



BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

GENERAL ARMS CONTROL

Remarks for the Update 2011 Conference on Export Controls and Policy

U.S. Department of State, 20 July 2011, www.state.gov

Remarks by Ann Ganzer, Acting Deputy Assistant Secretary for Non-Nuclear and Counter-Proliferation

One of the basic tenets of the Obama Administration's export control review is a pledge to continue to honor our multilateral regime commitments. (1,287 words) [Click here for full text.](#)

CHEMICAL WEAPONS CONVENTION (CWC)

Deseret Chemical Depot: Successful Secondary Waste Operations

U.S. Army Chemical Materials Agency, 21 July 2011, www.cma.army.mil

Secondary waste operations are going better than expected, so much that officials expect to wrap up operations in November 2012 – nine months ahead of the original schedule.

(408 words) [Click here for full text.](#)

U.S. Army 'Heats' Weapons into Plowshares

Green Technology World, 25 July 2011, green.tmcnet.com

The U.S. Army Chemical Materials Agency (CMA) recently completed decontaminating and recycling more than 6.5 million pounds of steel chemical weapons containers. (488 words)

[Click here for full text.](#)

COMPREHENSIVE NUCLEAR TEST-BAN TREATY (CTBT)

Sensor Network Detects Nuclear Blasts Worldwide

American Forces Press Service, 12 July 2011, www.defense.gov

At any time of the day or night, on any day of the year, if a nuclear device explodes anywhere on Earth, a Defense Department network established in 1947 will know about it. (965 words)

[Click here for full text.](#)

As Obama Prepares to Push Nuclear Test-ban, Technological Basis Still Debated

Global Security Newswire, 15 July 2011, gsn.nti.org

It has been 12 years since the U.S. Senate last considered the Comprehensive [Nuclear] Test-Ban Treaty, which supporters say has been enough time for technology to catch up with the concerns that previously derailed the pact. (3,009 words) [Click here for full text.](#)



News articles and publications found on the DTIRP website are compilations of open source current news articles and commentary concerning significant arms control treaty and related national security issues. The publications aim to give a balanced representation of how the public, other government organizations, and the media may view these arms control and threat reduction programs and issues. They are intended to serve the informational needs of Department of Defense (DoD) officials in the continuing assessment of defense policies, programs and actions. Further reproduction or redistribution for private use or gain is subject to original copyright restrictions. The views and opinions expressed in these articles are not necessarily those supported by DoD, the Defense Threat Reduction Agency, or the DTIRP.



BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

INTEGRATED SAFEGUARDS

NNSA, INL Partner to Strengthen Training of U.S. Nuclear Inspectors Supporting IAEA

National Nuclear Security Administration (NNSA), 12 July 2011, nnsa.energy.gov

The National Nuclear Security Administration (NNSA), in partnership with Idaho National Laboratory (INL), today announced the completion of a new course aimed at strengthening the training of International Atomic Energy Agency (IAEA) inspectors from the United States.

(244 words) [Click here for full text.](#)

NEW START TREATY (NST)

Pentagon to Revise Nuclear Guidance

Arms Control Association, June 2011, www.armscontrol.org

Implementing a key recommendation from the April 2010 “Nuclear Posture Review [NPR] Report,” the Obama administration announced in May that it has started the process of revising guidance issued by the Bush administration for nuclear weapons operations and deterrence policy. (1,730 words) [Click here for full text.](#)

Newspaper: Russia is Developing New Generation ICBM

Qatar Tribune, 19 July 2011, qatar-tribune.com

Russia is developing a new-generation intercontinental ballistic missile (ICBM) which will become the world’s most effective nuclear weapons delivery system... (306 words)

[Click here for full text.](#)

Minuteman 3 Test Launch Set

The Lompoc Record, 26 July 2011, www.lompocrecord.com

This summer’s second unarmed Minuteman 3 test launch is scheduled for early Wednesday [July 27] morning from north Vandenberg Air Force Base. (343 words) [Click here for full text.](#)

OPEN SKIES TREATY

Realizing the Full Potential of the Open Skies Treaty

Arms Control Association, July/August 2011, www.armscontrol.org

This article explores the importance of realizing the full potential of the treaty to making progress in reducing the numbers and dangers of nuclear weapons... (1,080 words) [Click here for full text.](#)

[back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

OPEN SKIES TREATY (CONT.)

Italian Plane to Make Observation Flight in Russia

Interfax-AVN Online, 25 July 2011, accessed via Open Source Center

Italian representatives will make an observation flight in Russia under the Open Skies Treaty, a report of the Russian Defense Ministry obtained by Interfax-AVN on Monday says. (165 words)

[Click here for full text.](#)

PLUTONIUM MANAGEMENT AND DISPOSITION AGREEMENT (PMDA)

U.S., Russia Reaffirm Commitment to Dispose of Enough Plutonium for 17,000 Nuclear Weapons

National Nuclear Security Administration (NNSA), 13 July 2011, nnsa.energy.gov

The National Nuclear Security Administration (NNSA) today announced the formal entry into force of the amended Plutonium Management and Disposition Agreement (PMDA)...(475 words)

[Click here for full text.](#)

FULL TEXT OF BI-WEEKLY ARTICLES FOLLOWS:



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U.S. Department of State, 20 July 2011, www.state.gov

Remarks by Ann Ganzer, Acting Deputy Assistant Secretary for Non-Nuclear and Counter-Proliferation

[...] One specific area I'd like to talk about in greater detail is our work with the key multilateral export control and nonproliferation regimes, including the Nuclear Suppliers Group [NSG], the Australia Group [AG], the Missile Technology Control Regime [MTCR], and the Wassenaar Arrangement. This work is not new. It is a continual progression, and every year we update and refine the nonproliferation regimes, their guidelines and their control lists.

By way of example, the Nuclear Suppliers Group, or NSG, held its plenary meeting from June 23-25 in the Netherlands and discussed a broad range of issues. The NSG agreed, among other things, to strengthen its guidelines on the transfer of sensitive enrichment and reprocessing technologies and continued its fundamental review of the trigger and dual use lists in order to keep its lists up to date with technological developments.

The Missile Technology Control Regime, or MTCR, held its annual plenary meeting in Buenos Aires, Argentina from April 11-15 of this year. At the Plenary, partners reaffirmed the importance of the MTCR in addressing the challenges posed by WMD and missile proliferation (particularly in Iran and North Korea), and agreed to redouble their efforts to encourage and assist non-members who support the goals of the MTCR to contribute to missile nonproliferation. The MTCR also noted the rapid evolution in relevant technologies and the need to address these developments. In this context, they agreed to add controls on production facilities for MTCR Category II systems.

On the Chemical and Biological Weapon, or CBW front, the Australia Group continues to seek to prevent any would-be proliferators from obtaining materials needed to initiate, develop or advance CBW programs. On June 6-11, 2011 the Australia Group, or AG, held its annual plenary meeting in Paris, adopted a number of changes to its chemical and biological control lists, examined several new and emerging technologies, and began a comprehensive review of its control lists. AG Partners shared information on CBW programs of concern including in Syria and agreed on a new manual for dealing with intangible transfers of technology.

The Wassenaar Arrangement plenary meeting was held in Vienna on December 9-10, 2010. The Arrangement keeps pace with advances in technology, market trends and international security developments involving the spread of military and dual-use goods and technologies. The Plenary agreed to a substantial number of amendments to the control lists, including many technically complex and challenging areas such as advanced underwater surveying equipment and advanced electronics.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Additionally, the Wassenaar Arrangement is now in the middle of an Assessment Year. During this time Participating States are conducting an in-depth analysis of the effectiveness of the regime. As part of the assessment process, the United States is co-chairing a Task Force that is seeking to improve the Wassenaar List review process. This task is aligned with the U.S. Export Control Reform effort one of the goals of which is to create "a more systematic review process that will streamline the control list.

