



USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal

Issue No. 1133, 19 September 2014

Welcome to the CUWS Outreach Journal! As part of the CUWS' mission to develop Air Force, DoD, and other USG leaders to advance the state of knowledge, policy, and practices within strategic defense issues involving nuclear, biological, and chemical weapons, we offer the government and civilian community a source of contemporary discussions on unconventional weapons. These discussions include news articles, papers, and other information sources that address issues pertinent to the U.S. national security community. It is our hope that this information resource will help enhance the overall awareness of these important national security issues and lead to the further discussion of options for dealing with the potential use of unconventional weapons. **All of our past journals are now available at http://cpc.au.af.mil/au_outreach.aspx.**

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FEATURE ITEM: "Verification Requirements for a Nuclear Agreement with Iran." Authored by the Nuclear Verification Capabilities Independent Task Force of the Federation of American Scientists; published September 2014; 27 Pages.
<http://fas.org/wp-content/uploads/2014/09/verification-requirements-for-a-nuclear-agreement-with-iran-sept-2014.pdf>

This non-partisan Nuclear Verification Capabilities Independent Task Force was convened by the Federation of American Scientists to examine the technical and policy requirements to verify adequately a comprehensive or other sustained nuclear agreement with Iran. The object of this report is to set out critical objective criteria to evaluate the risks associated with any proposed agreement. This project has a particular urgency given that negotiations are underway with Iran on its nuclear program. In this report, the Task Force has outlined nine recommendations relating to monitoring and verification of an agreement with Iran.

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Stars and Stripes — Washington, D.C.

Air Force Nuclear Personnel to Get Bump in Pay

By Jon Harper, Stars and Stripes

September 15, 2014

WASHINGTON — Missileers and some enlisted airmen will soon see a boost in their paychecks, Secretary of the Air Force Deborah Lee James announced Monday.

Effective October 1, officers manning the nation's launch control centers will receive an additional \$300 per month in incentive pay. Airmen in certain enlisted fields throughout the nuclear enterprise will also receive up to \$300 in monthly special duty assignment pay.

James did not specify which enlisted fields will be eligible for the extra cash.

"There's no question in my mind that our nuclear mission is first and foremost," James said at an Air Force Association conference in National Harbor, Md.

The pay raise is part of a broader effort to address what Air Force leaders have deemed "systemic" problems within the nuclear enterprise, particularly among missileers who are responsible for launching the most destructive weapons on earth in the event of nuclear war.

Over the past year, the service learned of widespread cheating on nuclear launch tests, as well as low morale among airmen involved in the nuclear field who felt they were being ignored in the post-Cold War era when the likelihood of nuclear combat is seen as remote.

Other steps being taken to improve the nuclear enterprise include:

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- Redirecting more than \$500 million over the next several years toward facilities sustainment, bomber and missile operations support, launch control center refurbishment, updated security force equipment and uniforms, and other initiatives.
- The creation of a new Nuclear Deterrence Operations Service Medal for outstanding airmen.
- Providing more money to fund ROTC scholarships for future missileers.
- Increasing manning levels.
- A recommendation for Secretary of Defense Chuck Hagel to elevate the commander of Air Force Global Strike Command from a three-star to a four-star position.

<http://www.stripes.com/news/air-force-nuclear-personnel-to-get-bump-in-pay-1.303158>

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Air Force Times.com – Washington, D.C.

Spotlight on Nuclear Force Prompts ongoing Reforms

By Brian Everstine, Staff writer

September 15, 2014

What began as a tumultuous year for the Air Force's nuclear community — highlighted by a cheating scandal and reports of low morale across the missileer force — evolved into a year of change for the airmen under Global Strike Command. And more change is coming.

Lt. Gen. Stephen Wilson, commander of Global Strike Command, said that the command's Force Improvement Program — a bottom-up review of morale, career and performance evaluation issues — has changed how the command operates.

"When you really get at it, it's really a philosophy," Wilson said in a Sept. 10 interview. "Our airmen own it."

The catalyst

In January, the Air Force announced that almost 100 missileers at Malmstrom Air Force Base, Montana, were caught up in an investigation of cheating on monthly proficiency exams. This came as missileers across the command reported low morale and career challenges, according to a RAND Corp. study.

In response, Wilson and other Air Force leaders began the Force Improvement Program. Officials spoke directly with airmen of all ranks, from missileers to security forces airmen on patrol, and took recommendations on how to improve the community.

That review, which began in February, led to more than 600 recommendations from airmen, and about 95 percent have been approved for further development, Wilson said.

"These are ideas coming from airmen," Wilson said. "They are by airmen for airmen."

The first changes came shortly after the review began. The Air Force approved incentive pay and bonuses for missileers, exchange programs across bases and with the Navy, and infrastructure upgrades at missile bases.

Earlier this month, Global Strike Command announced that recommendations from security forces airmen have been adopted. Security forces airmen will receive new MultiCam uniforms, including Generation III cold-weather gear that airmen at the northern, remote bases asked for. These airmen will receive matching personal protective equipment, such as helmets and vests.

The command is also reviewing the weapons and vehicles these airmen use. Security forces airmen largely patrol missile bases in Humvees, which are not as well-suited for their mission as vehicles such as the newer Lenco BearCat, which the command has fielded for some of its security forces airmen.



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Improvements for missileers

The Force Improvement Program primarily has focused on nuclear missile officers, who caught national headlines for the cheating incident at Malmstrom. Since then, the Air Force has moved away from a testing system that emphasized perfection. Instead of the previous 90 percent threshold needed to pass proficiency exams, missileers now test pass/fail.

Missileers had reported undermanning, which led to overwork and stress. In response, the Air Force has approved 1,120 positions for the nuclear enterprise, which brings each of the wings in the command up to 100 percent effective manning.

The command has changed its operations construct to rotate airmen among wings throughout their careers, starting with three years as a deputy crew commander and crew commander, then moving to another base to work as a flight commander and evaluator.

The command is looking at reducing the administrative burden on airmen starting with the personnel reliability program. Missileers reported frustration with requirements for work leave for something as minor as a dental checkup, Wilson said. Previously, a missileer would have to report to the personnel reliability program and get commander approval to be off alert for an appointment. The missileer would then have to get approval to return to alert status and that could take days. Now it is up to the commanders and airmen to determine their reliability case by case, and schedule time off and return to work with less paperwork.

Most of the changes are in the test phase at Minot, with plans to expand to Malmstrom and F.E. Warren Air Force Base, Wyoming.

"It's about the future. Right now we've got a lot of changes going on. We believe that change is central to how we're going to operate, and how we have to operate" Wilson said.

Review of bombers

The Force Improvement Program spread to bomb wings following the missile bases, and airmen there have recommended 215 improvements in areas such as bomber fleet maintenance equipment, rotations for the service's continuous bomber presence in the Pacific, and total force integration, Wilson said.

The teams looking at these recommendations are expected to report back later this month.

This comes as the command is working to upgrade its fleet, which includes some of the oldest aircraft in the Air Force. The command flies 76 B-52 Stratofortresses, which have an average age of 52.6. Crews have been able to keep this bomber at a mission-capable rate of 73.5 percent for fiscal 2014, despite its age and with a large-scale avionics upgrade.

The Combat Network Communications Technology upgrade, also called CONECT, is a large-scale software and hardware upgrade that brings new servers, modems, radios, data-links and workstations to the aircraft.

The service's B-2s are also undergoing modernization, all while Global Strike is working with Air Combat Command on requirements for the Long Range Strike Bomber. The solicitation for that program went out this summer, with a target of the mid-2020s for initial operating capability.

Global Strike is planning its replacement program for the 41-year-old UH-N1 Huey helicopters that it uses for missile base security.

The future

The near-term future of Global Strike rests on its Force Improvement Program, focused on constant improvement within the command. Wilson has created a new office dedicated to continuing contact with airmen to ensure that their ideas make their way up to the command and even to top Air Force leaders.

"This is owned by the airmen," he said. "This is their program. This is what you do, every day, to improve the force. It's a philosophy, to show up and make it better every day."

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The goal of the changes is to make sure airmen feel empowered and know their work is important, an issue that came up in the review of morale in the missile community. The education, training and experience of airmen need to improve so missileers and other airmen know that their mission is important going forward, Wilson said.

"The nuke enterprise is about the future. Not about the past," he said. "It's about what we could be rather than what we have been."

<http://www.airforcetimes.com/article/20140915/NEWS/309150037/Spotlight-nuclear-force-prompts-ongoing-reforms>

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Air Force Global Strike Command.af.mil – Barksdale, LA

Air Force Leaders Discuss Nuclear Enterprise

September 16, 2014

By Airman 1st Class Joseph Raatz

Air Force Global Strike Command Public Affairs

9/16/2014 - WASHINGTON -- The nuclear enterprise must modernize to remain a viable and essential part of the United States' defense strategy, maintained Air Force senior leaders at the Air Force Association's annual Air & Space Conference and Technology Exposition here, Sept. 16.

Lt. Gen. Stephen Wilson, Air Force Global Strike Command commander, was joined by Maj. Gen. Sandra Finan, Air Force Nuclear Weapons Center commander and Maj. Gen. Garrett Harencak, the Strategic Deterrence and Nuclear Integration assistant chief of staff at a panel to discuss the current state of the nuclear enterprise.

"We're supremely focused on making sure we have a force that is safe, secure and effective every single day," Wilson said. "We've got a credible force that deters our adversaries and assures our friends and we're working hard on building and empowering the team and shaping the future"

Much of the discussion centered on the modernization efforts the Air Force is undertaking in regards to its nuclear force.

"Our rival powers are investing billions of dollars to modernize and improve their nuclear systems, so to remain credible we must ensure nuclear capabilities remain an Air Force priority," Finan said.

AFGSC is coordinating with the AFNWC to procure an alternative for the Minuteman III ICBM weapon system. These intercontinental ballistic missiles, first introduced in the early 1960s, are reaching the end of their life cycle and are due for replacement.

"We are moving forward with the Ground-Based Strategic Deterrent program as a replacement for the current Minuteman III missile system," Finan said. "However, until the GBSD comes online, we must continue to modernize and sustain our current Minuteman III system. We are doing this through upgrades to the launch control centers and launch facilities as well as modernizing missile components to ensure the Minuteman III continues to be a credible system until it is replaced."

The upcoming Long Range Strike Bomber was also a topic of discussion.

