

INF Treaty Compliance: Path to Renewal or the End of the Road?

By Greg Thielmann, Oliver Meier, Victor Mizin

The signing of the Intermediate-Range Nuclear Forces (INF) Treaty in 1987 marked the end of an eight-year stalemate in nuclear arms control due to the tension between leaders in Moscow and the West. This treaty eliminated an entire category of nuclear weapons delivery vehicles in the arsenals of the world's two largest nuclear weapons states. Nearly 2,700 ballistic and cruise missiles with ranges between 500 km and 5500 km were destroyed. The treaty also established various verification and monitoring measures, which provide precedents for provisions in the 1991 Strategic Arms Reduction Treaty (START) – the first arms control agreement to require reductions in strategic nuclear arms. The INF Treaty reached its 30th anniversary in December 2017 with both Washington and Moscow officially re-affirming their support for abiding by its terms. Yet if the compliance disputes raised in recent years are not soon resolved or at least managed, the INF Treaty is likely to fail, ultimately dragging other arms control regimes down with it.

Origins

The original impetus for the INF Treaty came from NATO's perception that military trends in Europe were leading toward a growing and dangerous disconnect between U.S. strategic forces and those forces deployed in Europe to defend U.S. allies there. Although the 1972 SALT I interim agreement and the 1979 SALT II Treaty had stabilized the U.S.-Soviet strategic balance, the intermediate-, medium- and

shorter-range nuclear forces facing each other in Europe were growing increasingly asymmetrical in the 1980s.

Improvements in Soviet air defenses were gradually reducing NATO's confidence that its theater bombers could successfully attack targets in Warsaw Pact countries. Moreover, Moscow began in 1976 to replace its SS-4 and SS-5 (medium- and intermediate-range) liquid-fuel missiles with the MIRVed, road-mobile, solid-fuel, more accurate and longer-range SS-20 ballistic missile. This modernization of theater missiles meant that the Soviet Union was in the process of tripling the number of operational nuclear warheads deployed on missiles threatening NATO Europe and making their launch systems more survivable in the event of war, providing Moscow with an additional measure of deterrence against U.S. forces in Europe and those of its NATO allies.

West German Chancellor Helmut Schmidt and other alliance leaders voiced their concerns that a gap was opening up in the escalatory ladder connecting NATO's conventional forces and short-range nuclear forces with U.S. strategic weapons. This perceived damage to the credibility of NATO's pledge to respond to any attack eventually led to the alliance's "Double-Track" decision in December 1979. The decision called for the deployment of U.S. Pershing II medium-range ballistic missiles (MRBMs) and ground-launched cruise missiles (GLCMs) in five European NATO mem-

INF Treaty Compliance: Path to Renewal or the End of the Road?

ber countries and for the negotiation between the United States and the Soviet Union of mutual limits on their theater nuclear missiles.

Negotiations began in Geneva, Switzerland in 1981, but made little progress during the first two years. NATO's proposal to establish a zero level of INF missiles on both sides was perceived in Moscow as being lopsided – only the Soviet Union would have been required to eliminate existing missile systems. Eight months into the negotiations, the delegation heads sought to break the impasse with a tentative reductions agreement, which came to be labeled the “Walk-in-the-Woods” approach, but their efforts were rejected in both Moscow and Washington. Despite significant domestic opposition in Europe to NATO missile deployments, the governments of the five NATO states hosting deployments held firm to both tracks of the 1979 decision. As the first missiles arrived in Britain and West Germany in the fall of 1983, the Soviets broke off negotiations.

U.S. INF missile deployments continued, and in 1985 Mikhail Gorbachev, took charge as General Secretary of the Soviet Communist Party. Under Gorbachev, the Soviets agreed to resume INF talks in Geneva, along with negotiations on strategic and on space weapons. The talks ultimately led to a “double zero” outcome, which applied globally and added shorter-range (500-1,000 km) systems to the ban being negotiated on longer-range theater missiles.

