

I. Russian–US nuclear arms control and disarmament

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Implementation of New START

In 2016 Russia and the United States continued to implement the 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START).¹ Under the treaty the two parties agreed to limit the number of their deployed strategic nuclear warheads to 1550 each and to limit the number of their deployed strategic missile launchers and heavy bombers equipped for nuclear armaments to 700 each.² New START contains transparency and verification measures—including semi-annual data exchanges, notifications and up to 18 on-site inspections annually—that have contributed to building mutual confidence between the parties about the size and composition of their respective strategic nuclear forces.³

When fully implemented by February 2018, New START will result in modest reductions in Russian and US deployed strategic nuclear forces. However, these forces constitute less than one-quarter of their total nuclear weapon inventories. New START does not limit the two countries' stocks of operational non-deployed strategic nuclear warheads or retired warheads awaiting dismantlement. Neither does it limit their inventories of non-strategic (tactical) nuclear weapons. As of January 2017, Russia possessed an estimated total inventory of approximately 7000 nuclear warheads, while the USA had approximately 6800 warheads.⁴

Russia and the USA have made uneven progress in implementing the New START-mandated force reductions. The biannual treaty data collected in January 2017 showed that the USA had reduced the number of its treaty-accountable deployed strategic launchers by 201 and the number of warheads attributed to those launchers by 433 since New START entered into force in February 2011. As a result the USA was under the final treaty limits in both categories (see table 12.1).⁵ During the same period Russia had decreased its treaty-accountable deployed strategic forces by 13 launchers

¹ For a summary and other details of New START see annex A, section III, in this volume.

² Due to New START's 'counting rules', however, these numbers do not reflect the actual deployment of strategic warheads and launchers. This is mainly because bombers are counted as carrying only 1 weapon each, even though they are able to carry many more air-launched cruise missiles (ALCMs).

³ For a summary of inspection activities see US Department of State, 'New START Treaty inspection activities', [n.d.], <<http://www.state.gov/t/avc/newstart/c52405.htm>>.

⁴ For detail about the size and composition of US and Russian nuclear warhead inventories see chapter 11, sections I and II, in this volume.

⁵ US Department of State, Bureau of Arms Control, Verification and Compliance, 'New START Treaty aggregate numbers of strategic offensive arms', Fact sheet, 1 Jan. 2017. The data is updated for each 6-month period after entry into force of the treaty.

Table 12.1. Russian and US aggregate numbers of strategic offensive arms under New START, as of 5 February 2011 and 1 September 2016

Category of data	Treaty limits ^a	Russia		United States	
		Feb. 2011	Sep. 2016	Feb. 2011	Sep. 2016
Deployed ICBMs, SLBMs and heavy bombers	700	521	508	882	681
Warheads on deployed ICBMs, SLBMs and heavy bombers ^b	1550	1537	1796	1800	1367
Deployed and non-deployed launchers of ICBMs, SLBMs and heavy bombers	800	865	847	1124	848

ICBM = intercontinental ballistic missile; SLBM = submarine-launched ballistic missile.

^a To be reached by Feb. 2018.

^b Each heavy bomber, whether equipped with cruise missiles or gravity bombs, is counted as carrying only 1 warhead, even though the aircraft can carry larger weapon payloads.

Source: US Department of State, Bureau of Arms Control, Verification and Compliance, 'New START Treaty aggregate numbers of strategic offensive arms', Fact sheets, 1 June 2011 and 1 Jan. 2017.

but had increased the number of treaty-accountable warheads by 259. Russia was already below the final ceiling of 1550 deployed warheads when New START entered into force, but subsequently moved back above the ceiling. In 2016 some US analysts expressed concern that the increase in Russia's deployed warheads, especially over the past year, indicated that Russia may intend to withdraw from New START and not comply with the final limit of 1550 deployed warheads.⁶ Others noted, however, that the Russian increase was a temporary anomaly due to Russia's ongoing nuclear force overhaul and modernization activities, in particular, the deployment of a new class of ballistic missile submarines to replace older submarines that will be retired before 2018.⁷

Next steps

The year 2016 ended with few signs that Russia and the USA would agree to go beyond New START and make further reductions to their nuclear arse-

⁶ Gertz, B., 'Russia adds hundreds of warheads under nuclear treaty', Washington Free Beacon, 4 Oct. 2016.