"We're partnering with Air Combat Command on the LRS-B," Wilson said. "It will be essential as we move forward to have a bomber force that can penetrate any place on the globe and hold any target on the planet at risk."

Other modernization efforts discussed included the new Long Range Standoff Missile, a replacement for AFGSC's UH-1 helicopters and a new variant of the B61 Nuclear Bomb.

In addition to the Air Force's two legs of the U.S. nuclear triad, partnership with the Navy was also discussed.

"We need to make sure that everybody understands how valuable the triad is in protecting America," Harencak said. "The triad is complementary, and it is the best defense of the nation against its only existential threat."

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"We realize that this is not a zero sum game," Harencak continued. "We need to work together to convince the American people and our government leadership, of the value and relevance of the triad... As we work toward common adaptable systems and as we modernize our nuclear forces, one of the key things we do is we make sure we are attached at the hip when it comes to advocating for a strong nuclear deterrent. It's as relevant today, and it will be as relevant tomorrow, as it was in 1954."

<http://www.afgsc.af.mil/news/story.asp?id=123424887>

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Breaking Defense.com – Washington, D.C.

Kendall: Budget Gimmicks Won't Fix Nuclear Deterrent

By Sydney J. Freedberg Jr.

September 17, 2014

NATIONAL HARBOR: Talk about a radioactive issue. Top officials in Air Force, Navy, and the Office of the Secretary of Defense keep talking about how there is no higher priority than the nation's nuclear deterrent. It's so crucial, they all say, that someone else should pay for it.

"No capability we maintain is more important," said the prepared speech that Undersecretary Frank Kendall delivered this morning at the Air Force Association's annual conference. As the Pentagon's top weapons buyer, Kendall must referee a game of thermonuclear hot potato: With the Pentagon budget tightening as existing nuclear weapons age, no one wants to pay the bill for replacing them.

"Some of it we hope will be a Department of Defense solution," i.e. funding from outside the Air Force budget, said Gen. Mark Welsh, the Air Force Chief of Staff, in a roundtable with reporters yesterday at AFA. Admirals and their supporters have made similar statements that the submarine-launched deterrent needs extra funding from outside the Navy budget.

In the Air Force's "interim POM" (Program Objective Memorandum) for the next five years of spending, currently under consideration by the Office of the Secretary of Defense, "we have redirected substantial monies within our own topline toward the nuclear mission," added Air Force Secretary Deborah Lee James, "but...there's more to be done, so we very much did pitch this," i.e. the idea of getting funding for nuclear modernization on top of the expected Air Force budget.

"We'll see how all of that comes out," James said. "I can tell you that Frank Kendall... is quite understanding."

What *does* Kendall think? "It's a big challenge in the '20s in particular," he said when reporters asked him about nuclear modernization this morning. "When we get out to the [20]20s, a lot of things have to be paid for at the same time": building new Navy nuclear missile submarines; upgrading or replacing the Air Force's Minuteman missile; buying a new Air Force bomber; and ultimately replacing the Navy's aging Trident missile.

So what about funding a substantial portion of those programs outside the Air Force and Navy budgets? Of course, that would cut into either the Army's budget share or that of the agencies administered directly by the Office of the Secretary of Defense.

"There's been some conversation about that," Kendall said, "but at the end of the day we have to find money to pay for these things one way or another, right? So changing the accounting system doesn't really change that fundamental requirement. We still need the money and it has to come from somewhere."

Where "somewhere" is, however, still looks a lot like "nowhere."

<http://breakingdefense.com/2014/09/kendall-budget-gimmicks-wont-fix-nuclear-deterrent/>

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Breaking Defense.com – Washington, D.C.

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New Nuke Cruise Missile As Crucial As New Bomber: Haney

By Sydney J. Freedberg Jr.
September 18, 2014

ARMY & NAVY CLUB: In the dog-eat-dog, admiral-eat-general world of budget warfare in the age of sequestration, it's easy to pit programs against each other. The Navy's new nuclear missile submarine and the Air Force's Long-Range Strike Bomber, for example, are both huge strategic-weapons programs with enormous bills coming due in the next decade and much debate over who should pay. Strategic Command chief Adm. Cecil Haney emphasized here this afternoon that he needs both of them — and more.

"Strategic deterrence is more than the triad platforms," the bombers, submarines, and ICBMs, Haney said. Other aspects — from EMP-proof communications to early warning satellites are equally important — and potentially as expensive. In particular, Haney said today, "moving forward with the replacement for the Air-Launched Cruise Missile [ALCM] is just as important as having a future bomber."

Built in the 1980s but upgraded since, the nuclear-tipped ALCM gives Air Force bombers the ability to reach out and touch a target from hundreds of miles away, instead of having to fight or sneak through enemy air defenses to drop bombs. A single B-52H can carry 20 ALCMs, arguably the sole reason that the subsonic, non-stealth bomber remains relevant to nuclear warfare half a century after it entered service. Indeed, as stealth-defeating radars and long-range anti-aircraft missiles improve further — as part of the Pentagon's efforts to defeat what it calls "Anti-Access/Area Denial" (AD/2AD) — even the stealthy B-2 and the future Long-Range Strike Bomber may well need cruise missiles to strike the hardest targets.

"As we look at the world and as it gets more and more complicated," with the proliferation of A2/AD, Haney said, "it's very important to be able to have standoff capability."

But the ALCM is getting old. Its successor would be something called the Long-Range Stand-Off (LRSO) weapon, but work on the LRSO has slowed. Though the Air Force is invested in extending the ALCM's lifespan, but a replacement would need to be ready ca. 2030.

That's about the same time as the Navy's stunningly expensive Ohio Replacement Program submarine would enter service. The Minuteman III ICBM might need replacement in the 2030s, too: The Air Force is currently conducting an official Analysis of Alternatives (AOA). And the nation's nuclear command-and-control system — heavily dependent on satellite communications and computer networks — needs hardening against continually evolving space and cyber threats, Haney said.

The new missile sub "is my number 1 priority," Haney said. But all these systems are complementary and necessary to a robust deterrent — and there is a limit as to how long American ingenuity can keep aging systems operational.

Haney has held high-level "stakeholder meetings" with dozens of admirals, generals, Navy captains, and Air Force colonels on the problem. "We had some very, very frank discussions about how best we could sustain and modernize," he said. His first such meeting was on submarines, the second on ICBMs, and a third on bombers will follow in October. Beyond that, he said, "it's not just the legs [of the triad], quite frankly, we will be looking at some of the other [elements] that make up the credible strategic deterrent."

Meanwhile, Haney said, "I see increasing strategic risk as potential adversaries advance." Russia has conducted two strategic nuclear exercises in the past year — highly publicized, complete with YouTube video — and "they have a decade plus of modernization across each leg of their triad, for example new submarines and associated submarine launched ballistic missiles; a new air launched cruise missile; more advanced mobile land based ballistic missiles." As for the Chinese, they are "fielding the more survivable road mobile intercontinental ballistic missiles, enhancing their silo-based ICBMs, as well as developing and employing a new ballistic missile submarine."

With Russia setting fire to Ukraine and China increasingly confrontational in the Pacific, Haney must feel more relevant than ever.

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RIA Novosti – Russian Information Agency

Diplomat: Russia, US May Continue INF Treaty Talks, but Format Not Agreed Yet

16 September 2014

MOSCOW, September 16 (RIA Novosti) – Moscow and Washington may discuss issues related to compliance with the Intermediate-Range Nuclear Forces Treaty (INF), but neither timeframe nor format of such talks have been agreed so far, Russian Deputy Foreign Minister Sergei Ryabkov told RIA Novosti Tuesday.

Earlier this year, Washington accused Moscow of violating the treaty. Russian and US officials met in Moscow on September 11 to discuss the issue. Although the talks failed to produce any substantial result, the sides agreed to continue dialogue.

“It is possible that the dialogue on the issue will continue,” Ryabkov said. “However, at the moment we have no common understanding of when and where this dialogue may continue.”

<http://en.ria.ru/politics/20140916/192984730/Diplomat-Russia-US-May-Continue-INF-Treaty-Talks-But-Format-Not.html>

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The Washington Free Beacon – Washington, D.C.

Russia Stonewalls U.S. on Charges of Nuclear Missile Treaty Breach

Moscow turns tables, accuses U.S. of INF treaty violations

By Bill Gertz

September 16, 2014

Russia is refusing to discuss U.S. charges that Moscow violated the 1987 Intermediate-range Nuclear Forces Treaty by building a cruise missile banned under the accord, according to U.S. officials.

Additionally, Moscow in talks held last week accused the United States of INF treaty violations for using target missiles in missile defense tests and deploying armed drones—even though neither weapon is covered by the treaty, according to officials familiar with the talks.

The accusations were traded during five hours of talks in Moscow Sept. 11 led by Rose Gottemoeller, undersecretary of state for arms control and international security, and Russian Deputy Foreign Minister Sergei Ryabkov.

State Department spokesmen declined to provide details of the failed discussions.

However, the department acknowledged in a brief statement that the talks did not resolve U.S. concerns about the treaty breach.

“Although the U.S. concerns were not assuaged in this meeting, the parties had a useful exchange of views,” the State Department said in the statement. “They agreed to continue the dialogue.”

The INF violation, confirmed publicly by the State Department in July, is a setback for the Obama administration’s arms-control centered national security agenda. Russian non-compliance with the arms treaty also undermines President Obama’s plan to completely eliminate nuclear weapons—a position advocated by his defense secretary, Chuck Hagel.



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In contrast to the U.S. silence, a Russian official involved in the talks publicly rejected the U.S. treaty violation charges that were raised during the closed-door meetings.

Mikhail Ulyanov, a Russian Foreign Ministry arms control official, told state-run media that the United States failed to answer questions about the INF treaty implementation problem.

“We cannot view the answers given by the American side as sufficiently satisfactory,” Ulyanov told Interfax. “Our concerns remain in place.”

Ulyanov then stated that the United States was violating the Reagan-era arms agreement that bans ballistic and cruise missiles with ranges between 310 and 3,400 miles.

Ulyanov said the United States was guilty of “at least improper implementation of the treaty, to put it mildly.”

The Russian official listed what he asserted were three U.S. INF violations: U.S. target missiles used to simulate intermediate- and short-range missiles; unmanned aerial attack drones; and the planned deployment in Romania of a ground-launched version of the Navy’s SM-3 missile defense interceptor.