Participating states in each of these consensus-based groups have voluntarily agreed to observe coordinated export control guidelines and control lists. The guidelines and control lists increasingly are observed by non-member adherent countries; some of the regime lists also feature in UN Security Council Resolutions (UNSCRs) on Iran and North Korea. They are also implicitly endorsed by UNSCR 1540, which requires all UN Member States to have nonproliferation export controls consistent with international standards to prevent the proliferation of weapons of mass destruction or their means of delivery and to prevent their acquisition by terrorist groups or other non-state actors. As a founding member and strong supporter of these regimes, the United States welcomes expanding acceptance of their multilateral export control standards.

All four regimes continue efforts to expand their outreach and dialogue with non-participating states. These efforts further the regimes' nonproliferation objectives through technical interactions with unilateral adherents as well as pursuing greater international acceptance of the guidelines and control lists among the broader international community. At the same time, there has been strong interest by some countries to become part of the regimes. The most public, but not the only, example of this has been India. In November of 2010, during the President's visit to New Delhi, a Joint Statement by the U.S. and India announced our support for India's membership in the four nonproliferation regimes in a phased manner as it takes steps to adopt the regimes' export control requirements.

I also just came back from New York City where we participated in the Preparatory Committee which is setting the stage for the negotiations starting next year for the Arms Trade Treaty or ATT. The ATT goals are certainly laudable: to create binding international regulations on the export, import, and international transfer of conventional arms, to prevent arms transfers to parties under UN arms embargoes, and to prevent the diversion of arms into the illicit market. ATT negotiations will begin in earnest next year and they promise to be complex. Nevertheless, the U.S. is committed to negotiations that produce an effective outcome which includes widespread acceptance (including the world's major arms exporters), incorporates the highest international standards possible, and is consistent with U.S. laws and practices.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

As I noted, the U.N. Security Council has adopted a number of resolutions that extend the reach of these multilateral controls. Renewal of the mandate of the UNSCR 1540 committee for a period of ten years was a critical diplomatic achievement. In extending this mandate, the U.N. Security Council requested that the Committee identify effective practices for implementing UNSCR 1540, and encouraged the Committee to draw on relevant expertise, including from the private sector. By doing so, the Security Council recognized industry's role in helping develop effective measures to effectively control WMD-related materials and technologies. Toward this end, a 1540 event for industry, hosted by Germany, will take place either later this year or early next year. By drawing on this type of expertise, we believe that we can move forward with developing practical measures that address the objectives of 1540.

We are also preparing for the Biological Weapons Convention Review, or BWC RevCon, to be held in Geneva this December. During this five-year review, the 164 States Parties to the BWC will examine the direction of their work and recommend future steps. The USG intends to work at the RevCon and beyond toward a greater emphasis on capacity building and the interface of health and security, efforts toward preventing bioterrorism and urging countries to uphold their BWC obligations.

Under the BWC umbrella, the national security, health, law enforcement and, scientific communities have come together, along with international and non-governmental organizations and private industry to address real-world concerns. Work has focused on assistance with capacity building for disease surveillance to counter natural, accidental or intentional outbreaks, laboratory safety and security, national implementation, to include penal measures, codes of conduct for responsible uses of the life sciences and a greater focus on science and technology developments that might be relevant to the BWC. Your industry counterparts have been involved in this work and we invite you to engage with us on your views about issues that could use the international attention the BWC forum can provide.

I would like to close by reiterating that the regimes and treaties I've discussed this morning have not remained stagnant. Every year changes to the control lists and guidelines based on ever-changing and advancing technology and proliferation trends are debated, negotiated, and agreed upon. These changes in the regime control lists, in particular, lead to export control regulations being updated not only in the United States, but around the world as well. Thus, multilateral export controls are continually improving, so that safety and national security are balanced with economic considerations. [...]

[back to top](#)

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DTRA

Deseret Chemical Depot: Successful Secondary Waste Operations

U.S. Army Chemical Materials Agency, 21 July 2011, www.cma.army.mil

Secondary waste operations are going better than expected, so much that officials expect to wrap up operations in November 2012 – nine months ahead of the original schedule.

Since the autoclave began operations in 2009, workers have treated and shipped off site more than 7,600 drums of GB and VX nerve agent contaminated secondary waste resulting from [Tooele Chemical Agent Disposal Facility] TOCDF operations. The majority of all secondary waste stored at Deseret Chemical Depot (DCD) is treated in the autoclave system using heat and high pressure steam.

The waste is monitored and sorted in a ventilated glove box called the Drum Ventilation System [DVS]. The level of agent contamination determines how the waste will be processed. If monitoring results are below permitted levels and below the waste control limit, 20 parts per billion for VX and GB, the waste may be shipped off site to a permitted hazardous waste landfill. If agent readings are at or above the permitted levels, the waste drum is thermally treated in the autoclave system before being shipped off site.

“We have been able to monitor the waste in the DVS and process it through the autoclave faster than anticipated,” said Keith Eyre, URS secondary waste operations manager. “Originally, we only expected to do four runs per week, but we’ve actually been doing six runs a week.”

As the GB secondary waste campaign is wrapping up at the autoclave, workers are now preparing to monitor, sort and treat the “legacy” waste from DCD and the Chemical Agent Munitions Disposal System. However, some of the legacy waste is stored in approximately 220 oversized containers. These containers are too large for the DVS Sorting Room and will instead be delivered to the Tooele Chemical Agent Disposal Facility (TOCDF) Toxic Maintenance Area (TMA). The TMA will provide room for workers in protective clothing to safely open the containers to identify and sort the contents for processing.

In addition to the successful autoclave operations, nearly 550,000 pounds of waste from the mustard agent campaign and early closure activities has been processed in the TOCDF Metal Parts Furnace. This waste is processed almost as quickly as it is generated, preventing the need to send this waste to storage for later disposal. Now that the TOCDF has completed processing mustard agent-filled munitions, workers are focused on finishing what is left of the mustard waste.

Combining efforts at both the autoclave and TOCDF will allow DCD to rid its inventory of secondary waste earlier than expected.

 [back to top](#)

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U.S. Army 'Heats' Weapons into Plowshares

Green Technology World, 25 July 2011, green.tmcnet.com

There are some things that cannot be spit-polished and cleaned, even in the Army. The U.S. Army Chemical Materials Agency (CMA) recently completed decontaminating and recycling more than 6.5 million pounds of steel chemical weapons containers.

In September 2003, CMA began operations at the Pine Bluff Ton Container Decontamination Facility in Pine Bluff Arsenal, Arkansas, for the purpose of decontaminating 4,307 ton-containers (TCs) that had been stored at the arsenal. Although the containers were empty, each 1,600-pound steel tub previously had held hazardous materials and required sanitization to eliminate any residual chemicals prior to recycling.

Rinsing out the containers was the first thing CMA tried, unsuccessfully. The residual chemical agent proved difficult to remove, and worse if the agency were to try to rinse the containers again, it would produce an additional 660,000 gallons of hazardous liquid waste in the process.

CMA personnel rose to the challenge. They designed a magnetic induction heating process that would decontaminate up to 10 containers simultaneously. The process used an electrically energized copper coil, wrapped around the TCs, to generate a magnetic field that was absorbed by the iron in the containers. After the temperature of the TCs was raised to more than 1,000 degrees Fahrenheit, the containers were kept superheated for an hour, to destroy all chemical agents. The decontamination process also featured a carefully designed pollution abatement system to capture any residual material vented from the TCs.

“The decision to decontaminate these legacy containers using magnetic induction heating made the recycling of the containers possible,” said Laurence Gottschalk, CMA’s project manager for Non-Stockpile Chemical Materiel. “We greatly reduced the overall safety risk and environmental impact by using this simplified process – adopting a one-and-done method that reduced the amount of secondary waste generated to a minimum. Instead of taking up significant space in a landfill indefinitely, we found a solution that benefits our environment and the community.”

