



## INFORMATION SERIES

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### **Verification After the New START Treaty: Back to the Future**

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*The New START Treaty verification regime is far less effective than that agreed to in the original START Treaty. As the Trump administration pursues a new approach to arms control, which seeks to limit China's rapidly growing nuclear arsenal and the currently unconstrained shorter-range nuclear weapons, U.S. negotiators should insist upon a much stronger verification regime. Any future agreement must shut the door to rapid Treaty breakout – a key New START verification flaw. The new verification regime should also reinstate key elements of the original START Treaty that were excluded from the New START Treaty and must address difficult new challenges that stand to benefit from one New START verification innovation.*

### **New START, Verification, and the Future of Arms Control**

The New START Treaty was signed by Presidents Obama and Medvedev on April 8, 2010, and approved by the Senate, with conditions, on December 22, 2010 by a vote of 71-26 – only 7 votes over the two-thirds minimum required for approval. The Treaty went into force on February

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5, 2011. It sets limits on deployed strategic warheads, deployed strategic missiles and bombers, and deployed and non-deployed strategic launchers. The New START Treaty expires February 2021, unless the United States and Russia mutually extend it for up to five years, as it allows.

The President has appointed Ambassador Marshall Billingslea to serve as Special Envoy for Arms Control to engage with the Russians on both New START and the future of nuclear arms control. The President has stated that China's nuclear forces should be included in future arms control agreements, and Russian Deputy Prime Minister Ryabkov has made an earlier statement to the same effect.<sup>1</sup> President Trump has also directed that nuclear weapons that are now unconstrained by New START, the so-called tactical nuclear weapons, also be included in a future agreement.

This only makes sense. We have a multi-polar nuclear world, in which President Xi has announced that China will be a "first tier" military by 2050. Also, the idea of "strategic" nuclear weapons (determined by range) is arguably obsolete. Any use of a nuclear weapon would have strategic consequences. Russia's nuclear doctrine, which would use "tactical" nuclear weapons to "de-escalate" a nuclear conflict makes this painfully clear. Russia also has an overwhelming numerical advantage in these unconstrained nuclear weapons over the United States and NATO. Recognizing this, the Senate's Resolution of Ratification for the New START Treaty called for future negotiations to "*secure and reduce tactical nuclear weapons in a verifiable manner.*"<sup>2</sup>

If we are to add China as a party, and include smaller, highly mobile and concealable nuclear weapons, there needs to be a special premium placed on verification and strict compliance. In essence, the standards for what constitutes "effective verification" need to be higher than for New START. Thus, highly effective verification and strict compliance constitute the third pillar for the future of nuclear arms control.

But what does this mean in practice? To what extent should future nuclear arms control resemble New START or its predecessors, the START and INF treaties? To answer this question, we need to take a close look at these treaties' verifiability. In this regard, it is instructive to review the critique of New START verification offered by Senate Republicans at the time of ratification.

I am very familiar with that critique. As a staff member of the Senate Select Committee on Intelligence (SSCI), I was tasked to analyze the effectiveness of the New START Treaty's verification, and draft a classified report for Members' consideration. This assignment was based in part on my previous experience working for President Reagan's top verification expert, Dr. Manfred Eimer, on INF, START, and Soviet arms control compliance determinations.



### **START and INF Treaty Verification Precedents**

In 2010, I fully expected President Obama’s New START Treaty to be effectively verifiable – for three reasons. First and foremost, INF and START had been built from the ground-up for effective verification. Those Treaties’ central limits were well-matched to our verification capabilities. The Treaties also contained groundbreaking verification procedures that New START could logically build upon, most notably:

- Warhead counting rules that captured the warhead-carrying capability of a missile, taking into consideration its throw-weight and flight-test history;
- Banning encryption of telemetry on these flight-tests and full exchange of the unencrypted telemetry recordings;
- Continuous “Portal Perimeter Monitoring” (PPM) of the critical mobile ballistic missile production facility at Votkinsk, Russia, and at Magna, Utah to help verify critical limits on deployed and non-deployed mobile missiles; and
- On-site inspection of the entire missile and launcher destruction process.

