive-nuclear-test-ban-treaty/ (accessed December 20, 2024).
15. Joseph Clark, "Pentagon Tackling Nuclear Modernization with Proactive, Integrated Approach," U.S. Department of Defense, August 25, 2023, https://www.defense.gov/News/News-Stories/Article/Article/3505989/pentagon-tackling-nuclear-modernization-with-proactive-integrated-approach/ (accessed December 20, 2024).
16. Notte, "The West Cannot Cure Russia's Nuclear Fever."
17. U.S. Department of Energy, *Nuclear Test Readiness: Report to Congress*, May 2011, https://nuke.fas.org/guide/usa/nuclear/readiness.pdf (accessed December 20, 2024).
18. U.S. Department of Energy, National Nuclear Security Administration, *Fiscal Year 2024 Stockpile Stewardship and Management Plan*, November 2023, p. 4–20, https://www.energy.gov/sites/default/files/2023-11/FY24SSMP_FINAL_NOVEMBER_2023_0.pdf (accessed December 20, 2024).
19. U.S. Department of State, "Treaty Banning Nuclear Weapon Tests."
20. Author interviews with current and former U.S. Department of Energy officials, July–December 2024.
21. U.S. Department of State, "Treaty Banning Nuclear Weapon Tests."
22. Republican Policy Committee, "INF Treaty: Russian Cheating and American Suspension," February 14, 2019, https://www.rpc.senate.gov/policy-papers/inf-treaty_-russian-cheating-and-american-suspension (accessed December 20, 2024).
23. Jasmine Owens, "Why the World Must Reject New Nuclear Tests," Nuclear Threat Initiative, August 29, 2024, https://www.nti.org/atomic-pulse/why-the-world-must-reject-new-nuclear-tests/ (accessed December 20, 2024).
24. Editorial, "The President's Arsenal," *New York Times*, December 17, 2024, https://www.nytimes.com/interactive/2024/12/17/opinion/trump-nuclear-weapons.html (accessed December 20, 2024).
25. Lewis, "Why America Stands to Lose."

26. Matthew Cosltow, Robert Peters, and Kyle Balzer, "A Misleading Metaphor: The Nuclear 'Arms Race,'" War on the Rocks, November 20, 2023, https://warontherocks.com/2023/11/a-misleading-metaphor-the-nuclear-arms-race/ (accessed December 20, 2024).
27. Zuzanna Gwadera, "Russia Rejects US Call for Arms Control Talks," International Institute for Strategic Studies, February 14, 2024, https://www.iiss.org/online-analysis/missile-dialogue-initiative/2024/02/russia-rejects-us-call-for-arms-control-talks/ (accessed December 20, 2024).
28. Republican Policy Committee, "INF Treaty."
29. Reuters, "China Says It Has Halted Arms-Control Talks with US Over Taiwan," July 17, 2024, https://www.reuters.com/world/china/china-says-it-has-halted-arms-control-talks-with-us-over-taiwan-2024-07-17/ (accessed December 20, 2024).