The 6.5 million pounds of steel – equivalent to the size and heft of the Saturn V rocket – that finally were sent to a recycling center exemplify the Army’s commitment to protect the environment, as well as CMA’s history of commitment to ridding the nation of chemical weapons, according to officials.

Carmen Spencer, Deputy Assistant Secretary of the Army (Elimination of Chemical Weapons), noted, “CMA’s decades of expertise and success in eliminating chemical warfare materiel ranks

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

the highest in the world. This effort reinforces CMA's commitment to protecting the environment and creating a safer tomorrow."

The project is in keeping with CMA's strong commitment to safety, added Conrad Whyne, CMA Director. "It's not every day that a single project achieves such high marks in waste reduction and recycling efforts, while eliminating significant hazardous waste risks," Mr. Whyne said.

The U.S. Army Non-Stockpile Chemical Materiel Project, a part of the U.S. Army Chemical Materials Agency, leads the nation in the assessment and treatment of recovered chemical warfare materials. For more information, visit the NSCMP website:

www.cma.army.mil/nscmp.aspx

[back to top](#)

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12 July – 25 July 2011

DTRA

Sensor Network Detects Nuclear Blasts Worldwide

American Forces Press Service, 12 July 2011, www.defense.gov

At any time of the day or night, on any day of the year, if a nuclear device explodes anywhere on Earth, a Defense Department network established in 1947 will know about it. That was the year Army Gen. Dwight D. Eisenhower directed the Army Air Corps to develop such a capability, and the U.S. Atomic Energy Detection System has evolved over 64 years into a one-of-a-kind global web of sensors that see, feel, hear and sniff out nuclear explosions that occur under land or sea, in the atmosphere or in space.

The Air Force detection system and the job of monitoring three nuclear treaties – the 1963 Limited Test-ban Treaty [LTBT], the 1974 Threshold Test-ban Treaty [TTBT] and the 1976 Peaceful Nuclear Explosions Treaty [PNET] – in 1980 became a responsibility of the U.S. Air Force Technical Applications Center, called AFTAC, at Patrick Air Force Base, Florida.

When the system detects a nuclear event, AFTAC scientists analyze it and report findings to national command authorities through U.S. Air Force headquarters. David O'Brien is AFTAC's chief scientist. "Our responsibility is to ensure that foreign nations are adhering to the provisions of those treaties," O'Brien told American Forces Press Service.

To monitor the atmosphere and space, he said, the U.S. Atomic Energy Detection System, called USAEDS, has sensors aboard more than 20 satellites that make up the Global Positioning System [GPS] and the infrared-sensing satellites that make up the Defense Support Program. "The latter," O'Brien said, "are what the United States uses to detect launches of intercontinental ballistic missiles." Multiple sensors on all those satellites "look for phenomenology from a nuclear explosion that occurs in space or in the atmosphere," he added, "whether it's nuclear radiation or the flash from the fireball."

The network's five hydroacoustic stations detect undersea nuclear explosions. "Those are just underwater microphones, and they listen for the explosion that goes off underwater," the scientist said. "By detecting the explosions on more than one underwater microphone, we can triangulate where it occurred."

But the workhorse since the treaties came into effect to ban atmospheric nuclear testing, O'Brien said, has been the underground nuclear monitoring capability. "Those sensors are seismic, and the reason they're seismic is that when a large explosion occurs underground, it creates a signature that looks just like an earthquake," he said.

Infrasound sensors measure changes in the atmosphere generated by very-low-frequency acoustic waves that can come from above-ground nuclear explosions. USAEDS still

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

supplements some of its 40 seismic stations with infrasound, the scientist said, and in the 1960s used infrasound as the main way to detect nuclear explosions in the atmosphere. “But once we were able to get sensors on satellites,” he said, “that gave us a much better capability.”

When the program first began, its only sensor, an air sampler, flew on a B-29 aircraft over the Pacific Ocean. In 1949, flying between Alaska and Japan, the sampler detected debris from the first Russian atomic test. Today the system uses another aircraft, a WC-135 in a program called Constant Phoenix to collect air samples from areas where nuclear explosions have occurred.

If there is a nuclear explosion, O’Brien said, “we will [use meteorology] to project where radioactive debris would go. Then when it gets into international airspace, the aircraft can go to that spot.” The plane collects particles so analysts on the ground can test them to see if they contain radionuclides, or radioactive elements. The plane also collects radioactive gases, especially radioactive xenon, which is a good indicator that a nuclear explosion has occurred.

With all these sensors, the U.S. Atomic Energy Nuclear Detection System is the only network that operates 24 hours a day, seven days a week, but it isn’t the only global detection system.

In 1996, the United Nations General Assembly adopted the provisions of the Comprehensive Nuclear Test-ban Treaty [CTBT]. One major provision prohibited nuclear explosions anywhere, by anyone. Another provision described a 337-facility International Monitoring System [IMS] that would scan the earth for nuclear treaty violations. The IMS facilities include seismic, hydroacoustic, infrasound and radionuclide stations, but no satellite sensors.

Most of the world’s countries have signed and ratified the treaty. Three countries that have not signed the treaty have since tested nuclear devices – India and Pakistan in 1998 and North Korea in 2006. The treaty has not yet entered into force – several more countries must ratify the treaty before that happens. Until it does enter into force, some of the IMS monitoring stations operate 24 hours a day, but many do not.

The United States has signed, but not yet ratified, the treaty, and it has helped develop the International Monitoring System, O’Brien said. The IMS architects “were starting from scratch in the mid-1990s, and we had many years of experience in these kinds of systems,” he said. “So they came to us asking for any advice that would help them avoid the pitfalls of putting a new system in,” the scientist added.

The experts at USAEDS advised the monitoring system builders on worldwide logistics involved in establishing such a system and onsite installations. USAEDS contributes the data from many

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

of its seismic and hydroacoustic stations to the International Monitoring System. “Outside of the USAEDS,” O’Brien said, “the United States through the Office of the Secretary of Defense contributes seismic, infrasound and radionuclide stations to the IMS.”

As a signatory to the [CTBT], the United States is entitled to and receives all the data that the International Monitoring System produces. “We participate in all their international meetings, and we have since [the system’s] inception. They occasionally come here and visit,” O’Brien said. “I think both the IMS and ourselves are right at the state of the art of any technology that is practical for use in detecting nuclear explosions.”

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



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As Obama Prepares to Push Nuclear Test-ban, Technological Basis Still Debated

Global Security Newswire, 15 July 2011, gsn.nti.org

It has been 12 years since the U.S. Senate last considered the Comprehensive [Nuclear] Test-Ban Treaty [CTBT], which supporters say has been enough time for technology to catch up with the concerns that previously derailed the pact. Those developments, they hope, will give the treaty a fighting chance when it goes back to Capitol Hill. Since the early days of his term, President Obama has made it clear he intends to submit the accord for approval by the Senate as part of his administration's broader nonproliferation campaign. Top officials have discussed the general outlines of a strategy for securing ratification, but it remains to be seen when it will be put into play.

Treaty proponents argue that the United States should now feel assured it can keep its nuclear arsenal in working order without actually setting off weapons, and can be confident that no other nation could carry out a secret test blast. They say the time is right for lawmakers here to ratify the treaty, furthering its chances to become a global regime and taking another step to stem the spread of nuclear weapons.

"It is really very difficult to develop a functional nuclear weapon without the nuclear tests. And for those countries that already have nuclear weapons it puts a cap on new and advanced nuclear weapons," said Annika Thunborg, spokeswoman for the Preparatory Commission for the Comprehensive Test-ban Treaty Organization [CTBTO]. "The ultimate question is ... what world do countries want to live in? And this is of course a question that many American presidents have asked," she told *Global Security Newswire*.