“Our reading of the relevant provisions of the treaty leads us to believe that this is in fact a violation, according to a number of parameters,” Ulyanov said of the target missiles and drones. “They are fully covered by the definition of land-based cruise missiles.”

As for the SM-3s in Romania, “these launch systems, in our view, are subject to the INF Treaty and, therefore, they are prohibited,” he said.

U.S. officials insisted during the talks that the SM-3s are to be used solely for missile defense interceptors that are not prohibited by the INF treaty.

Ulyanov dismissed U.S. officials’ complaints about the new cruise missile quoting American officials as asserting “we allegedly used a land-based cruise missile at a range of over 500 km, which is prohibited by the treaty.”

“They failed to clearly define and back up this complaint,” he said. “Everything is very thin. We do not admit that we violated anything.”

Ulyanov demanded that the United States provide more details on the evidence for a treaty breach.

Moscow in the past used a similar tactic during arms control talks as a means to learn about U.S. intelligence on Russian treaty violations—as a way to prevent future discoveries of the breaches in arms testing and development, according to former U.S. arms control verification officials.

U.S. officials said the R-500 cruise missile is the system that has been judged to violate the INF treaty.

Gottemoeller, in a speech in August, called Russia’s treaty-violating cruise missile “a serious threat to strategic stability.”

The ground-launched cruise missile “is the one about which we have determined is a Russian [treaty] violation,” Gottemoeller told a U.S. Strategic Command conference on nuclear deterrence.

Former Pentagon strategic specialist Mark Schneider said the Russians are wrong in alleging that the United States violated the treaty.

“The Russian allegations against the U.S. are completely bogus,” Schneider said. “The INF Treaty does not ban target missiles, which are not weapons delivery vehicles.”

“Ronald Reagan did not negotiate a treaty that banned missile defense testing,” he added. “Armed drones are not cruise missile under the INF Treaty.”

In fact, the first post-INF treaty missile-firing drone was a Russian aircraft displayed at an arms show in 1998, he said.

As for U.S. missile defense interceptors in Romania, “they are not subject to the INF treaty, Schneider said.

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“Those who say that, they are ignoring the facts and selectively quoting one sentence of the INF Treaty launcher definition, conveniently excluding the part that destroys the argument that they make,” he said.

Russia’s cruise missile violation is “not just an isolated treaty violation,” he said, noting that Russian press reports have indicated Moscow has two or three cruise missiles banned under INF provisions.

Schneider said the administration compliance policy is very weak and its diplomacy will not be effective.

“Is arms control dead? I don’t think so because it is being pursued as part of an ideological agenda,” he said.

“Ideology always trumps reality.”

Paula DeSutter, assistant secretary of state for verification, compliance and implementation from 2002 to 2009, said Russia’s refusal to admit the violation does not indicate Moscow is going to withdraw from the INF treaty.

“Given the amount of time it took the administration to reach a judgment of violation, to raise it with Russia, and to make the violation public, Russia has every reason to decide that there is no need for them to withdraw, especially since the U.S. response to the violation will be constrained by our continued obligations under the treaty,” she said.

DeSutter called the violation “militarily significant” because “NATO and the U.S. have been disarming while Russia has been arming, placing false reliance on the Obama administration’s ‘reset’ with Russia.”

The failure of the Russians to reverse the violation likely will signal an end to further arms talks or at least a more realistic approach, she said.

However, DeSutter said she fears the empty Russian accusations of U.S. noncompliance with the INF treaty will be used to provide further sensitive information to the Russians that could be used against the defenses and shared with states such as Iran and Syria.

The Obama administration, after a delay of nearly six year, publicly confirmed in July that Russia’s development of a new cruise missile violated the INF treaty.

The treaty violation talks were held amid the most tense relations between Moscow and Washington since the Cold War as a result of the Russian military annexation of Ukraine’s Crimea and its backing for pro-Moscow rebels in their low-level conflict in seeking to destabilize eastern Ukraine.

Despite the Russian aggression, Gottemoeller said President Obama continues to pursue an additional one-third reduction in nuclear warheads in talks with the Russians—beyond the 1,550 warheads called for under the 2010 New START arms treaty.

House Republicans have accused the administration of covering up the INF violation, which has been known since around 2008, in order to win Senate ratification of New START and to seek further arms accords with the Russians.

Disclosure of the INF violation in July has severely diminished the prospect of further arms agreements.

<http://freebeacon.com/national-security/russia-stonewalls-u-s-on-charges-of-nuclear-missile-treaty-breach/>

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Aviation Week.com – Arlington, VA

Future Bombers Under Study In China And Russia

China may follow Russia in bomber developments

Bill Sweetman and Richard D. Fisher, *Aviation Week & Space Technology*

September 18, 2014

A version of this article appears in the September 15 issue of Aviation Week & Space Technology.

While the U.S. Air Force pursues development of the Long-Range Strike Bomber project, striving to launch full-scale development next year, both Russia and China are also proceeding with bomber plans. In the case of Russia,

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the PAK-DA (*perspektivnyi aviatsionnyi kompleks dal'ney aviatsii*, or future long-range air system) is the first all-new bomber to start development since the Tupolev Tu-160, in 1977, while China's prospective new system would be the nation's first indigenous bomber.

PAK-DA is under development by the Tupolev unit of United Aircraft Corp. (UAC), which has been responsible for almost all of Russia's long-range bombers since the end of World War II. The basic decision to pursue development of a new bomber was taken in 2007. At that point, the Russian military started to define upgrades to the existing bomber force, which would bridge the gap until a new aircraft could be ready, alongside an analysis of alternative configurations and approaches.

Out of dozens of potential candidates, including supersonic and hypersonic technologies, four finalists emerged, and a preferred design—featuring a subsonic all-wing or blended-wing body with stealth characteristics—was submitted to the customer in early 2012. It is likely to be the first Russian aircraft designed with all-aspect, broadband stealth—the key feature introduced by the B-2 when it entered service in 1997.

It was reported late last year that a final decision to build PAK-DA had been taken, with work to start in 2014. UAC has now been awarded the design and integration contract for the PAK-DA, and the bomber is due to make its first flight in 2019, with final assembly to take place at UAC's Kazan plant. It is expected to complete its state acceptance tests in 2023 and enter service in 2023-25, according to the most reliable Russian reports. Earlier this year, United Engine Corp.'s JSC Kuznetsov unit, which has powered most of Tupolev's bombers, was selected to develop the PAK-DA's engine, based on components from the Tu-160's NK-32 afterburning turbofan.

Beyond that, very little about PAK-DA has been released. However, it is possible to make some educated guesses about the program, based on the size and shape of the Russian bomber force and the new aircraft's likely missions.

The current long-range bomber force comprises a scant squadron of Tu-160s (a total force of 13 aircraft), 63 subsonic Tu-95MSs, built in the early 1980s as cruise-missile carriers (31 are MS16 versions with underwing pylons, and 32 are MS6s without), and a diminishing number of Tu-22M3 Backfires, most of them originally built to attack U.S. aircraft carriers and their supporting groups. The Tu-22M3 force assigned to theater-range land-attack missions is being replaced by the smaller but more versatile Sukhoi Su-34.

The Russian defense ministry announced in early 2012 that the Tu-160s would be modernized by 2020 and redesignated Tu-160M. This followed a 2009 decision to update the Tu-95 fleet, under the designation Tu-95MSM. Both upgrade programs are extensive, featuring new radars—from the same Leninets series used on the Su-34—and improvements to electronic warfare, displays and processors, which currently use 1980s technology. The Tu-160M was reported to be ready for state acceptance trials at the end of 2013.

The upgrades also include life extension, which covers investment in new engine overhaul capabilities, the renewed production of NK-32 engines for the Tu-160 and the design of a longer-life, more reliable engine variant. In 2010 the Russian government announced an investment of more than 8 billion rubles (\$220 million) for this program through 2020. The preproduction batch of new NK-32 engines is expected to be ready in 2016. These upgrades also will provide the foundation for the PAK-DA's engine.

Both bombers are being armed with a longer-range air-launched cruise missile (ALCM). Russia has had two major ALCM projects since the early 2000s, both from the Raduga division of Tactical Missiles Corp. The Kh-555 is a conventionally armed ALCM produced by modification of the 1980s-era Kh-55 nuclear weapon, with a combined inertial, radar-based terrain matching and infrared scene-matching guidance system.

The same company's all-new and larger Kh-101/-102 (conventional and nuclear versions respectively) is now in full production. The Tu-160 can carry 12 weapons internally and the Tu-95MS can carry eight, on four dual-wing pylons. It is the largest ALCM in use, with launch weight estimated at up to 5,300 lb. Originally planned to be an ultra-long-range missile with a prop-fan power unit, it now has a turbofan on a retractable mount, similar to the Kh-55. The current inventory of long-range cruise missiles numbers 850 weapons.

This extensive upgrade work indicates that the older bombers are expected to serve for at least 5-10 years after the PAK-DA enters service, with the new aircraft presumably being assigned the role of a penetrating bomber.

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The announcement that the new bomber's engine is to be based on the NK-32, together with the fact that Russian bombers traditionally rely less on inflight refueling than the U.S. Air Force's designs, points to a large aircraft. The NK-32 is a three-shaft, low-bypass-ratio engine that produces 31,000-lb. thrust in military power and 55,000-lb. thrust with afterburning. The variant being developed for the PAK-DA will be a non-afterburning engine, possibly with a slightly increased bypass ratio. Four such engines would indicate a gross weight of 200 metric tons, larger than the B-2 (and most likely much bigger than LRS-B), corresponding to a greater weapon load and range.

Meanwhile, China is reportedly working on a new bomber. It is tempting to discount China's ambitions to build a world-class strategic strike aircraft given that its People's Liberation Army Air Force (PLAAF) and Naval Air Force (PLAN-AF) seem content to fly successive versions of the Soviet-era Tupolev Tu-16. This medium bomber first flew in 1952 and then in China in 1959, subsequently built by the Xian Aircraft Corp. (XAC) as the Hong-6 (Bomber-6, H-6). However, continued improvements and production of the H-6 show that China retains an interest in long-range airpower.

China's government and People's Liberation Army (PLA) say virtually nothing about their future bomber ambitions, but an accumulation of "gray data" plus a recent revelation indicate it is likely that China is developing a new bomber. Last April an Asian government source disclosed an estimate that China's next-generation bomber, called H-20, would emerge by 2025.