Impact

The 1987 INF Treaty, which was especially popular in Europe, exceeded the expectations of many security experts at NATO Headquarters, in Washington, and in Moscow. As reflected in the expressed rationale for the “Double Track”

Decision, the NATO bureaucracy had initially hoped to establish a balance of INF missiles at a lower level (above zero) so that it would ensure that the link between conventional weapons and the strategic deterrent remained seamless. Some hoped that NATO deployment of longer-range theater missiles would facilitate removal of some 7,000 battlefield nuclear weapons from Western Europe. The Soviet military initially resisted giving up its monopoly in longer-range theater missiles. It also chafed against the idea that there would be no reciprocal reductions of comparable systems possessed by potential Soviet adversaries in Asia. And the Soviet military bitterly resented being forced to eliminate *Oka* (SS-23) short-range ballistic missiles (SRBMs), which it insisted had an operational range below the treaty's 500 km floor. (U.S. intelligence, at least during the negotiations, assessed the SS-23's range as being above 500 km.)

From a historical viewpoint, the INF Treaty was both a harbinger of political change in the Soviet Union and an agent of the diminution in Cold War tensions. It facilitated progress in the strategic negotiations by enhancing trust between the parties, obviating cheating scenarios, and providing precedents for verification and monitoring mechanisms. It also provided evidence to the wider world that that the United States and the Soviet Union/Russia were moving forward on honoring their Article VI nuclear disarmament commitment under the nuclear Non-Proliferation Treaty (NPT).

The successful implementation of the INF Treaty also helped cushion the political shocks engendered by the break-up of the Soviet Union, by encouraging further nuclear disarmament commitments to be undertaken, such as the Presidential Nuclear Initiatives (PNI) launched in 1991/92. PNI represented recip-

INF Treaty Compliance: Path to Renewal or the End of the Road?

rocal, unilateral commitments to withdraw, reduce and eliminate significant portions of Russian and U.S. tactical nuclear weapons.

While external political developments during the treaty's first decade generally reinforced commitment to its provisions, strains on U.S./NATO-Russia relations during the succeeding two decades have undermined that commitment. From Moscow's perspective, NATO's involvement in the break-up of Yugoslavia, U.S. withdrawal from the Anti-Ballistic Missile (ABM) Treaty in 2002 and the subsequent deployment of strategic missile defenses poisoned the relationship. Growing advances in U.S. conventional forces technology, direct Western support for regime change in Libya, U.S. encouragement to Georgia and Ukraine for seeking EU and NATO membership, and NATO troop deployments to the Baltic republics contributed further to the deterioration. From the view in Washington and European capitals, the downturn in relations was a consequence of Russia's reluctance to engage in New START follow-on negotiations with President Obama, its occupation of Crimea and support for separatist activity in eastern Ukraine, its more aggressive aerial operations along NATO's periphery, and its perceived meddling in U.S. and European elections and politics.

As the post-Cold War "thaw" between Russia and the West began in the early 2000s, the INF Treaty's missile ban started generating major opposition in Russian military and political circles. Characterizing the treaty as "a relic of the Cold War," critics argued that it prevented Moscow from deploying inter-

mediate-range systems, which were in the arsenal of various states adjacent to Russia's borders and thus threatened its national security. Consistent with this critique, Moscow proposed in a 2007 UN General Assembly resolution that the INF Treaty be expanded into a global ban. Although the United States joined Russia in backing this resolution, it gained no traction from other holders of INF systems, including China, Pakistan and India. Despite reaching a diplomatic dead-end in Moscow's initiative, Russian officials continued to express concern about the global proliferation of intermediate-range missiles.

Russia has periodically threatened to leave the INF Treaty during the last 18 years. In 2000, President Putin vaguely mentioned the possibility of abrogating the treaty in the event Washington carried out its threat to withdraw from the ABM Treaty. In 2013, Putin threatened to scrap the treaty's ban on INF missiles in response to NATO's deployment in eastern and central Europe of Aegis Ashore ballistic missile defenses. The United States withdrew from the ABM Treaty in 2002 and deployed the Aegis Ashore missile defense system in 2016, Moscow continues to claim that Russia is in full compliance with the INF Treaty.