⁷ Kristensen, H. M., 'New START data shows Russian warhead increase before expected decrease', FAS Strategic Security Blog, Federation of American Scientists, 3 Oct. 2016. For detail about US and Russian nuclear force modernization plans see chapter 11, sections I and II, in this volume.

nals.⁸ According to media reports in 2016, US President Barack Obama was considering proposing to Russia a five-year extension of New START (which is due to expire in 2021), thereby carrying forward the treaty's aggregate limits and associated verification arrangements to 2026. The proposal's aim was to ensure that the next US administration would not let the treaty lapse after the Obama administration left office.⁹ While not ruling out an extension, Russian experts and officials stressed that any future nuclear arms control deal with the USA would have to address Russia's other bilateral strategic stability concerns. These include US plans for deploying new missile defence systems, modernization of non-strategic nuclear forces deployed in Europe and the development of long-range, precision-guided conventional strike systems that could take on roles and missions previously assigned to nuclear weapons.¹⁰

INF Treaty controversy

There was continued stalemate between Russia and the USA in 2016 over allegations made by each country that the other had violated the 1987 Soviet–US Treaty on the Elimination of Intermediate-Range and Shorter-Range Missiles (INF Treaty).¹¹ Under the INF Treaty, the USA and the Soviet Union agreed not to possess, produce or flight-test a ballistic missile or ground-launched cruise missile (GLCM) with a range capability of 500 to 5500 kilometres, or to possess or produce launchers of such missiles.¹² This is widely regarded as a milestone achievement in arms control because it eliminates and permanently bans an entire class of nuclear weapons.

The INF Treaty has come under increasing strain over compliance disputes and a lack of transparency in bilateral information exchanges. In 2014 the USA alleged that Russia was conducting flight tests for a new GLCM with a range proscribed by the treaty.¹³ Russia denied it was violating the INF Treaty and countered with its own allegations—including charges that the USA was (a) deploying a missile defence interceptor system in Europe

⁸ In a speech in Berlin in 2013, US President Barack Obama proposed that Russia and the USA agree to make a one-third cut in the number of their deployed strategic nuclear warheads permitted under New START to just over 1000 warheads. White House, Office of the Press Secretary, 'Remarks by President Obama at the Brandenburg Gate, Berlin, Germany', 19 June 2013.

⁹ Rogin, J., 'Obama plans major nuclear policy changes in his final months', *Washington Post*, 10 July 2016. New START stipulates that the parties may agree to extend the treaty for a period of no more than 5 years.

¹⁰ Kozin, V., 'The New START: extension impossible', Russian Institute for Strategic Studies, 6 Sep. 2016; and 'Even if Russia agrees to extend START Treaty, it will be on Moscow's terms', Sputnik, 12 July 2016.

¹¹ For a summary and other details of the INF Treaty see annex A, section III, in this volume.

¹² The number of parties to the INF Treaty was expanded in 1991 to include relevant successor states of the former Soviet Union—Belarus, Kazakhstan and Ukraine—as well as Russia.

¹³ For detail about the non-compliance allegations see Kile, S. N., 'Russian–US nuclear arms control', *SIPRI Yearbook 2015*, pp. 540–44.

that could also be used to launch cruise missiles; (b) using targets for missile defence tests with similar characteristics to proscribed intermediate-range missiles; and (c) manufacturing armed unmanned aerial vehicles that fall under the treaty's definition of GLCMs.¹⁴ The USA has disputed the Russian charges and maintains that it is in compliance with the treaty.

In 2016 US officials called for a meeting of the Special Verification Commission (SVC), the dispute resolution mechanism established by the INF Treaty.¹⁵ The call reportedly came amid growing US concerns that Russia was preparing to deploy the GLCM at the centre of the compliance controversy.¹⁶ The SVC meeting, the first since 2003, took place on 15–16 November 2016 in Geneva.¹⁷ Delegations from the five parties to the INF Treaty—Belarus, Kazakhstan, Russia, Ukraine and the USA—attended the meeting. It was unclear from the press releases issued by the parties whether they had made progress towards resolving the compliance disputes or had agreed to meet again.¹⁸

Russian–US military plutonium disposition

In 2016 implementation of the 2000 Plutonium Management and Disposition Agreement (PMDA) between Russia and the USA became a source of renewed controversy.¹⁹ On 3 October Russian President Vladimir Putin signed a decree suspending Russia's participation in the agreement, citing the USA's 'inability to ensure compliance' with its PMDA commitments and, more generally, the 'emergence of a threat to strategic stability as a result of unfriendly actions by the United States towards Russia' as the reasons for

¹⁴ Russian Ministry of Foreign Affairs, 'Comment by the Information and Press Department on the US Department of State's report on adherence to and compliance with arms control, nonproliferation, and disarmament agreements and commitments', 15 Apr. 2016.

¹⁵ Article XIII of the INF Treaty specifies that the purpose of the SVC is to serve as a 'forum for discussing and resolving implementation and compliance issues, [and] for considering additional procedures to improve the viability and effectiveness of the Treaty'.

¹⁶ Gordon, M., 'Russia is moving ahead with missile program that violates treaty, U.S. officials say', *New York Times*, 19 Oct. 2016.

¹⁷ US Department of State, Office of the Spokesman, 'Thirtieth session of the Special Verification Commission under the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty)', Media note, 16 Nov. 2016.

¹⁸ Reif, K., 'U.S., Russia discuss INF disputes', *Arms Control Today*, vol. 46, no. 10 (Dec. 2016), p. 5.