Second, Russia was a serial violator of arms control agreements, so we knew the standards for verification had to be high. Third, the Obama national security and treaty negotiating team was highly seasoned and respected.

### **Assessing the New START Treaty’s Verification**

On the surface, New START’s verification looked good to many or most, and still does. It features plenty of verification bells and whistles, including exhibits and displays, serial number tracking, and a potentially useful new radiation sensor for on-site counting of nuclear warheads.

But when you carefully analyzed it, there was much less to New START verification than met the eye. The Obama team deliberately chose to abandon all the key START and INF verification measures listed above – no missile warhead counting rules, no encryption ban, no throw-weight limits, no PPM, and no limits on non-deployed mobile missiles. But why?

In engineering parlance, the Obama Administration’s choices constituted a conscious “design trade.” They chose (minor) cost savings, administrative convenience to the military, and warhead deployment flexibility over binding limits on Russian military capability. A recent article on the New START Treaty’s supposed verification virtues by former Under Secretary of State and New START Treaty chief negotiator, Rose Gottemoeller, admits as much. It touts the Treaty’s achievements of cost savings, administrative convenience, and warhead deployment flexibility.<sup>3</sup>



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These are not bad things, of course. But the rub, as I will explain, is that this design trade, forfeiting key limits on capability contained in the original START Treaty, proved highly unfavorable for verification and led directly to the New START Treaty's major verification shortcomings.

New START's poor verifiability was not only deeply disappointing, it was highly disturbing to many Republican Senators. The Vice Chairman of the SSCI, Senator Kit Bond, was philosophically disposed to support a follow-on treaty to START to regulate strategic competition. (So was I.) However, Senator Bond and 25 other of his GOP Senate colleagues decided to oppose the treaty, in no small part due to its verification shortcomings, especially as compared to START.

On November 18, 2010, Senator Bond presented his reasons for opposing the New START Treaty in a Senate floor statement.<sup>4</sup> He made four main points on verification, elaborated below:

1. Russia is a serial arms control violator, requiring extra stringent verification, but the Administration failed to acknowledge this in its New START Treaty verification regime. According to official State Department reports on compliance published at the time, Russia had violated, or was still violating, important provisions of virtually all key arms control agreements to which it was a party. This included the original START, the Chemical Weapons Convention, the Biological Weapons Convention, the Conventional Forces in Europe Treaty, and Open Skies.

Ironically, the major exception was the INF Treaty! Little did the Senate know that, as it deliberated on whether to ratify the New START Treaty, Putin was actively laying the extensive groundwork for Russia's material breach of the INF Treaty with a new prohibited, ground-launched cruise missile. Indeed, **had** the Senate known, the New START Treaty surely would have fallen short of the required two-thirds votes needed for approval.

2. New START Treaty's central warhead limit could not be effectively verified because it abandoned START's warhead counting rules and featured only limited on-site inspection.

The START Treaty, like all sound arms control treaties, limited *capability*—not intent. Accordingly, it established “counting rules” for limiting existing missile warheads based on their flight-tested capability—each missile of a type was attributed the same number of agreed warheads. Similarly, it established a formula for attributing warhead numbers for new missile types based on their throw-weight and flight-tested warheads (i.e., their warhead carrying capability). These counting rules allowed warhead



verification to become a matter of simply multiplying the counting rule for a missile type times our count of the deployed missiles of that type. The United States can do this confidently with NTM, except for mobile ICBMs. (More on mobiles later.)

By contrast, the New START Treaty set limits on the “actual” number of warheads loaded on deployed missiles, regardless of a missile’s capability. It used a small sample of on-site inspections with radiation sensors to attempt to verify these limits. Ambassador Gottemoeller in her article lauds this change as “*the most important innovation in New START...permitting a more accurate accounting of warheads.*”<sup>5</sup>

Unfortunately, it is also arguably the *worst* innovation in the New START Treaty. Establishing legal limits on “actual” warheads is not the same as “accurate accounting” of them. So what exactly is the problem with “actual” deployed warhead limits on missiles?

To begin with, the New START Treaty permitted only ten warhead inspections per year, a sample of only 2-3 percent of the force. And unlike START, the New START Treaty allowed any missile to be loaded with any number of warheads.