Current Status

On top of the general deterioration in the bilateral U.S.-Russian relationship, specific allegations started to surface in 2013 that Russia was not complying with core provisions of the INF Treaty. In its 2014 Annual Compliance Re-

INF Treaty Compliance: Path to Renewal or the End of the Road?

port, the United States alleged that Russia had flight-tested an (unspecified) ground-launched cruise missile with a range that was prohibited under the INF Treaty. The INF Treaty does not ban development of such a system, *per se*, but does draw the line at flight testing.

In late 2017, the United States finally provided a precise identification to Russia of the system alleged to have been tested and deployed illegally under the treaty proscription: the 9M729 cruise missile, manufactured by the Novator Design Bureau in Ekaterinburg (which had previously designed the Kalibr/Klub family of cruise missiles).

The U.S. original allegation in 2014 of a non-compliant flight test by what it later designated

the SSC-8 was widened in 2017 by charging that the system had been deployed in two locations – at a testing facility in Kapustin Yar near Astrakhan and at an operational base near Ekaterinburg in the Urals. Russia later claimed that the systems tested and deployed there were actually Iskander-M short-range ballistic missiles.

Soon after the U.S. charges of a Russian violation were first levied in 2014, Russia responded by providing a list of three alleged U.S. violations of the treaty. (Details of these charges and counter-charges are provided in the box below)

The U.S. allegation of a noncompliant flight-test by what it later designated the SSC-8 was widened in 2017 by reporting that the system

▶ Enumerating U.S. and Russian INF Treaty Noncompliance Allegations

U.S. allegation:

Russia has flight-tested and deployed a ground-launched cruise missile, which meets the INF Treaty definition of a ground-launched cruise missile with a range capability of 500 km to 5,500 km, and as such, all missiles of that type, and all launchers of the type used or tested to launch such a missile, are prohibited under the provisions of the INF Treaty.

Russian allegations:

1. The United States test missile targets under its Ballistic Missile Defense (BMD) program, possessing characteristics that are similar to intermediate- and shorter-range missiles. In addition, these tests are also used to further improve key elements of missile systems that are prohibited under the INF Treaty.
2. U.S. unmanned aerial vehicles (UAVs) violate the INF Treaty definition of ground-launched cruise missiles.
3. A relatively new and very serious violation of the INF Treaty by the United States is the deployment in Europe of the Mark-41 (Mk-41 VLS) system capable of launching Tomahawk intermediate-range, land-attack cruise missiles. These vertical launch systems will be deployed at the Aegis Ashore site at the Deveselu Air Base in Romania and a similar facility is being constructed in Poland.

INF Treaty Compliance: Path to Renewal or the End of the Road?

had been deployed in two locations – at a testing facility in Kapustin Yar near Astrakhan and at an operational base near Ekaterinburg in the Urals. Russia later claimed that the systems tested and deployed there were actually Iskander-M short-range ballistic missiles.

Russia's accusation that the United States used banned INF ballistic missiles as targets for ballistic missile defense tests was thought to have been resolved years before in the framework of the INF Treaty's Special Verification Commission. Another of its accusations pointed toward U.S. production and use of armed drones, contending that such systems qualified as cruise missiles prohibited by the treaty. The United States countered by citing clear differences between the two systems – such as the fact that unlike drones, cruise missiles are autonomous and have one-way missions. The Russians responded that such assertions cannot be verified persuasively.

The most prominent Russian allegation concerns the Mk-41 launcher used in the NATO Aegis Ashore ballistic missile defense installations in Romania and in Poland. Because this launcher has been used in the past to launch BGM-109 "Tomahawk" land-attack cruise missiles from ships, the Russians argue that it could be used to launch a ground-based variant of the Tomahawk, similar to the BGM-109G "Gryphon," which was banned and eliminated under the INF Treaty.