¹⁹ Agreement Between the Government of the United States of America and the Government of the Russian Federation Concerning the Management and Disposition of Plutonium Designated as No Longer Required for Defense Purposes and Related Cooperation, signed 29 Aug. and 1 Sep. 2000; and Protocol to the agreement, signed 13 Apr. 2010, <<http://www.state.gov/t/isn/trty/>>.

suspending the deal.²⁰ The suspension decree was submitted as a draft law to the State Duma, which approved it on 19 October.²¹

The PMDA stipulated that Russia and the USA would each eliminate, in a safe, irreversible and transparent manner, 34 tonnes of weapon-grade plutonium designated as no longer required for defence needs.²² The agreement originally provided for the two parties to dispose of the excess plutonium either by irradiating it as mixed oxide uranium–plutonium (MOX) fuel at purpose-built facilities or by immobilizing it with high-level radioactive waste, thereby rendering it suitable for geological disposal. The PMDA also provided for the monitoring and inspecting of each side’s disposition activities and their end products to ensure that the material can never be used for nuclear weapon purposes. A 2010 Protocol to the PMDA specified that all the excess plutonium would be converted into MOX fuel for irradiation in nuclear power reactors.²³ Under this protocol both countries committed to begin disposition activities by 2018.

The implementation of the 2010 Protocol became increasingly contentious because of a political dispute in the USA over the fate of the MOX Fuel Fabrication Facility and related waste management and nuclear weapon dismantlement facilities being built at the Savannah River Site in South Carolina pursuant to the PMDA. In the light of construction delays and rapidly rising costs, the Obama Administration decided—despite strong objections in the US Congress—to halt work at the site and eventually to terminate it, and instead to pursue a less expensive alternative method for disposing of the excess weapon-grade plutonium.²⁴ This involved chemical dilution of the plutonium and its disposition by burial in an underground repository rather than using it to manufacture MOX fuel for irradiation in light-water reactors.²⁵

Russia had previously complained that the US move to change the disposition method specified in the 2010 Protocol required amending the terms

²⁰ ‘Decree by the President of the Russian Federation on the suspension of the Plutonium Management and Disposition Agreement’, 3 Oct. 2016. Unofficial translation from Russian, Center for Energy and Security Studies.

²¹ President of the Russian Federation, Press Service, ‘Draft law suspending the Russia–US Plutonium Management and Disposition Agreement submitted to the State Duma’, 3 Oct. 2016; and TASS, ‘Russia’s State Duma suspends plutonium agreement with US’, 19 Oct. 2016.

²² US Department of State, Office of the Spokesman, ‘2000 Plutonium Management and Disposition Agreement’, Fact sheet, 13 Apr. 2010.

²³ The 2010 Protocol confirmed an agreement reached in 2007 that permitted Russia to dispose of its plutonium in fast-neutron reactors (BN-600 and BN-800) rather than light-water reactors, as originally proposed.

²⁴ Nikitin, M. B. and Welt, C., ‘Recent developments in U.S.–Russian nonproliferation cooperation’, Congressional Research Service (CRS), *CRS Insight*, IN105954, 13 Oct. 2016.

²⁵ US Department of Energy, *Report of the Plutonium Disposition Working Group: Analysis of Surplus Weapon-grade Plutonium Disposition Options* (US Department of Energy: Apr. 2014), Appendix C.

of the PMDA, which in turn required Russia's consent.²⁶ Furthermore, Russian experts had expressed a technical concern about the USA's adoption of a 'dilute and dispose' method, namely, that it did not irreversibly alter the isotopic composition of the excess weapon-grade plutonium. In their view, the new US disposition method left open the possibility that the material could be used again in nuclear weapons and was thereby incompatible with the basic purpose of the PMDA.²⁷

The dispute over the implementation of the PMDA highlighted how Russian-US cooperation on a range of other nuclear security and non-proliferation initiatives, including the Cooperative Threat Reduction programme to secure materials and facilities in Russia associated with weapons of mass destruction programmes, has been eroded by the deterioration of broader relations between the two countries.²⁸ Given growing political and strategic rifts between Russia and the USA, cooperation on specific arms control and non-proliferation initiatives, rather than acting as a catalyst for improvements as in the past, is likely to remain stalled pending improvements in their bilateral relations.

²⁶ Podvig, P., 'Can the US-Russian plutonium disposition agreement be saved?', *Bulletin of the Atomic Scientists*, 28 Apr. 2016.

²⁷ Podvig (note 26); and 'Plutonium mess: SC wrangling with DOE over nuclear waste facility, Russia grows angry', RT, 8 Apr. 2016. Some US experts have argued that Russian concerns about the irreversibility of the dilute and dispose method can be addressed through technical means. Lyman, E., and von Hippel, F., 'Dealing with Russia's concerns about the isotopics of disposed plutonium', International Panel on Fissile Materials (IPFM), IPFM Blog, 15 Apr. 2016.

²⁸ Nunn, S. and Lugar, R., 'The United States and Russia must repair their partnership on nuclear security', *Washington Post*, 23 Jan. 2015.