Such timing for the emergence of the H-20 would be consistent with two evolving Chinese strategic objectives. A new bomber would extend China's ability to deny strategic access to the U.S. well beyond the "first island chain," extending through Japan, Taiwan and the northern Philippines and encompassing the northern and southern China Sea.

Secondly, this aircraft would aid the Chinese leadership's ambitions to project military power. Such a platform would allow the Chinese air force to complement the gathering global aircraft carrier and amphibious projection capabilities of the nation's navy.

China's next-generation bomber has long been rumored by informal Chinese sources to have been under development since the mid-to-late 1990s. Chinese determination to proceed was likely strengthened by the use of the Northrop Grumman B-2 in the mistaken bombing of the Chinese Embassy in Belgrade on May 7, 1999. It is also unclear how much data about the B-2 China was able to obtain from Northrop Grumman engineer Noshir Gowadia, who, in his 18 years with the company, was one of the principal designers of the B-2's low-observable propulsion system. In January 2011 he received a 32-year sentence for conveying military secrets to China.

The Xian Aircraft Corp. (XAC), the PLA's main large military aircraft manufacturer, is most likely the lead contractor for the new bomber. Like the next-generation bombers from Russia and the U.S., the H-20 is expected to use a subsonic low-observable "flying wing" configuration.

Interesting but unofficial indications have also been provided by PLA academics. Chinese media reports from October 2013 quote PLAAF Col. Wu Guohui, an associate professor at the National Defense University, saying stealth bombers had received "renewed national attention" and that "in the past China has been weak regarding bombers, but in the future will develop long-range strike aircraft."

National Defense University Associate Prof. Fu Guangwen noted in a December 2013 interview that bomber development in China faces several obstacles, including challenges in developing engines and effective materials. But he then noted that a future Chinese bomber should be able to cover targets out to the second island chain, Guam, the South China Sea and India; be stealthy to improve penetration capability; be capable of "information confrontation," or cyber/electronic warfare; and have conventional and nuclear strike capability.

A January 2014 Sina.com article cited an Aviation Industry Corp. of China publication, stating that design work on a future Chinese stealth bomber had started in 2008. This report also noted that this bomber was likely a flying wing and that it would have the range to strike the U.S. West Coast.

Though it falls under the category of ambiguous "gray data," in early 2013 an image from a Chinese academic engineering journal showed a potential bomber shape very similar to the B-2. In early 2014 another Chinese image

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emerged of two bat-wing-shaped model aircraft, possible radio-controlled models for test purposes. There is no other information to connect these models to ongoing programs, but it is well established that China formally previews models of future military aircraft, while leaked model images are often aimed at domestic and foreign audiences.

The later models could also represent new long-range unmanned combat aerial vehicle (UCAV) shapes, which also highlights the potential for China to develop long-range unmanned strike aircraft. With some fanfare in the Chinese media, the flying swept wing Lijian (Sharp Sword) UCAV, a collaborative product of the Shenyang and Hongdu companies, took to the air Nov. 20, 2013. Similar in size and shape to the Boeing X-45C, indications are that Lijian has provided the basis for longer-wingspan UAV/UCAVs from Shenyang/Hongdu, some Chinese sources suggest. It is conceivable that Xian might eventually develop an unmanned version of the H-20, especially if Russia and the U.S. were to so develop their new bombers.

Possible Chinese interest in a new supersonic regional bomber was signaled in the early May 2013 emergence of a model of a new low-observable-shaped twin-engine bomber, which appeared next to a model of the known Lijian. With an estimated length of 25-30 meters (82-98 ft.), this bomber appears to approach the late-1950s Convair B-58 (the largest Western purpose-built supersonic bomber to enter service) in size. However, available information cannot confirm whether it is an active program, the loser of a previous competition or an unfunded concept.

Although PAK-DA is overtly a strategic deterrent system with the aim of holding U.S. targets at risk, it is unlikely that any new Chinese bomber would be intended for a parallel role. However, a long-range, survivable platform with a large missile payload would be a powerful regional asset to threaten adversary land bases and naval forces, particularly in conjunction with supersonic, stealthy J-20 fighter/strike aircraft.

The PLA continues to develop new versions of the H-6 and to upgrade older models with new weapons. Likely spurred by early 1990s Russian refusals to sell the Tupolev Tu-22M3 (although requests were definitely conveyed by the 2003-04 period), the PLA opted to develop a radically upgraded version of the H-6.

The H-6K is fitted with the Russian-supplied 26,500-lb.-thrust UEC-Saturn D-30KP-2 turbofan, which is approximately 30% more powerful than the 1950s-vintage turbojets of the earlier versions and is more efficient, with a higher bypass ratio (2.24:1) than the JT8D-200. This increases combat radius to a reported 3,500 km (2,175 mi.). Emerging in early 2006, the H-6K replaced the old glazed nose with a large radome and electro-optical targeting sensor. The aircraft featured a modern glass cockpit and gained six wing pylons to carry new 1,500-2,000-km-range CJ-10/KD-20 land-attack cruise missiles. This version is likely able to use the great variety of precision-guided bombs now produced by four Chinese companies.

China has also upgraded older H-6s. The air force's three regiments of H-6Gs may soon be armed with the new supersonic ramjet-powered YJ-12 anti-ship missile with an estimated range of 400 km. The PLA's older H-6Ms are being upgraded to carry two CJ-10/KD-20 land-attack cruise missiles. The previously mentioned Asian government source notes that the PLA has 130 H-6s in 2014, but this number could grow to 180 by 2020. This could indicate a longer production run for the H-6K, which currently serves in two PLA regiments.

The future of long-range strategic bombing for the PLA is also tied to the development of efficient aerial refueling tankers. In March-April, the PLA modestly increased its refueling platforms with the acquisition of three Ilyushin Il-76MDs that had been converted to Il-78 tankers in Ukraine. These carry up to three of the Russian UPAZ drogue-hose refueling system, whereas the previous fleet of approximately 24 converted H-6U tankers carry much less fuel and have only two hose-drogue units. These are the RDC-1 design, derived from the British Flight Refueling Ltd. (now Cobham) FRL Mk 32 acquired in the mid-1980s.

Future tanker platforms may include converted Xian Y-20 heavy transports, versions of the Comac C919 airliner, or a variant of the future widebody transport that has been a subject of Russia-China collaborative discussions.

But to make future tankers more efficient, and more compatible with larger aircraft, China may also be evaluating flying-boom refueling systems capable of higher transfer rates. In a 2013 conference paper, three engineers from the School of Electronics and Information at the Northwest Polytechnical University proposed using differential

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signals from the Chinese Beidou navigation satellite system combined with optical systems to create an automated control system applicable to hose-and-drogue or flying-boom aerial refueling systems.

With Maxim Pyadushkin in Moscow.

<http://aviationweek.com/defense/future-bombers-under-study-china-and-russia>

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National Defense Magazine.com – Arlington, VA

Mabus: Ohio-Class Submarine Replacement Could ‘Gut’ Navy Shipbuilding Budget

By Yasmin Tadjdeh

September 15, 2014

Without extra funding from Congress, the production of 12 new ships to replace the Ohio-class submarines could “gut” the Navy’s shipbuilding budget for more than a decade, Secretary of the Navy Raymond Mabus said Sept. 15.

“It will take half of our normal shipbuilding budget every year for a dozen years to build these ... ballistic-missile submarines,” Mabus said during a speech at the Council on Foreign Relations in Washington, D.C. “It has the potential to gut the rest of our shipbuilding programs.”

Navy officials have repeatedly called the replacement program a top priority. However, tight budgets are threatening to make the service choose between the replacement subs and other ships.

“I sort of reject the notion that the only way you pay for a ship is to take it out of another ship, but you’ve got to take it from somewhere,” Mabus said.

The National Sea-Based Deterrence Fund — which would separate the payment of the submarines from the Navy’s regular budget — would allow the service to continue to fund other acquisitions such as the littoral combat ship and destroyers, he said.

Both the House and the Senate Armed Services committees included provisions in their respective fiscal year 2015 National Defense Authorization Act bills that would help pay for the program. The Senate committee offered about \$100 million toward the fund, with the House committee pledging up to \$3.5 billion.

The ships, which will replace the Navy’s fleet of 14 Ohio-class nuclear submarines, are slated to begin production in 2021, Mabus said. The first should be operational by 2028. They have a lifespan of 40 years, a July Congressional Research Service report said.

The lead boat in the program is estimated to cost \$12.4 billion in 2014 dollars, according to the report.

While construction is still years away, the Navy is already spending billions of dollars in preliminary work, Mabus said.

“We are working on them now. We are doing the engineering now. We’re doing the R&D now. ... It’s a multi-billion dollar bill even today to do this,” Mabus said. “We are spending several billion dollars five years before we even start building these things in 2021.”

The Navy requested \$1.2 billion for research and development on the replacement submarines in its fiscal year 2015 budget request, the CRS report said.

The submarine replacement program is of national importance, Mabus said. He doubted that the country would support the paring back of attack submarines and surface ships because of budget restraints.

“This is a national program. This is a national strategic deterrence,” he said.

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The only two solutions are for Congress to either create the fund or to increase the Navy's shipbuilding funds, Mabus said.

"That's the hard math of it," he said.

<http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?List=7c996cd7-cbb4-4018-baf8-8825eada7aa2&ID=1601&RootFolder=%2Fblog%2FLists%2FPosts>

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RIA Novosti – Russian Information Agency

North Korea Developing Vertical Launching System for SLBMs - Reports

15 September 2014

MOSCOW, September 15 (RIA Novosti) – North Korea could be developing a new vertical launching system for submarine-launched ballistic missiles (SLBM), a South Korean Defense Ministry official said Monday.

"Based on recent US and South Korean intelligence, we have detected signs of North Korea developing a vertical missile launch tube for submarines" the official was quoted as saying by Agence France-Presse .

At the same time South Korean Defense Ministry representative Kim Min-seok said at a press conference Monday that the ministry could not confirm whether the DPRK had an operational SLBM system.

"There is no confirmed information yet that a North Korean submarine capable of launching ballistic missiles is in operation," Min-seok said.

According to data compiled by Global Firepower (GFP), the DPRK is ranked first in the world by submarine strength with a total of 78, surpassing the United States, China and Russia in 2014. However, the North Korean submarines are mostly obsolete Soviet and Chinese vessels.