There is a certain parallelism between the latter allegation and the U.S. non-compliance charge. Both concern questions about the technical capabilities of systems deployed by the other side. They would, therefore seem susceptible to resolution under reciprocal inspections and application of confidence-building measures – however uncomfortable it might be for the U.S. and Rus-

sian militaries (and the NATO host countries) to permit them.

The SVC (comprised now of Ukraine, Belarus, and Kazakhstan, in addition to the United States and Russia) convened in Geneva on Nov. 15-16, 2016, for the first time in 13 years, but little seems to have been accomplished then beyond setting forth in detail the allegations that had been exchanged in 2014. Another meeting of the SVC was held in Geneva on Dec. 19-20, 2017. This session was apparently more intense and more detailed than during the previous year's discussions, but still lacking visible progress toward resolution. No date was set for the next SVC session.

One substantive advance from the previous SVC was the U.S. specification of a Russian designator (9M729) for the system it had alleged to be a violation of the INF Treaty – and also the identification of its manufacturer – constituted an important substantive advance from the previous SVC session in facilitating useful discussion. For example, the 9M designation would indicate that the suspect system is used by the Russian army instead of being used by the navy or air force for launching from the sea or air.

Russia has acknowledged that the 9M729 exists but claims that it is treaty-compliant and its characteristics do not correspond to those the U.S. attributes to the SSC-8. Noting that the INF Treaty (in Art.VII, paragraph 11) provides that "a cruise missile, which is not a missile to be used in a ground-based mode shall not be considered to be a GLCM if it is test-launched at a test site from a fixed land-based launcher which is used solely for test purposes and which is distinguishable from GLCM launchers," Moscow contends that U.S. characterizations of the 9M729 test history and range capabilities are mistaken.

INF Treaty Compliance: Path to Renewal or the End of the Road?

Means of Verification

Despite these continuing differences, the dispute could now move to a more productive arena than when Russia was claiming it had no idea what system the Americans were talking about. U.S. specialists can now potentially examine the characteristics and test records of this specific type of missile and launcher.

The Third Annual Report of the Deep Cuts Commission had recommended Washington provide more specificity about Russia's alleged violation of the INF Treaty – a move that would garner more public support in Europe and America for ensuring treaty compliance and to open up a pathway to resolution. This having been done, it is now time for the sides to offer reciprocal access to systems of compliance concern and to devise means to increase and maintain transparency.

In the short term, it is essential to address the current concerns about compliance and deal with possible violations. The identification of the 9M729 as the subject of the U.S. accusation should facilitate a dialogue on the issue. The obvious and difficult challenge is to establish whether the 9M729 is treaty compliant or not. To do this, Russia could and should demonstrate that the system does not have a range greater than 500 km.

This sounds easier than it actually is. The INF Treaty designated the then-existing missile types to which the treaty provisions would apply. It did not contain explicit provisions for cooperatively establishing the range of missiles, nor does any other arms control treaty contain such procedures. By prohibiting the flight-testing of ground-launched missiles with ranges between 500 km and 5,500 km, but not their develop-

ment, the treaty drafters implicitly assumed that future violations would be detectable during tests, principally through national technical means. But for one side to detect a violation does not mean it is willing to reveal its sources. Nor does it necessarily mean the other side will acknowledge the violation.

To clarify whether the 9M729 is treaty compliant, U.S. experts should be given an opportunity to observe the system and a flight test and/or to inspect the missile itself. The Vienna Document describes a procedure for a “Demonstration of New Types of Major Weapon and Equipment Systems” which might be used as template to arrange such a visit. It is not clear, however, how intrusive such an inspection would have to be to arrive at an informed judgment on the range of the 9M729. Changes in the outer appearance of the 9M729 (SSC-8) as compared to the 9M728 (SSC-7) – such as greater length or wider diameter – may be indicative of increased range, but would not necessarily be proof of a violation. The United States may also be reluctant to engage in such an exercise if it is concerned about not being able to prove a Russian violation.