Critics have a different take, saying developments since 1999 have only made more obvious the dangers of accepting a binding prohibition on nuclear blast trials. Computer modeling cannot effectively replace actual testing in terms of ensuring the upkeep of today's stockpile, nor for preparing new nuclear weapons that might one day be necessary to safeguard the United States from future threats, skeptics assert. They question whether other governments would fall in line behind Washington in approving the agreement, and argue that some nations could still pull off atomic explosions without the outside world knowing. "Entry into force would buy nothing," said Kathleen Bailey, former U.S. deputy assistant secretary of State. "States could still cheat without detection, and probably would."

A History of Testing

The United States set off the atomic arms race with the development and use of nuclear weapons during World War II. Over 51 years, there would be more than 2,000 underground, underwater and above-ground nuclear test detonations by the five recognized nuclear powers:

 back to top

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

China, France, Russia, the United Kingdom and the United States. The technical purpose was to ensure the efficacy of nuclear weapons and to determine how they worked against buildings and living beings. Politically, they were forceful demonstrations of certain nations' military capabilities. The impact of these events was not limited to assisting the proliferation of nuclear weapons, though the total environmental and human cost might never be known.

More than 500 atmospheric tests conducted by the nuclear powers from 1945 to 1980 spread radiation across the globe, according to one assessment. A 2003 study by the Centers for Disease Control and Prevention and the National Cancer Institute estimated that roughly 11,000 deaths might have been caused by radiation from the blasts, primarily through thyroid cancer linked to exposure to iodine 131. Other projections have been more dire.

"There have been lots of very depressing studies about the impact around Semipalatinsk," the Soviet nuclear testing site in what is now Kazakhstan, "but I wouldn't want my worst enemy to have to view some of that stuff," according to arms control specialist Jeffrey Lewis.

Pressure to curb nuclear testing began in the early years of the atomic era, according to a CTBTO history. There was some success through agreements such as the 1963 Limited Test-ban Treaty that prohibited atmospheric, underwater and space-based testing, but for decades no full-scope prohibition. Two years of talks in Geneva, Switzerland, ended in 1996 with formalization of the Comprehensive [Nuclear] Test-Ban Treaty [CTBT], which today has 182 signatory states. Each member has agreed not to conduct any nuclear trial blast no matter how small the yield, Thunborg said. That assertion, like many involving the accord, is questioned in some quarters.

The [CTBTO] Preparatory Commission was stood up to lay the groundwork for an actual CTBT verification organization, once the agreement enters into force. That, though, has proved sticky. The pact must be ratified by the "Annex 2" states – 44 nations that were involved in negotiations while in possession of nuclear research or power reactors. There are still nine holdouts among that group: China, Egypt, India, Indonesia, Iran, Israel, North Korea, Pakistan and the United States.

Washington has observed a voluntary moratorium on nuclear testing since 1992. The Clinton administration submitted the treaty for Senate advice and consent, only to see it rejected in a 51-48 vote in October 1999. The tally was less close than it might seem, as two-thirds backing would be required for ratification. Lawmakers and former top officials at the time raised a number of objections to the agreement, such as its potentially detrimental effect on the U.S. nuclear deterrent.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

The U.S. Stockpile Stewardship Program had been initiated only five years earlier. The effort was intended to ensure the U.S. arsenal remained safe, secure and reliable without nuclear tests, but its capability to do that at the time remained in question, the Congressional Research Service said in a 2008 report. "If we need nuclear weapons, we have to know they work. That is the essence of their deterrence," former Reagan administration Defense Secretary Caspar Weinberger asserted during the first debate. "The only assurance you have that they work is to test them."

Another major concern was whether the detection regime was up to the task of catching cheaters. While the five nuclear powers had by that time on their own stopped detonating nuclear devices, rivals India and Pakistan just one year earlier had conducted a series of underground test blasts. The debate goes on regarding whether those concerns have been fully addressed in the years since the 1999 debate.

Catching Nuclear Cheaters

Twelve years ago, no detection stations or laboratories had been certified for inclusion in the planned web of technology for identifying nuclear detonations, according to Lassina Zerbo, director of the CTBTO International Data Center [IDC]. The treaty's International Monitoring System [IMS] ultimately will feature 16 laboratories and 321 stations to detect seismic rumbles, radiation releases or other signs of nuclear explosions that might occur underwater, in the atmosphere or below the earth's surface.

"Ten years ago ... we had no certified facilities, today we have 265 certified facilities," Zerbo, whose operation analyzes and transmits information from the detection facilities, told GSN during a March interview at the organization's headquarters in Vienna, Austria.

The Preparatory Commission cites detection of North Korea's 2006 and 2009 underground nuclear blasts as evidence of its capabilities. Even with less than two-thirds of the detection system installed five years ago, more than 20 facilities identified the seismic impact of the North's first test. Data and a preliminary analysis pointed to an underground nuclear detonation; information including the magnitude, depth and time of the event was issued to CTBT member states within hours, and a full report confirmed the assessment two days after the incident.

A radionuclide station in Canada reported elevated levels of xenon gas that the organization was able to track back to North Korea, further cementing the conclusion that the Stalinist state had, as promised, detonated a nuclear device.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

The organization's detection infrastructure was nearly 80 percent ready when the North conducted its second nuclear blast in 2009. Even as television news reports noted an earthquake in the region, the CTBT office in Vienna had again gathered detailed information suggesting that the event appeared instead to be an explosion. Treaty states within 48 hours received tangible, detailed evidence indicating the North had set off another nuclear device, according to CTBT officials.

Critics have noted that the detection complex in 2009 did not pick up any noble gases that would be expected to be emitted by a nuclear explosion. "It is the quality, not the quantity, of measurements or devices that could theoretically detect a nuclear explosion that really matters," Senator Jon Kyl (R-Ariz.), a longtime opponent of the CTBT regime, said in March during the Carnegie International Nuclear Policy Conference. "I would note that even if you add the sophisticated United States capabilities beyond the international capabilities, we were not even able to verify the test that was announced in advance by the North Koreans in 2009."

Zerbo said there are "different schools of thought" on why that occurred, but declined to elaborate. "No one picked up on the noble gas ... not the United States, not Russia, not China, not South Korea, not Japan," he said. Nonetheless, it is "unlikely for several reasons" that any nation could get away with a nuclear test unnoticed, Zerbo asserted. The organization's seismic monitoring system has been found able to detect blasts with yields much lower than 1 kiloton, Thunborg said. The 2006 North Korean blast has been assessed at about a half-kiloton. By comparison, the U.S. Trinity nuclear test in 1945 had a 19-kiloton yield.

Skeptics remain unconvinced that the door has closed on the possibility of secret, undetected nuclear explosions. There are a number of options for nations to get away with nuclear testing, such as conducting a "decoupled" blast within a specialized container or underground space, the National Institute for Public Policy said in an analysis issued this year. "This can reduce the seismic signal below the threshold of detectability."

Nuclear blasts of a kiloton or higher could be masked against detection while still offering value in creation of new weapons and in maintaining existing systems, the report asserts. "Most experts with relevant technical expertise agree that the [CTBT International Monitoring System], even supplemented with national technical means, cannot detect decoupled nuclear explosions of one to two kilotons, and perhaps of several kilotons," Bailey, who co-authored the NIPP report, stated by e-mail. Treaty evaders could pull off a series of successive activities that might allow them to quietly build up reserves of information and know-how, according to some observers. They could glean information on nuclear physics and testing, among other related matters, through detonations of minimal yield.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Undersecretary of State for Arms Control and International Security Ellen Tauscher played down that threat in May. "Could we imagine a far-fetched scenario where a country might conduct a test so low that it would not be detected? Perhaps. But could a country be certain that it would not be caught? That is unclear," she said during the Arms Control Association's annual meeting in Washington. "Would a country be willing to risk being caught cheating? Doubtful, because there would be a significant cost to pay for those countries that test." Tauscher did not elaborate on the costs.

Analysts emphasize the value added by national capabilities to the treaty organization's complex of detection equipment. The pact authorizes states to use their own means for determining whether a nuclear test explosion has occurred, including satellites, intelligence and any of the 16,000 seismic stations installed across the globe, said Jenifer Mackby, a former CTBTO official who is now an adjunct fellow at the Center for Strategic and International Studies in Washington.