The possibility of mounting a vertical launching system for SLBMs could significantly strengthen the DPRK Navy's capabilities, as North Korea has been able to miniaturize a nuclear warhead for use on a ballistic missile, the US Defense Intelligence Agency stated in April 2013.

North Korea declared itself a nuclear power in 2005 and conducted a series of underground nuclear weapon tests in the following years. Pyongyang's nuclear program has triggered mass protests from the international community, including demands for the nation to return to the so-called six-party negotiations, comprising North and South Korea, Russia, the United States, China and Japan, on the reduction of its nuclear activities.

<http://en.ria.ru/world/20140915/192959025/North-Korea-Developing-Vertical-Launching-System-for-SLBMs-.html>

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Korea JoongAng Daily – Seoul, South Korea

Kim Jong-un Gearing Up for Full-Scale War: Source

By LEE YOUNG-JONG, SARAH KIM

September 16, 2014

Since the Kim Jong-un regime began, Pyongyang has been bolstering its combat readiness for an all-out war with South Korea, a source well informed on North Korea told the JoongAng Ilbo.

"It has been detected that Kim Jong-un, after the death of [his father] Kim Jong-il in December 2011, gathered all military leaders to revise and bolster their strategy for a full-scale war," the source said on Sunday. "Our military



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authorities shifted recently from the pre-existing strategy to counter North Korean provocations based on the assumption of a limited war to a plan in the direction of preparing for a full-scale war.”

Kim has also been riling up his military with warlike rhetoric about unification, the source said, and unexpectedly visiting front-line and special units to evaluate their operational capabilities.

Military officials here also said that South Korean and U.S. forces are changing their countermeasure strategies in case of provocations from Pyongyang, which in the past focused on limited attacks such as the Yeonpyeong shelling in November 2010 that killed two Marines and two civilians.

Instead, they are coming up with a counterstrategy for a possible nuclear attack, which could happen in conjunction with an invasion across the military demarcation line in which conventional weapons would be used. Such military moves in Pyongyang were confirmed by testimony of a defector who was a key military official in the North Korean military who sought asylum here earlier this year, according to military sources.

“This North Korean military personnel who came into South Korea through a third country is a field grade official, and, as contrasted to other military defectors in the past, worked in a key division dealing with military operations and intelligence,” a military intelligence source said. “We were able to gather significant intelligence on North Korea’s military strategy and changes in tactics toward the South since the Kim Jong-un regime took place.”

Because the defector is receiving special protection by the South Korean government, further details about him were not available.

A report obtained by the JoongAng Sunday last week analyzing North Korea’s war strategy for 2015 likewise showed Pyongyang to be reviewing various invasion routes crossing the 38th parallel dividing the two countries and various drone infiltration plans.

The report by Security Policy Networks, a South Korean think tank, also claimed that three drones found in Paju and Baengnyeong Island in March and Samcheok in April, which the government concluded were from North Korea, were part of Kim Jong-un’s 2015 plan for a war for unification. It said that the drones followed Pyongyang’s possible invasion routes.

The report also said that one such route for an amphibious raid by North Korea’s special units of 5,000 troops follows from across Musan County in North Hamgyong in its west coast to Mount Gwangdeok in Gangwon Province in South Korea, down the Jungbu Naeryuk Expressway, a major freeway going through South Korea.

Defense expert Hong Seong-min, head of Security Policy Networks and advisor to the Saenuri Party on North Korean nuclear issues, said, “North Korea’s spying on our territory through the drones signifies that it has completed its preparations for a full-scale war. The South Korean military has to re-evaluate its fundamental posture in preparation for such a full-scale war.”

A government official said, “South Korea and the U.S. are jointly analyzing the intentions behind the routes of North Korea’s drones and are gathering further intelligence on it.”

Another source said that Kim Jong-un recently visited a front-line unit in the eastern front and mobilized soldiers for an emergency rifle drill, demoting the unit’s commander.

“Through reading Kim Jong-un’s lips that day in footage from North Korean TV, it appears he was severely warning the command and mentioned war,” the source said.

“In a situation where the North Korean athletic delegation is here for the upcoming Incheon Asian Games opening on [Sept.] 19, it is unlikely that [Pyongyang] will act rashly, but we are preparing for all scenarios.”

<http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2994907>

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The Japan Times – Tokyo, Japan

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Japan's Plutonium Stockpile Jumped to 47 Tons in 2013

Kyodo

September 17, 2014

Japan had about 47.1 tons of plutonium in and outside the country at the end of 2013, about 2.9 tons more than the year before, the Cabinet Office said on Tuesday.

Newly added were 2.3 tons generated through spent fuel reprocessing outsourced to Britain and 640 kg not reported to the global watchdog in 2012 and 2013. The 640 kg is part of mixed plutonium-uranium oxide (MOX) fuel stored in a reactor that was offline during that time.

Revelations of the unreported 640 kg stoked controversy in June, though the Japan Atomic Energy Commission had said it was exempt from International Atomic Energy Agency reporting requirements, insisting at that time that fuel inside reactors is considered "being used."

Under Japan's nuclear fuel recycling policy, plutonium extracted by reprocessing conventional uranium fuel is consumed by existing reactors in the form of MOX fuel. But this policy is jeopardized by public concerns about nuclear power amid the Fukushima crisis.

A further increase in plutonium could raise concerns in the international community about its possible diversion to nuclear weapons.

The earlier unreported 640 kg of plutonium was contained in MOX fuel loaded in March 2011 into reactor 3 of Kyushu Electric Power Co.'s Genkai nuclear plant in Saga Prefecture during its regular checkup, but has been left there unused as the reactor could not restart in light of the disaster at Tokyo Electric Power Co.'s Fukushima No. 1 complex.

<http://www.japantimes.co.jp/news/2014/09/17/national/japans-plutonium-stockpile-rose-47-tons-2013/#.VBol8CxARDx>

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The Chosun Ilbo – Seoul, South Korea

September 17, 2014

N.Korea Claims Nukes Needed to Protect Human Rights

North Korea in a quixotic report on Saturday claimed that its nuclear weapons development is "indispensable" for the protection and advancement of human rights.

The report aims to counter the first UN discussion at ministerial level on the North's dismal human rights record.

In a section titled "Prospects for the Protection and Promotion of Human Rights" in the 128-page report, the North said, "human rights is secured and guaranteed by the sovereignty of each country and nation, not by the interference and instruction of any country or international organizations."

It added that this sovereignty is protected by the gun and claimed that its nuclear weapons form the backbone of strengthened defense capabilities, which in turn guarantee its independence and rights.

The report claims the human rights of North Koreans are based on the disastrous "juche" or self-reliance doctrine of nation founder Kim Il-sung. "In case a state loses its sovereign right, then human rights of the people and its promotion will remain a paper argument," the report added.

The thrust of the report is clearly to divert as much attention as possible from the regime's egregious human rights violations and protest instead against what it sees as outside meddling in internal affairs.



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But it also claims that political freedom is guaranteed, citing fantasy figures showing support for the regime. "Approval rate was 97 percent in election of provincial level, 95.4 percent in the level of city and 96.9 percent in the level of county," it said.

It also insists that freedom of religion is alive and well in the repressive country and claims the regime never forced North Koreans to believe or not to believe in religion, but that the people freely chose to support the "juche" ideology.

North Korea has been reliant on international food aid for decades and has at no point achieved even a semblance of self-reliance in terms of basic necessities.

The report also states that there is no uniform human rights standard the international community must uphold and that the issue should be interpreted by individual nations. "Human rights standard based on the American view of value should never be applied to [North Korea] and used for the political purposes and precondition with development of relations," it added.

The North also praised its state-distribution system which allegedly freed its people from worrying about food and housing. The system has in fact collapsed.

The report makes no mention of political concentration and labor camps where thousands are interned on the flimsiest grounds and which UN human rights officials have repeatedly cited as among the gravest human rights violations.

http://english.chosun.com/site/data/html_dir/2014/09/17/2014091701248.html

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ITAR-TASS News Agency – Moscow, Russia

Yury Dolgoruky Submarine to Test-Fire Bulava Missile with Full Missile Set Aboard

"This will be the first launch of Bulava missile from the submerged position by the Project 955 (Borey) missile-carrying nuclear submarine with a full set of 16 Bulava ICBMs on its board," source says
September 15, 2014

MOSCOW, September 15. /ITAR-TASS/. The launch of the Bulava intercontinental ballistic missile from the Yuri Dolgoruky nuclear-powered submarine scheduled for October will mark an important stage in testing the submarine's missile system, a source in the Russian Navy headquarters said on Monday.

"This will be the first launch of the Bulava missile from the submerged position by the Project 955 (Borey) missile-carrying nuclear submarine with a full set of 16 Bulava ICBMs on its board," the source said.

"The launch will test the submarine's operation after the test-firing. Earlier, all Borey-class submarines went into the sea with only one missile aboard, which was launched," the source said.

The source confirmed plans to conduct one more Bulava launch in November from another Borey-class strategic nuclear-powered submarine, the Alexander Nevsky.

"As of September 13, the plan for November stipulates the launch of this missile from the Alexander Nevsky also with the aim of testing the reliability of the Bulava missile and confirming the stable operation of the submarine's missile system," the source said.

As in October, one missile will be launched from an underwater position in Russia's White Sea to hit a designated target at the Kura test range on the Kamchatka peninsula in the Far East, the source said.

"The Bulava launch in November will be the third and the last this year. Two other launches of this missile are scheduled for 2015," the source said.

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Russian Navy Commander Adm. Viktor Chirkov said on September 10 after the successful first test-firing of the Bulava missile from the same-class Vladimir Monomakh submarine that two more Bulava launches from two strategic Borey-class submarines would be held in autumn.

“In October and November, the Navy will perform two more missile launches from two missile-carrying submarines equipped with ballistic missiles,” the Navy chief said at the time.

Bulava intercontinental ballistic missile

Bulava R-30 is a Russian submarine-launched intercontinental ballistic missile designed for the new Borey-class submarines, eight of which are expected to enter service by 2020.

The three-stage solid-fuel missile is capable of carrying from six to ten nuclear warheads. The missile's maximum range is up to 9,000km.

The Bulava development began in 1998. Eight of 19 test launches carried out since 2005 were successful. Others failed due to malfunctions of the control system, engines of second and third stages and warhead separation. The missile's commissioning was delayed because of the failures.