So even if a U.S. inspection revealed that a particular missile was loaded with a number larger than Russia had declared, there is no logical way to infer from this – or *any* such discrepancy – that the *entire force* had exceeded the 1,550 warhead limit. Conversely, neither could we logically conclude that the entire force *complied* with the 1,550 limit, even if the 20-30 percent life-time sample inspections all confirmed that the observed warhead loadings matched their declarations. Hardly a model for effective verification for future, more ambitious arms control.

True, the Administration has certified Russian compliance with the New START Treaty, including its deployed warhead limit. However, such compliance conclusions are necessarily based on samples and some significant assumptions and extrapolations. We can really never *know* the actual force-wide warhead loadings under the Treaty.

But what if we *are* willing (as the Administration is) to infer from a 20-30 percent sample that the Russians are complying with the deployed warhead limit? Aren’t we ok then? No. As we shall see, the Treaty’s breakout potential for warheads and missiles is even more problematic than its unverifiable warhead limits.

3. The New START Treaty allows for massive breakout potential via missile warhead “uploading” – a legal route open to undermine the treaty. In her New START Treaty verification article, Ambassador Gottemoeller correctly points out that “...[effective] verification regimes must not tempt either side to try an illicit treaty break-out.”<sup>6</sup> However,



this is exactly what the New START Treaty does. In fact, Treaty breakout was probably the top monitoring concern for U.S. Intelligence. Consequently, the Senate required, as a condition of Treaty ratification, that the President certify prior to entry into force and annually thereafter, that “*National Technical Means [NTM]...are sufficient to ensure...timely warning of any Russian preparation to break out of the limits in Article II of the New START Treaty.*”<sup>7</sup> The Obama and Trump Administrations have made this certification, which readers of the 2010 National Intelligence Estimate on the Treaty monitoring may find surprising.

Again the root of the problem is in trying to count “actual” warheads without regard to a missile’s warhead carrying capability. Unlike the original START Treaty, the New START Treaty *legally* allows a side to flight-test missiles with an *unlimited* number of warheads but declare only *one* “actual” warhead towards the treaty’s 1,550 deployed warhead limit—an obvious and potentially destabilizing flaw.

As a result, both sides in the New START Treaty are *legally* permitted to have thousands of spare warheads that can be easily and quickly “uploaded” to deployed missiles in a crisis. This upload potential for Russia is estimated to be a third of its current missile warhead level and even more for the United States, according to one respected U.S. think tank.<sup>8</sup> Consequently, the New START Treaty actually incentivizes competitive warhead uploading in a crisis. This incentive is the exact opposite of a key goal for nuclear arms control—promoting strategic stability.

Given this breakout potential, the Intelligence Community discounted likely Russian cheating on the Treaty’s unverifiable warhead limit. It would probably be more attractive for Russia to legally prepare to quickly and easily break out of New START Treaty constraints through warhead uploading. Again, hardly a model for effective verification for future, more ambitious arms control.

4. The New START Treaty failed to limit non-deployed mobile missiles (as START had), permitting further potential for massive breakout. This failure was almost certainly driven by the decision to abandon PPM to save a few million dollars a year of operating costs. Ambassador Gottemoeller terms the Votkinsk PPM “*an expensive program for the United States to implement,*” and credits the New START Treaty for avoiding these costs.<sup>9</sup> The annual cost for the United States to operate PPM at Votkinsk and at Magna UT for INF was \$12.4 million, according to DoD testimony in 1991.<sup>10</sup> To put this “expensive” program into perspective, PPM at Votkinsk cost the U.S. Government *half* what Sam Houston State and Prairie View A&M colleges each spend yearly on their football teams.<sup>11</sup> This “penny wise, pound foolish” New START logic resulted in major verification and breakout problems that far exceeded its very modest cost avoidance benefit.



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Ambassador Gottemoeller's article offers an additional (and somewhat odd) defense of the New START Treaty's abandonment of PPM—i.e., that it would not have detected Russia's illegal INF cruise missile system.<sup>12</sup> This is like faulting a Covid therapeutic drug for not being a vaccine. PPM's verification purpose was simply to count treaty-limited missiles at declared facilities; we use National Technical Means (NTM) to detect and deter *covert* behavior. That division of labor was the whole foundation of the successful mobile missile verification regime embodied in both the INF Treaty and the START Treaty.