The International Monitoring System provides data that no country could access on its own, Mackby said. Alongside that infrastructure "you have enhanced national capabilities. Almost all countries in the world have seismic stations," she told GSN. "So I think that's a large development as well. ... You have more capability in some respects than any country could gather on its own."

Mackby also noted that bringing the treaty into force would allow treaty states to request that the CTBTO Executive Council authorize short-notice, on-site inspections of states suspected of conducting a nuclear test. She acknowledged others' doubts on whether an executive body of member nations with varying allegiances would sign off on such a visit. However, Mackby said representation by the five nuclear powers makes it "quite feasible" that the council could gather the votes in support of an inspection. "If countries send qualified experts to the council, most of the members will vote on the technical and credible merits of the case rather than making it strictly a political exercise," Mackby stated.

The converse fear is that the treaty's contribution to nuclear nonproliferation could be undermined if a nation simply forgoes testing in developing a weapon, possibly by using an existing design acquired from another country. "Today, I'm not so sure that you need" a test detonation to verify a nuclear weapon works as planned, former International Atomic Energy Agency chief inspector Olli Heinonen said during a panel discussion this week in Washington. "I don't think there's an easy answer, but I would not start to wait for a nuclear test."

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Stockpile Stewardship

Speaking on May 10, Tauscher highlighted U.S. capabilities both to support the international regime against nuclear testing and to keep its own nuclear weapons in working order. Directors of the nation's national laboratories say the Stockpile Stewardship Program, carried out by the Energy Department's semiautonomous National Nuclear Security Administration, "has provided a deeper understanding of our arsenal than they ever had when testing was commonplace," she said.

The effort involves a number of activities carried out at the nuclear laboratories and associated facilities, including surveillance of weapons parts as they age and production of replacement components. The United States through last fall had also conducted 24 "subcritical" tests to study the behavior of plutonium under explosive conditions without actually setting off a nuclear detonation.

Stockpile Stewardship, which in recent budgets has received more than \$6 billion in annual funding, has formed the basis for yearly findings that the arsenal is both safe and reliable, the 2008 CRS report states. A key 2002 study from the National Academy of Sciences also determined that with sufficient resources and focus, the nation could carry out the technical operations to ensure the viability of the stockpile under the CTBT regime.

The ability of supercomputers to model the behavior of a nuclear-weapon detonation is paramount to this program, and was central to the treaty's defeat in 1999, according to Lewis. "Computing power was a crucial benchmark that was established in the 1990s and concerns about computer power were front and center in the objections of many senators, most of [whom] did not object to the treaty directly but only to what they claimed was an early consideration of it," the expert, who heads the East Asia Nonproliferation Program at the James Martin Center for Nonproliferation Studies, told GSN.

During the 1999 debate, heads of some of the nation's nuclear-weapon laboratories said it would be years – possibly up to a decade – before supercomputers would have the capacity to perform their stockpile mission. Bruce Goodwin, a veteran nuclear-weapon scientist with the Los Alamos and Lawrence Livermore national laboratories, at the time said he could imagine by 2004 to 2005 a computer with 100 teraflops of computing power – meaning it could conduct 100 trillion floating-point operations per second.

In 2008, the Energy Department said its new "Roadrunner" computer could conduct more than one thousand trillion calculations per second. An even more powerful computer was set to be assembled at the Lawrence Livermore National Laboratory this year. The massive leaps in

[back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

supercomputing power should resolve questions about nuclear blast modeling, surmounting another obstacle to U.S. approval of the treaty, Lewis said.

Questions persist on whether life-extension activities including replacement of parts would over time change warheads to the degree that testing would be necessary to ensure they still function as expected. Updating today's weapons "beyond the design envelope validated by nuclear testing ... could result in defects in life-extended warheads that could cause them to fail," the Congressional Research Service said in its 2008 assessment.

The JASONS, a group of high-level scientific advisers to the government, said in 2009 that there is "no evidence that accumulation of changes incurred from aging and [life-extension programs] have increased risk to certification of today's deployed nuclear warheads."

Speaking at the Carnegie conference, Kyl said that Stockpile Stewardship has offered "both good news and bad news" about the state of the U.S. nuclear arsenal. He expressed doubt that stockpile upkeep and life-extension efforts could ultimately keep the weapons working, and said the time is not yet right to forever swear off nuclear testing. The lawmaker's office did not respond to requests for further comment about the stockpile issues cited in his speech.

There is also the question of whether today's arsenal will hold up for the challenges posed by future threats, particularly if the personnel and facilities central to sustaining the complex are allowed to stagnate, critics say. New weapons might be required to counter new dangers, and testing might be necessary for the design and manufacturing of new deterrence systems, according to the NIPP report.

The United States could determine it requires a nuclear warhead capable of eliminating hardened, underground facilities that pose a threat to national security, only to be prohibited by the test-ban treaty, said Baker Spring, a research fellow on national security policy at the conservative Heritage Foundation. The Bush administration pursued research on a nuclear "bunker buster," but ultimately dropped the effort in the face of congressional opposition. "A strict adherence to the CTBT as drafted would prevent the creation of new nuclear weapons to meet new nuclear missions. To me that's the fundamental flaw with the treaty," Spring said.

All of these issues – and more – could be raised when the treaty goes back to the Senate. How much sway the technological developments of the last decade will have in determining the accord's chances for approval will be determined only then. "Everything in D.C. these days is extremely polarized," Mackby said. "No matter what the virtues are, in the end this treaty and many other things are likely to be based on political decisions, more than technical."

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

NNSA, INL Partner to Strengthen Training of U.S. Nuclear Inspectors Supporting IAEA

National Nuclear Security Administration (NNSA), 12 July 2011, nnsa.energy.gov

The National Nuclear Security Administration (NNSA), in partnership with Idaho National Laboratory (INL), today announced the completion of a new course aimed at strengthening the training of International Atomic Energy Agency (IAEA) inspectors from the United States. The course, funded by NNSA's Office of Nonproliferation and International Security's Next Generation Safeguards Initiative (NGSI) and hosted by INL, gave prospective U.S. candidates in-depth, hands-on training with IAEA inspection equipment and procedures.

"NNSA's efforts to enhance the global safeguards regime are an important part of our effort to implement the President's nuclear security agenda," said Anne Harrington, NNSA Deputy Administrator for Defense Nuclear Nonproliferation. "International safeguards inspections, and the men and women who implement them, help the IAEA to provide credible assurances to the international community that states' civil nuclear programs are used exclusively for peaceful purposes and to detect and deter clandestine nuclear weapons programs. This course has helped to strengthen the U.S. safeguards technical base, while fostering the necessary support and leadership needed to carry out the IAEA's mission."

Trainees embarked on an intensive two-week course taught by former IAEA inspectors and safeguards technology experts who now work at INL. Using more than two dozen hands-on modules, course participants trained on the equipment used in IAEA inspections. One such module allowed the trainees to visit INL's Advanced Test Reactor to use a device that indicates whether used fuel pools hold dummy elements or fuel that actually had been inside a working reactor.

One of the IAEA's primary responsibilities is to inspect countries to independently verify that the declarations made by states about their nuclear material and activities are correct and complete. The course is designed to provide a strong background in nuclear issues, which will in turn help strengthen U.S. citizens' applications for IAEA nuclear safeguards inspector positions. Americans currently represent approximately 10 percent of IAEA inspectors. Administered by the IAEA, international safeguards are a central pillar of the nuclear nonproliferation regime. NNSA launched NGSI to develop the policies, concepts, technologies, expertise, and infrastructure necessary to sustain the international safeguards system as its mission evolves over the next 25 years. NGSI is designed to revitalize and strengthen the U.S. safeguards technical and human capital base, recognizing that without a robust program the United States will not be in a position to exercise leadership or provide the necessary support to the safeguards regime.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Pentagon to Revise Nuclear Guidance

Arms Control Association, June 2011, www.armscontrol.org

Implementing a key recommendation from the April 2010 “Nuclear Posture Review [NPR] Report,” the Obama administration announced in May that it has started the process of revising guidance issued by the Bush administration for nuclear weapons operations and deterrence policy.