After six consecutive successful launches in 2010-2011, Bulava was expected to be commissioned. However, the previous launch from the Alexander Nevsky submarine on September 9, 2013 was unsuccessful. The missile fell in the Arctic Ocean because of failure of the engine control system of the second stage.

<http://en.itar-tass.com/russia/749573>

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RIA Novosti – Russian Information Agency

Russian Deputy Foreign Minister: Ukraine's Non-Nuclear Status Cannot Be Revised

16 September 2014

MOSCOW, September 16 (RIA Novosti) – Ukraine's non-nuclear status, sealed in the Nuclear Non-Proliferation Treaty (NPT) cannot be revised, and any talk on the issue is baseless, Russian Deputy Foreign Minister Sergei Ryabkov told RIA Novosti.

“We assume that Ukraine's status of a non-nuclear state as signatory to the NPT treaty was sealed once and for all and cannot be revised,” he said in an interview.

Ryabkov also touched upon the Budapest Memorandum of 1994. “I must emphasize that the ongoing attempts to accuse Russia of violating the provisions of the Budapest Memorandum of 1994 ... we strongly reject. We explained why Russia has not violated and could not violate any provision of the Budapest Memorandum,” the minister said.

“This, in turn, means that we expect from all the other signatories of this document, including of course Ukraine, which joined the NPT, unshakable compliance to its obligations,” Ryabkov added.

On December 1994, Russia, the United States and the United Kingdom signed the Budapest Memorandum on Security Assurances providing security assurances against the threat or use of force against Ukraine's territory or political independence. On the same day, Ukraine joined the NPT as a non-nuclear weapon state.

<http://en.ria.ru/politics/20140916/192984968/Russian-Deputy-Foreign-Minister-Ukraines-Non-Nuclear-Status.html>

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ITAR-TASS News Agency – Moscow, Russia

Issue No.1133, 19 September 2014

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Ukraine may Create Nuclear Bomb in 10 Years — Experts

Russian experts say Ukrainian Defence Minister's provocative statement on creation of weapons of mass destruction should be taken seriously

September 17, 2014

MOSCOW, September 17. /ITAR-TASS/. Ukraine which has large uranium deposits, nuclear power plants and the ability to enrich nuclear fuel as well as enterprises which produced ballistic missiles in the Soviet times may create a nuclear bomb in ten years, Izvestia daily reported on Wednesday with reference to the opinion of Russian experts.

“Ukrainian Defence Minister Valery Geletei’s statement that Ukraine may regain the status of a nuclear power and create weapons of mass destruction is a provocation, but this should be taken seriously,” the daily quoted deputy chairman of Russia’s lower house State Duma defence committee Frants Klintsevich as saying, noting that “This cannot be forgotten that science in Ukraine has always been developed and there won’t be any problems creating a nuclear bomb.”

Klintsevich recalled that the neighbouring country had 17 nuclear power units not designed for enrichment.

“If they assign several nuclear power units for the purpose and will get down to resolve this task the process will take quite a long period of time. But they will cope with it for ten years,” the lawmaker believed, noting that “It is very strange if Europe will not give any response to such statements. Double standards became normal for them and this may end deplorably for all.”

“Ukraine’s turning in a nuclear power contradicts all international regulations on non-proliferation of nuclear weapons,” because “any nuclear weapons are an instrument of deterrence and parity, but not blackmail,” the daily noted.

“Ukraine has inherited a major potential from the Soviet Union. These are nuclear technologies used in peaceful ends and nuclear scientists. They should not begin from scratch,” the daily quoted military expert Andrei Klenov as saying, adding that “Meanwhile, western Ukraine and a larger part of eastern Ukraine has plants which produce missiles Satana [third-generation Soviet strategic missile system]. Before the start of hostilities in Ukraine these plants were mothballed and all technical documentation, charts and technologies were transferred to Kiev.”

Meanwhile, Ukraine has Tochka U, a tactical missile system which uses conventional ballistic missiles with a fire range of 120 kilometres and more that can carry nuclear warheads, the daily recalled. Meanwhile, according to international classification the so-called ‘dirty bomb’, the simplest variant of weapons of mass destruction that contaminates the territory with radioactive materials, belongs to nuclear weapons.

“If the Ukrainian president decides to create nuclear weapons, ‘the dirty bomb’ with conventional explosives and radioactive element which can be generated at Chernobyl nuclear power plant can be produced literally in a few days,” Klenov said with confidence.

On September 14, Ukrainian Defence Minister Valery Geletei stated the possibility to develop nuclear weapons, if the West refuses to help Ukraine: “If we cannot protect [Ukraine] today, if the world does not help us, we will have to return to creation of these weapons to protect ourselves from Russia.”

This is quite illustrative that “officials of the International Atomic Energy Agency (IAEA) and the US ambassador in Ukraine refused to comment on possible after-effects of Ukraine’s turning in a nuclear power.

<http://en.itar-tass.com/world/749875>

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RIA Novosti – Russian Information Agency

Russia’s Strategic Missile Troops Training to Find Ebola Pathogens

17 September 2014

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MOSCOW, September 17 (RIA Novosti) – Russia’s Radiation, Chemical and Biological Protection Units of the Strategic Missile Forces (SMF) began training on the detection of different viruses and harmful bacteria, including the Ebola virus, Defense Ministry spokesman for SMF Igor Yegorov stated on Wednesday.

“During the exercise, Radiation, Chemical and Biological Protection units, equipped with the newest RKhM-6 chemical reconnaissance vehicles, will perform detection tasks trying to locate more than 10 bacterial and viral pathogens, including anthrax, plague and Ebola.

Yegorov also added that in order to ensure proper coordination of the units soldiers will learn how to use electronic operational maps transmitting information about troop movements and distribution of viruses in real time.

The Ebola virus is currently spreading across West Africa with the death toll standing at more than 2,400 since the epidemic started in March.

Cases have been registered in Liberia, Sierra Leone, Guinea, Nigeria, Senegal and the Democratic Republic of Congo.

The Ebola virus is transmitted through direct contact with the blood, body fluids or tissue of infected animals or people. There is no officially approved medication for the disease, and experts claim prevention is the only cure. Several countries, including Russia, the United States, the United Kingdom, Canada and Japan are currently working on vaccines, with the first live vaccine trial commencing at Oxford University Wednesday.

<http://en.ria.ru/russia/20140917/193034627/Russias-Strategic-Missile-Troops-Training-to-Find-Ebola.html>

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Daily Mirror Online.com – London, U.K.

Scotland Votes NO: Independence Rejected in Historic Referendum

Scotland has voted to save the Union, despite the Yes campaign winning a majority in the largest city

By Jessica Best

September 19, 2014

Scotland has voted NO in its historic independence referendum, meaning the Union will stay together.

Despite the Yes campaign winning a majority in the largest city of Glasgow, the margin of victory was not large enough to give Alex Salmond and his campaign the momentum they needed.

The vote was split at 55.3% to 44.7%, with 28 out of the 32 council areas voting No, and four voting Yes.

There were 2,001,926 votes for No to 1,617,989 votes for Yes - on a record 84.5% turnout.

David Cameron said the result settled the issue of Scottish independence for a generation, but confirmed there would be a "new and fair settlement" for both Scotland and England.

This included calling for Scots MPs to be barred from voting on taxes, spending and benefits in England.

SNP leader Alex Salmond said he accepted the verdict of the people and called everyone else to do the same as he conceded defeat.

Salmond said: "Thank you to Scotland for 1.6m votes for Scottish independence.

"We know that there is going to be a majority for the 'No' campaign.

"Scotland has by majority decided not, at this stage to become an independent country."

"This was a substantial vote for Scottish independence and the future of this country.

"The process by which we have made our decision as a nation reflects enormous credit to Scotland.

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"This has been a triumph for the democratic process and for participation in politics."

In the wake of a No vote, the three Unionist parties are expected to begin work with their colleagues north of the border to kickstart further devolution to Scotland.

Cameron said draft laws offering the country more powers are expected to be published in January 2015.

Proposals looking at "the question of English votes for English laws" will be published at the same time.

He said: "We have heard the voice of Scotland - and now the millions of voices of England must also be heard," he said.

"The question of English votes for English laws – the so-called West Lothian question –requires a decisive answer.

"So, just as Scotland will vote separately in the Scottish Parliament on their issues of tax, spending and welfare so too England, as well as Wales and Northern Ireland, should be able to vote on these issues."

I've spoken to Alistair Darling - and congratulated him on an well-fought campaign. #indyref

— David Cameron (@David_Cameron) September 19, 2014

Well done to Glasgow, our commonwealth city, and to the people of Scotland for such a incredible support

— Alex Salmond (@AlexSalmond) September 19, 2014

But Alex Salmond's dream of independence suffered an early blow when the key battleground of Clackmannashire voted 19,036 to stay in the union, with 16,350 against.

The region was one of the top targets for the SNP and the result left their hopes of winning hanging by a thread.

As expected the SNP won the "Yes City" of Dundee but the 53,620 to 39,840 result was not the knock out victory they had been predicting.

The nationalists also won in West Dunbartonshire - traditionally Labour territory - by 33,720 to 28,776.

Elsewhere, the Labour bastions of Renfrewshire and Inverclyde both voted to stay in the UK.

Crucially, the SNP stronghold, the Western Isles, also voted to reject independence by 10,544 (53%) to 9,195 (47%). Aberdeen also voted No as did Angus and Dumfries.

Facing defeat on his own patch, Alex Salmond failed to show at his local count in Aberdeenshire and was seen slipping through a side gate at Aberdeen airport and boarding a private jet bound for Edinburgh in the early hours.

The Queen is reported to be preparing to make a statement in the next few days in an attempt to heal the wounds caused by the bitter contest.

In the strongly pro-unionist island of Orkney they voted 10,004 for No and 4,883 for Yes.

Shetland also rejected independence by 9,951 votes to 5,669.

Hopes rose after the insiders said the postal votes - nearly a quarter of the total ballots cast - showed the No campaign winning comfortably.

Michael Gove declared the UK was "safe" shortly after 2am, saying: "I'm glad that it appears that, fingers crossed, the United Kingdom is going to stay together."

The referendum saw a record turnout at 84.6% - the highest for any election held in the United Kingdom since the introduction of universal suffrage in 1918.