Without PPM, the United States cannot verify mobile missile production at declared facilities. Under the New START Treaty the Russians can have an *unlimited* number of non-deployed mobile missiles. This means they could *legally* build and store any number of these missiles. While non-deployed *launchers* are capped, we cannot effectively verify mobile launchers either. We have no way to reliably count (verify) mobile launcher production at declared facilities. Moreover, it would be relatively easy for Russia to covertly produce and hide these mobile launchers in mundane-looking tractor trailer factories, without detection. Such illegal non-deployed mobile launchers could be mated with legal, unconstrained mobile missiles in a crisis. The Treaty allowed this security risk in order to save a few million dollars a year of PPM operating costs.

Again, the New START Treaty presents a massive, ready-made breakout potential that is hardly a model for future arms control.

In 2010, Senator Bond sent a Top Secret SSCI minority report, detailing these four and other verification issues, to the Senate Foreign Relations and Armed Services Committees. This SSCI minority report was consistent with the facts contained in the National Intelligence Estimate on the IC's ability to monitor the Treaty. Additional issues discussed in the SSCI's classified report included:

- Classified details on Russian treaty non-compliance;
- Concerns regarding Russia's potential to evade and frustrate the New START Treaty's on-site inspections;
- Then-Top Secret information on Russian strategic threats that were not covered under the New START Treaty, including some that President Putin subsequently touted in public; and
- Lax missile and elimination procedures in the new Treaty, relative to the START Treaty's continuous on-site inspections, giving rise to worrisome scenarios for falsifying missile and launcher destruction.



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The Obama State Department, on November 24, 2010, attempted to rebut Senator Bond's verification critique with a written article, but it fell short.<sup>13</sup> It hardly tried to dispute the logic of Senator Bond's verification critique. It is but a small exaggeration to say that the State Department's "rebuttal" boiled down to this: "We have loads of verification stuff in our treaty, and important people say it is better than no treaty; therefore, it is effectively verifiable. Trust us."

Ultimately, however, the New START Treaty's verification problems proved far too technical and arcane for most U.S. Senators. The understandable urge to regulate strategic nuclear competition in the hope of avoiding a costly and dangerous superpower arms race led to the Treaty's approval. Still Senate ratification was a "near-run thing", in contrast to the nearly unanimous votes enjoyed by all previous nuclear arms control treaties with the Soviet Union.

### **Considerations for the Trump Administration**

I believe New START Treaty's verification problems are too systemic to remedy in a New START Treaty extension process. Even relatively minor improvements would require extensive negotiation and Senate ratification. Time is too short, the issues too big.

I can only offer one verification band aid if the New START Treaty is extended: the United States should inform Russia that henceforth any discrepancy between warhead declarations and on-site inspection results, or any unavoidable procedural delay or interference, would be considered a de facto violation of the Treaty's limit on deployed warheads. This does nothing about the breakout problem, however.

The good news is that despite the New START Treaty's verification inadequacies – or perhaps because of them – the Russians *appear* to have complied with the treaty. (I say "appear" because we can't really know, given the Treaty's serious verification deficiencies, and after all, we've never found anything successfully hidden.) Further, since Russia can gain major advantage through legal and/or partially legal breakout options, they may be content with this benefit. (It would be unimaginable that Russia's General Staff has *not* drawn up serious contingency plans for warhead uploading during a crisis.) One might even wonder whether Russia's strongly expressed desire to extend the New START Treaty is motivated, in part, by a desire to also extend the Treaty's breakout options. Therefore, the good news on Russian compliance warrants skepticism, especially in light of its history of arms control violations.

Even so, Russia's apparent compliance with the New START Treaty is one argument that can be made in favor of the Treaty's extension. At the same time, the Administration has a golden opportunity to strengthen future verification as one of its conditions for any possible extension of the New START Treaty. It ought to.