In his May 4 testimony before the Senate Armed Services Committee, Principal Deputy Undersecretary of Defense for Policy James Miller said that the review will assess “deterrence requirements, including analyzing potential changes in targeting requirements and force postures.” Miller said the review would inform the administration’s goals for future nuclear reductions below the levels of the New Strategic Arms Reduction Treaty (New START). According to senior administration officials, the Pentagon review will provide options to President Barack Obama by late summer or early fall, but final decisions may not be public until the United States reaches agreements with Russia for comparable policy changes.

The Obama administration has been operating under a 2008 guidance document. After Obama’s inauguration, administration officials determined they did not need to revise the Bush guidance in advance of the negotiation of New START, as the treaty’s modest reductions in weapons levels to 1,550 deployed strategic warheads and 700 deployed delivery vehicles were consistent with existing plans. The 2010 NPR report, however, found that an “updated assessment of deterrent requirements” would be needed for reductions below New START levels.

The size of the U.S. nuclear arsenal is determined in large part by the missions assigned to U.S. nuclear forces and the number of targets against which they must be aimed. For example, since the 1960s, the primary mission for U.S. strategic weapons has been to attack “counterforce” targets, that is, an adversary’s leadership and nuclear and other military targets, to be able to degrade their ability to inflict further damage through a second or third strike. The operational requirements for a counterforce mission are reflected in current U.S. nuclear policy, which calls for more than 1,000 deployed strategic warheads, with hundreds kept at high levels of alert, ready to launch upon warning of an enemy attack.

In addition, a “hedging” policy requires the military to keep about 2,000 warheads in reserve, which could be “uploaded” onto deployed delivery systems, to guard against strategic surprises or unforeseeable technical failure. To reduce the U.S. arsenal below New START levels and to change the alert posture, officials say, the core missions assigned to the nuclear arsenal, such as counterforce, may need to change. “To develop these options for further reductions, we need to consider several factors, such as potential changes in targeting requirements and alert

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

postures that are required for effective deterrence,” national security adviser Tom Donilon told the Carnegie International Nuclear Policy Conference March 29.

This has already become a controversial issue on Capitol Hill, where House Republicans are seeking to limit the Obama administration’s ability to change the current guidance. For example, the House version of the fiscal year 2012 National Defense Authorization Act would prohibit the president from reducing the hedge force until new weapons production facilities are completed. The bill also would prohibit any shift from counterforce targeting unless the president submits a report to Congress on the proposed changes.

Another reason for revising the nuclear guidance, according to the officials, is that the Obama administration’s NPR set new nuclear policy that is not reflected in existing Pentagon plans. For example, the Bush administration policy was to “use” nuclear weapons to deter an adversary’s use of weapons of mass destruction and conventional weapons, an approach that is presumably reflected in the targeting guidance, which is classified. Obama’s NPR narrowed the nuclear mission somewhat to the “fundamental” role of deterring nuclear attack with a limited range of other contingencies, but the Bush-era guidance has not been changed to reflect this new policy.

New Nuclear Options for the President

According to administration officials, as of mid-May, Obama was preparing to send a memo to the Pentagon with his directions for conducting the guidance review. Then, by late summer or early fall, the Pentagon is to submit a set of options for Obama to consider; he could accept them or send them back for further review. Ultimately, Obama will issue a revised presidential policy directive, to be followed by more detailed directives from the secretary of defense and the Joint Chiefs of Staff.

“Once we have that review in place, then we’ll be able to actually start a real negotiation with the Russians in terms of providing them with a position,” White House Coordinator for Arms Control and Weapons of Mass Destruction Terrorism Gary Samore told Arms Control Today in an April interview.

However, according to the administration officials, any significant changes to U.S. nuclear policy and posture are not likely to be announced before the end of the year because the United States would take such steps only in tandem with Russia. For its part, Russia has been reluctant to discuss future arms reductions until related issues, such as possible U.S.-Russian cooperation on ballistic missile defense in Europe, are resolved. Given upcoming presidential

[back to top](#)

News articles and publications found on the DTIRP website are compilations of open source current news articles and commentary concerning significant arms control treaty and related national security issues. The publications aim to give a balanced representation of how the public, other government organizations, and the media may view these arms control and threat reduction programs and issues. They are intended to serve the informational needs of Department of Defense (DoD) officials in the continuing assessment of defense policies, programs and actions. Further reproduction or redistribution for private use or gain is subject to original copyright restrictions. The views and opinions expressed in these articles are not necessarily those supported by DoD, the Defense Threat Reduction Agency, or the DTIRP.



BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

elections in Russia and the United States, significant progress on bilateral nuclear reductions may be unlikely before 2013.

The NPR report noted that due to improved relations, strict numerical parity between the United States and Russia is “no longer as compelling as it was during the Cold War.” However, Miller told the Senate, the NPR also said large disparities in nuclear capabilities could raise concerns on both sides and “may not be conducive to maintaining a stable, long-term strategic relationship, especially as nuclear forces are significantly reduced.” It is therefore important, he said, “that Russia joins us in moving towards lower levels.”

From Triad to Dyad?

According to Miller’s testimony, the Pentagon analysis will look at “possible changes to force posture that would be associated with different types of reductions.” These changes could include, for example, ending counterforce targeting or moving from a nuclear force based on a triad of delivery vehicles – intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and heavy bombers – to a dyad that might eliminate nuclear-armed bombers. Under New START, the Pentagon plans to keep only 60 nuclear-capable B-2 and B-52 bombers. By comparison, the Pentagon currently plans to keep up to 420 ICBMs and 240 SLBMs.

In the April interview, Samore said that “we’ve reached the level in our forces where further reductions will raise questions about whether we retain the triad or whether we go to a system that only is a dyad. Those are important considerations.”

Another issue to be explored for the next nuclear arms treaty, according to the administration officials, is the possibility of setting one overall limit for strategic, tactical, and nondeployed weapons. Up to now, bilateral arms control treaties have dealt with deployed strategic (long-range) and intermediate-range weapons, but have not covered tactical (short-range) weapons or weapons in storage. “One approach to take,” according to Samore, “which is our inclination at this point, is to have a single ceiling that would include both deployed and nondeployed, strategic and nonstrategic [weapons].”

The review also is expected to consider options for changing the alert posture of nuclear weapons to increase the amount of time the president would have after a nuclear attack to decide on a response. During the 2008 presidential campaign, candidate Obama said that the capability for prompt launch “increases the risk of catastrophic accident or miscalculation.” Obama’s NPR report, however, concluded that the current alert posture – U.S. heavy bombers off full-time alert, nearly all ICBMs on alert, and a “significant number” of submarines on alert

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

deployed at sea – should not be changed. Reducing alert rates, the report found, “could reduce crisis stability by giving an adversary the incentive to attack before ‘re-alerting’ was complete.” Samore said, “We’re expecting that options will be presented to the president that will look at the implications of changing the alert status and postures and what impact that would have on force size and structure.”

Others issues expected to be in the review include bilateral monitoring of nuclear warhead storage and dismantlement facilities, which have not been covered by a treaty before; whether the United States should continue counterforce targeting of Russian ICBM silos, which presumably would be empty when a U.S. response arrived if the United States did not launch first; the need to plan for fighting two nuclear wars, with China and Russia, simultaneously; and the potential contributions to deterrence of non-nuclear strategic systems, such as a conventional prompt global-strike capability.