The participation rate of 84.5% topped the previous best of 83.9% recorded in the 1950 general election and dwarfed the tallies in recent Westminster polls, which saw 65.1% vote in 2010 and 61.4% in 2005.

The total - 3,619,915 - will have included many voters who had never cast their ballot before or had stayed away from the polling booths for many years.

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Daily Mail Online.com – London, U.K.

Iran Nuclear Bomb Probe Will Not Be "Endless" - IAEA

By Fredrik Dahl, Reuters

15 September 2014

VIENNA, Sept 15 (Reuters) - A U.N. nuclear agency investigation into suspected atomic bomb research by Iran will not be an "endless process", its chief said on Monday, pressuring Tehran to step up cooperation with the long-stalled probe.

Three weeks after Iran failed to meet a deadline for providing requested information to the International Atomic Energy Agency, Director General Yukiya Amano said Tehran needed to do much more to address the IAEA's concerns.

In line with the findings of a confidential IAEA report earlier this month, he said Iran had not carried out two of the five transparency steps it had agreed to implement by Aug. 25.

Lack of progress in the IAEA investigation could further complicate efforts by six world powers to negotiate a resolution to the wider, decade-old dispute with Iran over its nuclear work and persuade it to curb it in exchange for a gradual ending of sanctions.

"Iran needs to be as transparent as possible to clarify these issues," Amano told a news conference.

The U.N. agency would give an impartial and factual assessment to its 35-nation board on what the IAEA calls the possible military dimensions of Iran's nuclear programme when it has a "good understanding of the whole picture", he said.

The investigation could be carried out within a "reasonable timeline" if Iran cooperated with the IAEA, he said, suggesting it could be done in roughly 15 months or less. "This is not an endless process," the veteran Japanese diplomat said.

Western diplomats say the IAEA at some stage would probably produce an assessment even if Iran - which denies it is seeking a nuclear weapons capability - were to stonewall the U.N. agency, although it would be based on incomplete information.

Iran has been promising to cooperate with the IAEA since Hassan Rouhani, seen as a pragmatist, was elected president last year. It says its nuclear programme is for purely non-military purposes.

The two issues that have not yet been addressed by Iran under a cooperation pact with the IAEA are alleged experiments on explosives that could be used for an atomic device and also studies related to calculating nuclear explosive yields.

Amano earlier on Monday told the IAEA's governing board that Iran had "begun discussions" with the IAEA on these topics but he gave no details. He said the U.N. agency had also asked Iran to propose future transparency steps to help advance the investigation, but that it had yet to do so.

NUCLEAR DEADLINES

In 2011, the IAEA published a report that included intelligence indicating Iran had a nuclear weapons research programme but halted it in 2003 when it came under increased international pressure. The intelligence suggested some activities may have resumed later. The report identified about 12 specific areas that it said needed clarification.

Iran says the allegations are baseless.



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Last month, Amano met Rouhani and senior Iranian officials in Tehran in an attempt to make progress and the IAEA chief told Monday's board meeting that they had stated a "willingness to accelerate the resolution of all outstanding issues".

Rouhani's election raised hopes of a solution to the stand-off with the West after years of tension and fears of a new Middle East war. An interim accord was reached between Iran and the six powers in Geneva in November last year.

But Iran and the powers -- the United States, France, Germany, Britain, Russia and China -- did not meet a July target date for a comprehensive deal and now face a new deadline of Nov. 24, with talks due to resume in New York later this week.

Western officials say Iran must address the IAEA's concerns. They add that although there is no chance of the investigation being completed before the scheduled end of the six-power talks, some of the sanctions relief Iran is seeking would probably depend on its cooperation with the U.N. agency.

The IAEA is still not in a position to "conclude that all nuclear material in Iran is in peaceful activities", Amano said.

Editing by Andrew Roche

<http://www.dailymail.co.uk/wires/reuters/article-2756312/U-N-nuclear-chief-suggests-little-headway-Iran-probe.html>

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Press TV – Tehran, Iran

Kerry Accuses Syria of Using Chlorine Gas against Militants

Thursday, September 18, 2014

The United States has once again accused the Syrian government of using chemical weapons against foreign-sponsored militants.

US Secretary of State John Kerry told the US House Foreign Affairs Committee on Thursday that the government of President Bashar al-Assad had used chlorine gas in attacks against the insurgents earlier this year.

Chlorine gas is not on the list of chemical weapons Damascus declared to international observers, but Kerry said its use is prohibited by the Chemical Weapons Convention.

"We believe there is evidence of Assad's use of chlorine, which when you use it - despite it not being on the list - it is prohibited under the Chemical Weapons Convention," Kerry told the House of Representatives.

He also blamed President Assad "the violation" of the global convention on the use of chemical weapons. "He's in violation of the convention."

Syria has repeatedly rejected such claims. Damascus had already surrendered its stockpiles of chemical weapons to a joint mission led by the United Nations and Organization for the Prohibition of Chemical Weapons (OPCW), which oversaw the destruction of Syria's chemical weapons.

Last month, the United States finished destroying chemical weapons that Damascus handed over to the observers. The weapons were turned over by Syria as part of an agreement between Russia and the United States to avoid US airstrikes on the Arab country.

Kerry said the United States had "removed and destroyed" all Syrian chemical weapons that were declared by Damascus.

Syria has been gripped by deadly unrest since 2011. According to reports, the United States and its regional allies - especially Qatar, Saudi Arabia, and Turkey - are supporting the militants operating inside the country.

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According to the United Nations, more than 190,000 people have been killed and millions displaced due to the turmoil that has gripped Syria for over three years.

<http://www.presstv.ir/detail/2014/09/18/379186/us-syria-used-chlorine-gas-on-militants/>

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The Daily Star – Beirut, Lebanon

Iranians Back Nuclear Deal but Reject Tough Demands: Poll

Agence France-Presse (AFP)

September 18, 2014

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WASHINGTON/TEHRAN: As Iran and world powers prepare to resume nuclear talks, a new poll Wednesday revealed most Iranians back a deal but consider unacceptable some of the toughest demands to rein in their atomic program.

About 94 percent of Iranians said their country needed a nuclear energy program and seven in 10 said that it was for peaceful purposes only.

While 79 percent of those surveyed said they would back a deal that included Iranian assurances never to produce an atomic bomb, a large majority said demands such as dismantling half of Iran's centrifuges and limiting nuclear research would be unacceptable.

The poll carried out by the University of Tehran Center for Public Opinion Research and the Center for International and Security Studies at Maryland interviewed 1,037 Iranians by telephone between July 11 and 17.

"While the Iranian public is ready to accept taking some confidence-building steps, there are obviously some clear limits," said Ebrahim Mohseni, a senior analyst at the University of Tehran.

Iranian President Hassan Rouhani "is likely to face a political backlash if he goes farther than the public is ready to support," he warned.

The five permanent members of the U.N. Security Council plus Germany return to the negotiating table Thursday with Iran in New York, seeking to scale back its nuclear activities to ensure it cannot make a swift dash to produce a bomb.

In return Tehran, which denies seeking nuclear weapons, wants U.N. and Western sanctions lifted, and is pushing for the right to enrich uranium, a process which can produce material for a bomb.

The poll also revealed deep Iranian skepticism that the West would keep promises to lift the U.S.-led sanctions on Iran, which have crippled its economy.

Three-quarters of those surveyed said they believed the U.S. would find another excuse to impose sanctions, fearing the U.S. is out to dominate Iran or block its development.

The office of Iran's supreme leader published a series of graphics highlighting how little he believes the country has gained from dialogue with Washington.

The graphics posted on Ayatollah Ali Khamenei's official website include a cartoon of U.S. Secretary of State John Kerry standing and pounding the negotiating table flanked by aides.

"The military option is still on the table if Tehran wants to relaunch its uranium enrichment program," the cartoon Kerry thunders.

"Dialogue with the Americans has not reduced their animosity and has not been useful," the graphic complains, quoting Khamenei's words in an Aug. 13 speech.

"The Americans' tone has become tougher and more insulting."

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Khamenei's office did stress he had authorized the continuation of nuclear talks with major powers that are to resume in New York Thursday, despite his misgivings about the lack of benefits from the dialogue with the United States.

<http://www.dailystar.com.lb/News/Middle-East/2014/Sep-18/271074-iranians-back-nuclear-deal-but-reject-tough-demands-poll.ashx#axzz3DhtKtlr3>

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Business Insider.com – New York, NY

Obama Not Due to Meet Iran's Rouhani, but Open to it: U.S. Official

Reuters

September 18, 2014

NEW YORK (Reuters) - U.S. President Barack Obama is not scheduled to meet Iranian President Hassan Rouhani in New York during the United Nations General Assembly next week, but Obama is well known to be open to such a meeting, a senior U.S. official said on Thursday.

U.S. Secretary of State John Kerry is likely to hold bilateral talks with Iranian Foreign Minister Mohammad Javad on the sidelines of the U.N. General Assembly, said the senior official, speaking on condition of anonymity.

The official said threats of retaliation by Iran if there was no nuclear deal to end sanctions were not productive. Iran and the United States, Britain, Germany, France, Russia and China resume talks in New York this week in a bid to secure a long-term deal to curb Tehran's nuclear program.

Reporting by Louis Charbonneau and Parisa Hafezi; Writing by Michelle Nichols and Lisa Shumaker

<http://www.businessinsider.com/r-obama-not-due-to-meet-irans-rouhani-but-open-to-it-us-official-2014-9>

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RIA Novosti – Russian Information Agency

Arak Reactor Remains Issue of Concern at Iran, P5+1 Nuclear Talks: Russia

19 September 2014

NEW York, September 19 (RIA Novosti) – Future of the Arak heavy water nuclear reactor remains one of the main obstacles at talks between P5+1 (China, France, Germany, Russia, the United Kingdom and the United States) and Tehran on Iranian nuclear program, Russian Deputy Foreign Minister Sergei Ryabkov told RIA Novosti Thursday.

“The issue of the Arak reactor is among the main stumbling blocks,” the diplomat said ahead of the coordinating meeting of the sextet of international mediators in New York.

<http://en.ria.ru/world/20140919/193069945/Arak-Reactor-Remains-Issue-of-Concern-at-Iran-P51-Nuclear-Talks.html>

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Hindustan Times – New Delhi, India

India to Deploy Defence against Ballistic Missiles by 2016, says DRDO Chief

By Rahul Singh, *Hindustan Times*

September 16, 2014

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New Delhi -- India is hurrying up the deployment of an advanced missile defence system to stave off threats from ballistic missiles at a time China's arsenal is growing in sophistication and numbers.