Nevertheless, the issue could be put to rest if the United States came away from a joint inspection of the 9M729 convinced that the missile was treaty compliant. If it was determined that the 9M729 was not in compliance with the treaty, rectification would be difficult. The monitoring tasks associated with establishing that Russia is returning or has returned to compliance would include:

- establishing a baseline of numbers and locations of prohibited systems;
- developing procedures for checking the completeness and correctness of such declarations;

INF Treaty Compliance: Path to Renewal or the End of the Road?

- monitoring the irreversible destruction of missiles and all launchers associated with the 9M729; and
- on-going monitoring of Russian compliance.

Any intrusive verification approach would have to be reciprocated by the United States, if it were to be politically acceptable in Moscow. Thus, Washington should invite Russian specialists to examine Aegis Ashore missile defense launchers at deployment sites in Romania and Poland. The latter step could either convince Russia that its concerns were unjustified and/or lead to development of technical measures to ensure that the Mk-41 Aegis Ashore missile launcher cannot be used for launching cruise missiles.

The United States has briefed NATO allies about its allegations for a number of years. At their December 2017 meeting Defense Ministers stated that “Allies have identified a Russian missile system that raises serious concerns”, stopping short of collectively confirming U.S. non-compliance findings. Allies welcomed “continued efforts by the United States to engage Russia in bilateral and multilateral formats, including the Special Verification Commission, to resolve concerns about Russia’s compliance with the INF Treaty.” The Defense Ministers stated that “our actions, including national measures taken by some Allies, seek to preserve the INF Treaty, strengthen the Alliance, and incentivize Russia to engage in good faith” – an implicit reference to the U.S. decision to develop a new GLCM.

From the perspective of the West, the INF Treaty was and is a document that primarily aims to improve European security. It will remain important for the United States to

avoid any transatlantic rifts over the appropriate response to the INF crisis. Responding to a new Russian GLCM by deploying a new INF-range GLCM or missiles to NATO Europe would be controversial among the allied populations and within their political systems. Involving allied governments and publics in developing military and negotiating strategies will therefore be critical for convincing Russia that it cannot divide NATO over INF and for being able to offer a package of viable measures to resolve compliance disputes.

Tipping Point

If the door to productive discussions in future SVC meetings appears to have opened a crack, there are also political winds blowing that could slam it shut again. The U.S. Nuclear Policy Review (NPR) released in February 2018 has set the stage for increasing the role and types of U.S. nuclear weapons, justified in part by presenting a misleading comparison of U.S., Russian, and Chinese nuclear weapons developments and drawing questionable inferences about Russia’s nuclear doctrine.

In fact, in early 2018 policy statements, both the current governments of Russia and the United States are demonstrating determination to assure their second-strike deterrent capacities, but they are doing so in ways that will lead to arms racing and greater crisis instability. In his March 1 State of the Nation Address, President Putin reiterated Russia’s official defense doctrine that it would only use nuclear weapons first if its national existence or that of its allies were jeopardized by conventional or WMD attack – quite similar to the nuclear doctrine of NATO during the Cold War – promising to introduce new nuclear weapons types to ensure that U.S. strategic ballistic missile defenses could be penetrated. Russian

INF Treaty Compliance: Path to Renewal or the End of the Road?

defense officials deny having an “escalate to de-escalate” strategy for the battlefield use of “tactical” nuclear weapons.

U.S. experts are divided about whether Russia foresees using nuclear weapons first in response to events beyond its borders, and they generally label Putin’s introduction of new nuclear weapon types as unnecessary and provocative.

Partly in response to Russia’s apparent introduction of a new INF-range GLCM several years ago, the Trump administration has called for developing and deploying new nuclear-tipped sea-launched cruise missiles (SLCMs) and for pursuing R&D work on new GLCMs, as well as for expanding U.S. ballistic missile defenses.