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Specifically, the United States should seek Russia's commitment that future nuclear arms control must meet a verification standard significantly higher than that embodied in the New START Treaty. (This would be in addition to adding China as a party and including unconstrained nuclear weapons.) If China *is* party to the next nuclear arms control treaty, Russia might finally be motivated to be as serious about verification as the United States, so this condition might not be a heavy negotiating lift.

Under no circumstances should the United States use New START Treaty as the verification "model" for a future arms control agreement—especially one that seeks to limit the many thousands of currently unconstrained "tactical" nuclear warheads possessed by Russia and China. The Administration should make this clear to the Russians and the Chinese.

The Administration should consider some specific "back to the future" START and INF approaches as it contemplates the future of nuclear arms control, most notably:

- Scrap the New START Treaty's unverifiable "actual" deployed warhead limits in favor of the START Treaty's counting rules based on demonstrated warhead carrying capability.
- Re-impose the START Treaty's ban on telemetry encryption, and return to complete telemetry exchanges, which will be useful in verifying missile throw-weight and warhead flight-test limits.
- Ban mobile ICBMs to eliminate a class of major verification risk; of course, we still need to apply NTM to detect and deter covert violations.
- If mobile ICBMs are nonetheless permitted, re-impose the START Treaty's limits on non-deployed mobile missiles, and re-establish continuous PPM at key mobile missile production facilities to verify declared production. Use NTM to detect and deter any covert production. Also, confine mobile ICBM deployment to declared and limited geographical areas—and make them much smaller than those in the START Treaty.
- Reinstate the rigorous, high confidence procedures for eliminating Treaty-accountable items contained in the START and INF Treaties.
- Ensure that "novel" strategic nuclear systems are brought into Treaty limits, if not banned.

Above all, *verification must be woven into the very fabric of the Treaty*. This was the key to achieving effective verification in START and INF. The Treaty's central limits, obligations, and definitions must be well-matched to our projected verification capabilities and methods (especially NTM, but also inspections, cooperative sensors, and declarations). Verification measures cannot be an afterthought—"bolted on" via an annex late in the game to try to accommodate whatever text the Treaty's negotiators produced. This is a formula for unverifiable arms control, which is to say no arms control.



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In that regard, the inclusion of unconstrained, so-called “tactical” nuclear systems pose a whole other category of severe verification challenges. Never will it be more critical for a treaty to be designed *from the start* for effective verification.

A marriage of continuous PPM and sophisticated radiation sensors at warhead production facilities may form the core of a future Treaty’s cooperative verification capabilities. Here Ambassador Gottemoeller’s article is on the mark. She observes that the New START Treaty sensor innovation “*opens up new opportunities for future arms control agreements....it opens up new opportunities for limiting non-strategic nuclear warheads.*”<sup>14</sup> At the same time, there will also be greatly increased demands on NTM to detect and deter low-observable covert activity. We ought to begin to program and budget for these *now*.

The Russians – and no doubt the Chinese – will fight many of the changes offered here. Our own military establishment may fight some of them as well, such as the warhead counting rules. And the Washington arms control lobby and its allied foreign policy establishment will surely oppose almost anything that makes it harder to negotiate any new arms control agreement. These critics will invariably claim that any condition for extending New START represents an attempt to “kill” arms control.

That’s exactly what the same establishment said about Ronald Reagan when he proposed the “zero option” for banning an entire class of missiles, and when he insisted on continuous PPM as part of the INF Treaty. They were wrong then and will be now, too.

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4. Statement of Senator Kit Bond, *Congressional Record*, November 18, 2010, pp. S8052-S8053, available at <https://www.govinfo.gov/content/pkg/CREC-2010-11-18/pdf/CREC-2010-11-18-pt1-PgS8052.pdf>.
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11. Steve Berkowitz and John Kelly, et. al., "NCAA Finances, 2017-18," *USA Today*, available at <https://sports.usatoday.com/ncaa/finances/>.
12. Gottemoeller, op. cit.
13. U.S. Department of State, "A Rebuttal to Sen. Kit Bond's November 18, 2010 Floor Speech in the U.S. Senate on the New START Treaty," November 24, 2010, available at <https://2009-2017.state.gov/t/avc/rls/151981.htm>.
14. Gottemoeller, op. cit.

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