Proponents of nuclear reductions say that they could be a source of significant budgetary savings, particularly as the Department of Defense prepares to replace or modernize each leg of the U.S. nuclear triad. Current administration plans call for spending \$125 billion over the next 10 years on new strategic ballistic missile submarines and maintaining the Trident D-5 SLBM, a new ICBM to replace the current Minuteman III, new long-range nuclear-capable bombers, and a “long-range standoff” missile to replace the current air-launched cruise missile. Secretary of Defense Robert Gates told a May 18 press conference that if Obama’s goal of reducing defense spending by \$400 billion over the next 12 years is to be achieved, “then I don’t think we can afford to have anything that’s off the table.”

New START Inspections Begin

Meanwhile, under New START, the United States and Russia exchanged initial databases of nuclear weapons inventories and their locations in March, Miller testified. Those databases will be updated every six months, he said.

New START, which entered into force Feb. 5, does not count hundreds of U.S. strategic delivery vehicles that were previously counted under the original START, which was in force from 1994 to 2009. Under New START, the United States is required to show Russia that these formerly nuclear systems, including converted cruise missile-carrying submarines and the B-1B bomber, are now only conventional weapons systems and that a number of ICBM silos and heavy bombers are no longer in use. The U.S. exhibition of the converted B-1B occurred on March 18, Miller said.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Russia exhibited the RS-24 road-mobile ICBM and its associated launcher in March, and the United States exhibited the B-2 bomber in early April, he said. The treaty allows each party to conduct up to 18 on-site inspections each year. The United States completed the first of these inspections in Russia on April 16, and Russia conducted its first inspections in mid-May.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Newspaper: Russia is Developing New Generation ICBM

Qatar Tribune, 19 July 2011, qatar-tribune.com

Russia is developing a new-generation intercontinental ballistic missile (ICBM) which will become the world's most effective nuclear weapons delivery system, Izvestianews paper reported on Tuesday.

The new liquid-fuelled heavy missile will carry a maximum of 15 nuclear warheads and be able to reach almost any target in the Northern Hemisphere. The missile also will be equipped with jammers and decoys to make it and its nuclear warheads, each of which may be aimed at separate targets, "impossible" to intercept, the article said.

Russia's Ministry of Defense is in the final stages of developing blueprints for a prototype missile which will be built at a military test centre in the Ural city Chelyabinsk. The Kremlin has spent 27.5 billion dollars in developing new technologies for the missile.

Its deployment should begin in 2020.

The weapon will replace the Russia's fleet of silo-based SS-18 missiles, which currently form the main leg of Moscow's deterrent to a potential enemy nuclear strike. The SS-18 was first fielded by the Soviet Union in the 1970s. Western analysts have said almost all of the 58 SS-18 missiles currently in service are probably aimed at ICBM silos in the United States. or China.

Russia and the United States have been in a row since the mid-2000s over a U.S. plan to deploy missile defense systems to Europe which, according to Washington, are needed to protect NATO states from a missile launched by a rogue nation.

Kremlin officials have repeatedly criticized the missile shield plan, saying the system would be able to intercept Russian missiles and so give NATO and the United States a powerful advantage in a confrontation with Moscow.

Russian Foreign Minister Sergei Lavrov in early July warned the Kremlin would retaliate with new-technology weapons of its own if the NATO missile defense plan went forward, saying "Russia would have to respond."

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Minuteman 3 Test Launch Set

The Lompoc Record, 26 July 2011, www.lompocrecord.com

This summer's second unarmed Minuteman 3 test launch is scheduled for early Wednesday [July 27] morning from north Vandenberg Air Force Base. The weapon is scheduled to blast out of its underground silo at 3:01 a.m., but the team has until 9:01 a.m. for the launch to occur. Unfavorable weather or technical glitches at Vandenberg or downrange can cause delays.

Upon liftoff, the military will track the weapon's lone re-entry vehicle as it travels some 4,200 miles to a predetermined target in the Kwajalein Atoll in the central Pacific Ocean. Members of Vandenberg's 576th Flight Test Squadron prepped the missile with test-specific equipment.

"The launch process requires tremendous teamwork and involves months of preparation," said Lt. Col. David W. Lair, 576th Flight Test Squadron commander. "The data gained from these launches allows us to maintain a high readiness capability and ensures operational effectiveness of the most powerful weapons in the nation's arsenal."

Missile crew members from Malmstrom Air Force Base, Mont., handled maintenance and operations duties. The military regularly tests unarmed ICBMs to gather data about the weapon system's accuracy and reliability. The Air Force has some 450 ICBMs sitting on alert in and around Montana, North Dakota and Wyoming. Vandenberg conducted another test in late June, also from North Base.

The ICBM test will draw protesters to Vandenberg's front gate. They are scheduled to gather at 11:45 p.m. today for the vigil. Nuclear weapon opponents contend the ICBM test program "is provocative and stimulates other countries to improve or develop nuclear weapons and conduct their own tests."

"The continued testing of Minuteman 3 nuclear missiles is a clear example of U.S. double standards," said David Krieger, president of the Santa Barbara-based Nuclear Age Peace Foundation. "The government believes that it is fine to test-fire these missiles time and again, while expressing criticism when other countries conduct missile tests. Such double standards encourage nuclear proliferation and make the world a more dangerous place."

Wednesday's test comes several days before the 66th anniversary of the bombings of Hiroshima and Nagasaki, nuclear weapon opponents noted.

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Realizing the Full Potential of the Open Skies Treaty

Arms Control Association, July/August 2011, www.armscontrol.org

The Open Skies Treaty, which entered into force in 2002, provides a mechanism for enhancing arms control transparency, activity monitoring, and confidence building by allowing unrestricted, short-notice, aerial reconnaissance overflights. This article explores the importance of realizing the full potential of the treaty to making progress in reducing the numbers and dangers of nuclear weapons, goals that have been endorsed by many world leaders. This effort will require expanding the membership of the treaty on a global scale and implementing modern technology for data collection and analysis. [...]

Implementation of the Treaty

The Open Skies Treaty represents a remarkably successful implementation of shared technical means of verification and confidence building. The concept of Open Skies...provides a mechanism for transparency and confidence building by allowing for short-notice, aerial reconnaissance overflights. [...] Under the treaty, each party has a quota for the number of flights it may initiate annually; that number is equal to the number it must accept over its own territory. The treaty provides for reciprocal verification overflights, on 24 hours' notice, over any and all portions of the 34 states currently participating in the treaty.

The United States and Russia (including Belarus) have the right to conduct and are committed to accept 42 annual overflights with trajectories that can extend over distances comparable to the distances between the borders of the inspected country. In particular, up to 21 overflights can be of each other, with the balance taken up by other parties to the treaty. At present, the Open Skies aircraft designated by the individual countries are equipped with film-based aerial reconnaissance cameras. Russia is in the process of outfitting new airframes with digital cameras, which is consistent with the treaty.

The treaty currently allows data to be acquired, subject to certain established resolution restrictions, with visible and infrared cameras, as well as with synthetic aperture radar (SAR, all-weather imaging radar), and the resulting data are available to all treaty participants. Between August 2002 and December 2010, 739 Open Skies flights were conducted.

The second review conference for the Open Skies Treaty was held in Vienna in June 2010 to review and evaluate the treaty implementation thus far and to explore how the agreement might evolve in the future. The presentations at the review conference explored both augmentation of the sensors carried by the Open Skies-certified aircraft and the potential application of Open Skies collection capabilities...

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

The suite of sensors allowed under the treaty currently comprises optical and infrared cameras and SAR. The treaty currently limits the ground resolution obtained in overflights at optical, infrared, and radio wavelengths to 30, 50, and 300 centimeters, respectively. Final notification of the desired flight path is provided 24 hours before takeoff. Mutual inspection of the aircraft and its sensors is permitted as a means to prevent a country from being subjected to any covertly added sensors. A country that has been notified of an upcoming flight over its territory also has the “taxi” option of using its own aircraft to carry out the data collection mission, if it so chooses. The crew aboard the flight always includes personnel from the inspecting and the inspected countries.

Treaty implementation is overseen by the Open Skies Consultative Commission [OSCC], which is composed of representatives from the member states. Periodic review conferences are held to administer the treaty and address issues that might arise.