This action-reaction cycle, absent serious efforts to pursue arms control, is creating further pressure to reverse the positive trends emerging from the Cold War. If these programs are merely being used as leverage to achieve mutually beneficial limits, and political will exists to curb nuclear excess, there is a possibility for moving forward on nuclear arms control. But the trajectory described in the NPR of introducing two new U.S. cruise missile types with the stated goal of bringing Russia back into compliance with the INF Treaty is likely instead to further complicate efforts to strengthen existing nuclear arms control regimes.

Given historic propensities for worst-case assessments, and powerful domestic drivers of defense decisions in Russia and the United States, there is a good chance of sliding backwards towards Cold War-style arms racing, undoing much of the INF Treaty’s benefits. President Putin’s announcement on March 1 of a massive strategic nuclear weapons’ modernization program appeared particularly ominous in this regard, especially since it was mostly justi-

fied by the perceived threat to Russia’s nuclear deterrent posed by U.S. global missile defense deployments.

Possible Pathways

Resolving compliance concerns would require intensive work on verification procedures in the SVC or a similar bilateral forum – concerning the capabilities of Russia’s 9M729 GLCMs and concerning the capabilities of the U.S. Aegis Ashore Mk-41 launchers deployed as part of NATO’s missile defense program. Clarifying compliance concerns and jointly embarking on a path toward correcting possible breaches and increasing confidence that missile defense installations cannot be misused for offensive purposes is a precondition for first saving the INF Treaty and then agreeing on necessary steps to adapt the 30-year-old accord to changed geopolitical circumstances and technical advances.

Many of the arms control tools to achieve these goals are already available; others could be created by making use of the experiences in arms control and verification gained since 1987. If high-level political support is provided for such a process, there are a number of sensible and feasible ways to take The INF Treaty well into the 21st century:

- Russia and the United States have urged in the past – notably at the UN General Assembly in 2007 – that the bilateral missile ban in the INF Treaty be universalized, which would extend the ban to other countries on Russia’s periphery about whose INF missiles Moscow keeps complaining. However, success in convincing Russia’s potential adversaries is uncertain. There is no precedent for this type of arms control negotiations between Beijing and either Moscow or Washington. China

INF Treaty Compliance: Path to Renewal or the End of the Road?

appears to be firmly opposed to joining in any arms control negotiations on theater missiles given the large U.S. and Russian numerical advantages in strategic forces at present and their own increasing reliance on conventionally-armed ballistic missiles for the anti-access/area denial mission in the Western Pacific.

- Another option, which seems conceivable, if also unlikely, is seeking some kind of trade-off between the two principal INF Treaty compliance issues raised by Washington and Moscow. Russia could eliminate its 9M729/SSC-8 missiles and launchers in exchange for a NATO commitment to freeze the expansion of Aegis ballistic missile defenses in Europe as long as no nuclear threat emerges from the Middle East. Suspending ongoing deployment of Aegis Ashore interceptors in Poland, the completion of which has already been delayed for technical reasons until 2020, could be accomplished without compromising its stated mission since there is no near/mid-term long-range Iranian nuclear missile threat. Moreover, the total number of Aegis Ashore launchers scheduled to be deployed in Eastern Europe represents a small percentage of the Mk-41 launchers carrying land-attack cruise missiles already deployed on warships at sea.
- A third option, which could increase stability for both sides would be to amend the INF Treaty by banning all nuclear-tipped cruise missiles, including air-launched cruise missiles (ALCMs) and SLCMs, in addition to GLCMs. This would represent a significant step away from destabilizing trends toward devel-

opment and deployment of new, stealthy, nuclear-capable cruise missiles – particularly ALCMs (such as the U.S. Long-range Standoff Weapon or the Russian Kh 101) and SLCMs (such as the sea-based land-attack and anti-ship versions of Russia's 3M14 Kalibr or the new U.S. SLCM envisaged in the NPR). Even more destabilizing would be the radically new weapons (such as the nuclear-powered cruise missile announced by Putin), or those launched by stealthy delivery platforms (such as the B-21 heavy bomber). Banning all nuclear-tipped cruise missiles would constitute another giant stride toward the nuclear disarmament obligations of the NPT. However, it would be likely to meet strong resistance in both Washington and Moscow – particularly among Russia's military leadership, who would be opposed to accepting the kind of stringent verification measures necessary to enhance confidence in cruise missile de-nuclearization.

There are ample grounds for pessimism in considering prospects for resolving compliance concerns and restoring the INF Treaty regime to good health, or for achieving more ambitious objectives in the direction of nuclear disarmament. But it must be recognized that such pessimism does not flow from a dearth of plausible solutions that could satisfy the defense and deterrence needs of both sides, but rather from the absence of political will, which is not immutable.

The current political climate does not bode well for saving the INF Treaty – or for achieving other nuclear arms control objectives for that matter. The current trajectory points toward a “Cold War 2.0,” or worse. It is therefore imperative that every effort should be exerted to save

INF Treaty Compliance: Path to Renewal or the End of the Road?

the INF Treaty, which represents the first major U.S.-Russian arms control treaty domino to fall since the U.S. withdrawal from the ABM Treaty. A collapse of the INF Treaty would boost the reciprocal accusations of each side that the other is pursuing an “escalate to de-escalate” doctrine regarding the use of nuclear systems, incentivizing the development and deployment of “more useable” nuclear weapons .

It may very well be the case that moving forward with the 9M729 GLCM never received the high-level attention in Moscow such a fate-

ful move deserved. (The construction of a large phased-array radar at Krasnoyarsk provides a reminder that it would not be the first time, were this the case.) It is certainly also true that the opportunity costs of the U.S. withdrawal from the ABM Treaty were never fully weighed as the George W. Bush administration slipped effortlessly away in the aftermath of the 9/11 attacks, with no congressional scrutiny. But revisiting the improbable path of successfully negotiating the INF Treaty in the wake of the serious setbacks of 1983, encourages persistence in the pursuit of similar seemingly insurmountable obstacles.

INF Treaty Compliance: Path to Renewal or the End of the Road?**About the Authors**

Greg Thielmann is a member of the Arms Control Association's Board of Directors, and previously served as an office director in the U.S. State Department's Bureau of Intelligence and Research, a professional staff member of the U.S. Senate Select Committee on Intelligence, and as a senior fellow at ACA.



Oliver Meier is Deputy Head of the Research Division on International Security at the German Institute for International and Security Affairs (SWP). His areas of expertise include problems related to the proliferation of weapons of mass destruction and ways to control and reduce biological, chemical and nuclear weapons as well as to cooperatively control military and risk technologies.



Victor Mizin is Senior Research Fellow with the Center of International Security at the Russian Academy of Sciences' Institute of World Economy and International Relations. Prior to this position, he has been Deputy Director of the Institute for International Studies at the Moscow State Institute of International Affairs University (MGIMO). He participated as an adviser in arms control negotiations, including START I and START II, the INF Treaty, the Conference on Disarmament, and the UN Disarmament Commission.

INF Treaty Compliance: Path to Renewal or the End of the Road?**About Deep Cuts**

The Deep Cuts project is a research and consultancy project, jointly conducted by the Institute for Peace Research and Security Policy at the University of Hamburg, the Arms Control Association, and the Institute of World Economy and International Relations of the Russian Academy of Sciences. The Deep Cuts Commission is seeking to devise concepts on how to overcome current challenges to deep nuclear reductions. Through means of realistic analyses and specific recommendations, the Commission strives to translate the already existing political commitments to further nuclear reductions into concrete and feasible action. Deep Cuts Working Papers do not necessarily reflect the opinion of individual Commissioners or Deep Cuts project partners.

For further information please go to:
www.deepcuts.org

Impress

Institut für Friedensforschung
und Sicherheitspolitik
an der Universität Hamburg (IFSH)
Beim Schlump 83
20144 Hamburg, Germany

Phone: +49 (0)40-86 60 77-70

Fax: +49 (0)40-866 36 15

Project Management
Lina-Marieke Hilgert
Götz Neuneck
Email: hilgert@ifsh.de