Article IV of the treaty anticipates the possibility of an evolution of the sensor suite, stating that “[t]he introduction of additional categories and improvements to the capabilities of existing categories of sensors provided for in this Article shall be addressed by the Open Skies Consultative Commission pursuant to Article X of this Treaty.”

The treaty stipulates that decisions by the commission shall be on the basis of consensus, which is defined as no party raising an objection to an impending decision.

Exploiting Opportunities

Because the Open Skies collection platforms are aircraft, they provide technical verification opportunities that simply are not possible from satellites, for example, airborne collection of trace gas and particulate samples. These data are important in searching for covert programs to develop weapons of mass destruction (WMD); the fact that Open Skies allows for full, unrestricted, territorial access is an important feature. Obtaining gas and particulate samples would require adding new capabilities to the Open Skies sensor suite, but the treaty spells out a clear path for enhancing the instruments. Particulate and gas collection and analysis are mature and demonstrated technologies and would become increasingly important for remote monitoring of nuclear material production activities as nuclear arsenals shrink in the longer-term future. The parties to the treaty should consider augmenting Open Skies sensor capabilities and increasing multiagency coordination of standoff detection instrumentation research and development with Open Skies platform capabilities.

[back to top](#)

News articles and publications found on the DTIRP website are compilations of open source current news articles and commentary concerning significant arms control treaty and related national security issues. The publications aim to give a balanced representation of how the public, other government organizations, and the media may view these arms control and threat reduction programs and issues. They are intended to serve the informational needs of Department of Defense (DoD) officials in the continuing assessment of defense policies, programs and actions. Further reproduction or redistribution for private use or gain is subject to original copyright restrictions. The views and opinions expressed in these articles are not necessarily those supported by DoD, the Defense Threat Reduction Agency, or the DTIRP.



BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Even though infrared and SAR imaging are allowed under the current treaty, U.S. Open Skies aircraft currently do not carry infrared cameras or a radar system. U.S. Open Skies aircraft should carry the full complement of currently allowed Open Skies sensors with contemporary technology. Having the Open Skies system operating at full capacity not only enhances the U.S. capability for monitoring nuclear weapons activities under New START, but also provides added assurance to the country's intelligence collection systems over a substantial fraction of the globe.

In particular, the United States should replace its current film-based cameras with digital imaging systems. Installation of modern digital cameras is long overdue and will facilitate full dissemination and exploitation of Open Skies images. Digital images can be more easily geo-registered (aligned with map coordinates) and thereby fused with other data sources. Increased resolution, if future negotiations allow it, can be achieved by simply flying the aircraft lower and will not require new instruments and cameras. This approach is far more cost effective than achieving high-resolution imaging from orbit. It is also limited in practice by the need to avoid air traffic congestion and the desire to maintain a sufficiently broad width of the reconnaissance ground swath. (For a given camera system, there is a trade-off between resolution and field of view. Flying lower achieves higher resolution but diminishes the extent of cross-track coverage.)

As noted above, the current spatial resolution for the optical wavelength surveillance systems on Open Skies collection aircraft is essentially comparable to what can be obtained from commercial imaging satellites. It is an important foundation on which to build a system of shared technical means of the future, primarily because of the potential for continuing advances in the sensor suite. [...]

[Link to full article: http://dtirp.dtra.mil/pdfs/OST_News_110722_Potential.pdf]

[back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

Italian Plane to Make Observation Flight in Russia

Interfax-AVN Online, 25 July 2011, accessed via Open Source Center

Italian representatives will make an observation flight in Russia under the Open Skies Treaty, a report of the Russian Defense Ministry obtained by Interfax-AVN on Monday says.

"The route is coordinated with Russian specialists, who will take part in the flight to control the Italians' compliance with the agreement on the types of monitoring instruments," the ministry said.

The C-130J plane will perform the observation flight from July 25-30.

The plane and its equipment have been certified with the participation of Russian experts in order to rule out the use of unauthorized monitoring instruments, the ministry said.

Russian representatives made a similar observation flight in the United States in late June - early July. That was the 15th observation flight of the Russians in 2011 in member countries of the Open Skies Treaty.

The Open Skies Treaty was signed in Helsinki in 1992 to verify the declared armaments and military hardware of member countries. Thirty-five states of Europe and North America are the treaty's members.

[back to top](#)

News articles and publications found on the DTIRP website are compilations of open source current news articles and commentary concerning significant arms control treaty and related national security issues. The publications aim to give a balanced representation of how the public, other government organizations, and the media may view these arms control and threat reduction programs and issues. They are intended to serve the informational needs of Department of Defense (DoD) officials in the continuing assessment of defense policies, programs and actions. Further reproduction or redistribution for private use or gain is subject to original copyright restrictions. The views and opinions expressed in these articles are not necessarily those supported by DoD, the Defense Threat Reduction Agency, or the DTIRP.



BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

U.S., Russia Reaffirm Commitment to Dispose of Enough Plutonium for 17,000 Nuclear Weapons

National Nuclear Security Administration (NNSA), 13 July 2011, nnsa.energy.gov

The National Nuclear Security Administration (NNSA) today announced the formal entry into force of the amended Plutonium Management and Disposition Agreement (PMDA) after an exchange of diplomatic notes this afternoon by Secretary of State Hillary Clinton and Russian Foreign Minister Sergey Lavrov at the State Department. The United States and Russia reaffirmed their commitment to each dispose of no less than 34 metric tons each of their surplus weapon-grade plutonium by irradiating the plutonium as mixed oxide (MOX) fuel in nuclear power reactors. The material to be disposed under the Agreement is enough for 17,000 nuclear weapons.

Over the last year, the amended PMDA has been provisionally applied by the U.S. and Russian governments and has now been ratified by action of the Russian Duma and by Russian President Dmitri Medvedev's approval on June 3, 2011. The two countries have today exchanged diplomatic notes bringing the agreement into full effect.

"This milestone marks important progress on U.S. and Russian commitments to eliminate nuclear weapons material," said Laura Holgate, Senior Director, WMD Terrorism & Threat Reduction at National Security Council. "Such eliminations are the ultimate in improving nuclear security, as they permanently remove the threat of theft or misuse of nuclear material, at the same time reducing the burden of securing materials."

"I am pleased that the United States and Russia are formally moving forward with their plutonium disposition partnership," said Anne Harrington, NNSA's Deputy Administrator for Defense Nuclear Nonproliferation. "As we work to implement the unprecedented nuclear security agenda outlined by Presidents Obama and Medvedev, NNSA looks forward to working with the Russian State Atomic Energy Corporation 'Rosatom' to implement the next phase of cooperation under this amended Agreement."

First signed in September 2000, the PMDA was amended in April 2010, by a Protocol signed by Secretary of State Hillary Clinton and Russian Foreign Minister Sergey Lavrov on the margins of President Obama's Nuclear Security Summit in Washington D.C. This Protocol codified a revised Russian plutonium disposition program based on using fast reactors for irradiating the plutonium and operating under strict nonproliferation conditions. According to the amended PMDA, the United States will provide up to \$400 million to support plutonium disposition in Russia, subject to future appropriations, and Russia will fund the balance of its disposition

 [back to top](#)

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BI-WEEKLY TREATY REVIEW



12 July – 25 July 2011

DTRA

program, estimated to be more than \$3 billion. NNSA and its Russian counterpart, Rosatom, will also jointly seek international contributions for Russia's program.

To implement U.S. plutonium disposition, NNSA is overseeing the construction of three major facilities at the Savannah River Site: the MOX Fuel Fabrication Facility; the Waste Solidification Building; and a pit disassembly and conversion capability. At the same time, Russia is making significant investments in its MOX fuel fabrication capabilities and construction of the BN-800 fast reactor (both currently scheduled to become operational in 2014). Under the amended PMDA, both countries will begin disposition in 2018.

 [back to top](#)

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