Pursuing its ballistic missile defence (BMD) programme aggressively, the country will carry out at least eight more tests to knock out incoming missiles before the capability is ready for deployment by the end of 2016, Defence Research and Development Organisation (DRDO) chief Avinash Chander told HT.

The upcoming trials include five endo-atmospheric and three exo-atmospheric tests to destroy hostile missiles within and outside the earth's atmosphere. The DRDO claims that the integration of the two intercept systems would result in a hit-to-kill probability of 99.8%.

The DRDO has so far carried out nine BMD tests, including a failed one to intercept a ballistic missile at an altitude of 120 km in April. Past tests have been successful at ranges of 80 km. India began working on its BMD programme 15 years ago.

With several missile projects in its kitty, the DRDO has stepped up efforts to set up missile testing ranges in Andhra Pradesh and Andaman and Nicobar Islands along the lines of the one at Balasore.

"Some environmental clearances are awaited. We need more ranges as the scope of missile work has gone up. By 2020, we hope to emerge as a one-stop shop for all types of missiles," the DRDO chief said. Currently, India has a solitary missile testing range compared to China's seven.

<http://www.hindustantimes.com/india-news/india-to-deploy-defence-against-ballistic-missiles-by-2016-says-drdo-chief/article1-1264698.aspx>

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CNN.com – Atlanta, GA

Ebola in the Air? A Nightmare that Could Happen

By Elizabeth Cohen, Senior Medical Correspondent

Friday, September 12, 2014

(CNN) -- Today, the Ebola virus spreads only through direct contact with bodily fluids, such as blood and vomit. But some of the nation's top infectious disease experts worry that this deadly virus could mutate and be transmitted just by a cough or a sneeze.

"It's the single greatest concern I've ever had in my 40-year public health career," said Dr. Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota. "I can't imagine anything in my career -- and this includes HIV -- that would be more devastating to the world than a respiratory transmissible Ebola virus."

Osterholm and other experts couldn't think of another virus that has made the transition from non-airborne to airborne in humans. They say the chances are relatively small that Ebola will make that jump. But as the virus spreads, they warned, the likelihood increases.

Every time a new person gets Ebola, the virus gets another chance to mutate and develop new capabilities. Osterholm calls it "genetic roulette."

As of Friday, there have been 4,784 cases of Ebola, with 2,400 deaths, according to the World Health Organization, which says the virus is spreading at a much faster rate now than it was earlier in the outbreak.

Ebola is an RNA virus, which means every time it copies itself, it makes one or two mutations. Many of those mutations mean nothing, but some of them might be able to change the way the virus behaves inside the human body.

"Imagine every time you copy an essay, you change a word or two. Eventually, it's going to change the meaning of the essay," said Dr. C.J. Peters, one of the heroes featured in "The Hot Zone."

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That book chronicles the 1989 outbreak of Ebola Reston, which was transmitted among monkeys by breathing. In 2012, Canadian researchers found that Ebola Zaire, which is involved in the current outbreak, was passed from pigs to monkeys in the air.

Dr. James Le Duc, the director of the Galveston National Laboratory at the University of Texas, said the problem is that no one is keeping track of the mutations happening across West Africa, so no one really knows what the virus has become.

One group of researchers looked at how Ebola changed over a short period of time in just one area in Sierra Leone early on in the outbreak, before it was spreading as fast as it is now. They found more than 300 genetic changes in the virus.

"It's frightening to look at how much this virus mutated within just three weeks," said Dr. Pardis Sabeti, an associate professor at Harvard and senior associate member of the Broad Institute, where the research was done.

Even without becoming airborne, the virus has overwhelmed efforts to stop it.

The group Doctors Without Borders says Monrovia, Liberia, needs 1,000 beds for Ebola patients but has only 240, and it has had to turn patients away, sending them back to neighborhoods where they could infect more people.

This week, a Pentagon spokesman said the United States is sending a 25-bed field hospital to Monrovia.

"A 25-bed hospital with nobody to staff it? That's not the scale we need to be thinking about," Le Duc said. "It's an absolute embarrassment. When there was a typhoon in the Philippines, the Navy was there in 48 hours and had billions of dollars in resources."

Osterholm commended groups like Doctors Without Borders but said uncoordinated efforts by individual organizations are no match for Ebola spreading swiftly through urban areas.

"This is largely dysfunctional. Nobody's in command, and nobody's in charge," he said. "It's like not having air traffic control at an airport. The planes would just crash into each other."

http://www.cnn.com/2014/09/12/health/ebola-airborne/index.html?hpt=hp_t4

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The Washington Post – Washington, D.C.

Eight Dead in Attack on Ebola Team in Guinea. 'Killed in Cold Blood.'

By Abby Phillip

September 18, 2014

The bodies of eight people, including several health workers and three journalists, have been found days after they were attacked while distributing information about Ebola in a Guinean village near the city of Nzerekore, according to Reuters.

"The eight bodies were found in the village latrine," Albert Damantang Camara, a spokesman for Guinea's government, told Reuters on Thursday. "Three of them had their throats slit."

When the delegation arrived on Tuesday to do disinfection work and educate people about preventing Ebola, angry and fearful residents began throwing rocks and beating people in the group with clubs according to the Los Angeles Times, which cited Guinean radio reports. The delegation, which included one local politician, fled into the bush to escape the attackers.

One journalist who managed to escape told reporters that she could hear the people looking for her while she hid, according to the BBC.

On Thursday, the bodies were found in the septic tank of a primary school in the village, according to Camara. They had been "killed in cold blood by the villagers," he added, according to the BBC.

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Throughout this epidemic, public health officials have battled widespread fear and even doubts that the virus exists at all. The deadly attack illustrates the danger that health workers face as they try to spread information about the virus in an effort to control the deadliest Ebola outbreak in history.

The attack occurred in an area near where riots broke out last month because people feared that workers disinfecting a market were contaminating people, according to the BBC.

Guinean radio reported that the attack came after the group tried to spray disinfectant to prevent the virus from spreading in public places, the LA Times reported.

Earlier, the governor of Nzerekore told the BBC that he believed the group was being held captive. A government delegation had been sent to the Wome (Wamey) village but was unable to gain access because the main bridge leading to the town was destroyed to prevent authorities from reaching it, the BBC reported.

The Ebola outbreak in West Africa began in a Guinea border town, Guéckédou, which is near where Tuesday's attack occurred. The spread of the virus in the country has not accelerated as quickly as it has in other affected countries, particularly Liberia.

But 33 percent of the cases in Guinea have been reported in the last three weeks, signaling that the outbreak is far from under control. According to the World Health Organization, at least 2,622 people have died and 5,335 have been infected in Guinea, Liberia, Sierra Leone, Nigeria and Senegal.

<http://www.washingtonpost.com/news/to-your-health/wp/2014/09/18/missing-health-workers-in-guinea-were-educating-villagers-about-ebola-when-they-were-attacked/>

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The National Interest.org – U.S.
OPINION/Feature

China's Mighty Missile Threat: What Should America Do about It?

Here's one thought: Don't break the INF Treaty.

By Matthew Hallex

September 13, 2014

China's land-based ballistic and cruise missiles are a serious threat to the ability of the United States and its allies to operate in the western Pacific. The terms of the Intermediate Nuclear Forces (INF) Treaty ban the United States and Russia from deploying similar systems. However, the suggestion that the United States seek to abrogate or modify the treaty in order to develop land-based intermediate range missiles ignores asymmetries in strategic geography that make ground-based intermediate range ballistic missiles (IRBMs) and ground-launched cruise missiles (GLCMs) unsuitable weapons for the U.S. in its competition with China. Furthermore, despite claims that IRBMs would be the "cheapest and most straightforward method of maintaining deterrence," they would fail to exploit comparative U.S. military advantages that impose greater costs in the strategic competition between China and the United States. Rather than embark upon the acquisition of a new class of missiles – a technically complex acquisition effort that is unlikely to be either cheap or straightforward – the U.S. should make additional investments into submarine-launched missiles and long-range strike systems.

The geography of the Asia-Pacific provides few suitable options for the forward deployment of U.S. missiles. New U.S. weapons with ranges similar to those of the Pershing II ballistic missile or the cruise missiles that the U.S. gave up in the INF would have to be deployed on allied territory within the First Island Chain. Even a new weapon at the 5500-kilometer maximum range of the INF would only open up a small number of new base areas including Guam and the northern reaches of Australia. Most of the suitable locations already host U.S. military facilities and all are within range of China's own missile systems. Fixed missile bases on Okinawa, Guam, or in Japan would be just as vulnerable to Chinese attack as current U.S. airbases in the region. Further concentrating U.S. military power in vulnerable forward bases would do more to incentivize a Chinese first strike against U.S. forces during a crisis than it would to enhance U.S. deterrent or strike capabilities.

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Mobile missiles are unlikely to be the solution to the vulnerability of U.S. forward bases as small islands are not suited for mobile operations. Okinawa and Guam are too small and crowded to offer dispersed operating areas for an operationally relevant number of mobile missiles. The human and physical geography of both the Japanese home islands and the Philippines would also constrain the availability of dispersal areas. Even if sufficient dispersal areas could be found, mobile missiles still require fixed sustainment infrastructure, which China would likely target in the opening stages of a conflict. While a single salvo may have been sufficient for the intermediate-range nuclear forces the U.S. deployed before the INF, conventional missiles would likely need to provide sustained striking power in order to justify the costs of developing and deploying a new missile system.

Instead of deepening the vulnerability to Chinese missile attack by deploying additional forward forces, the United States should focus on its long-standing comparative advantages and make additional investments in submarine launched missiles and long-range strike capabilities. These forces would not necessitate modification or abrogation of the INF and would present a number of strategic advantages to the United States. Forward operating U.S. submarines would not be vulnerable to missile attack and long-range strike aircraft could operate from bases well outside the range of all but the longest-range Chinese missiles.

The U.S. could enhance the striking power of its current forces by investing in improved long-range standoff weapons. Extended range air- and submarine-launched cruise missiles could strike targets deep within China, not just in the coastal provinces. Longer-range air-launched missiles would keep non-stealthy bombers like the B-52 militarily relevant, extend the useful lifetime of stealth aircraft in the face of increasing counterstealth threats, and could even allow the U.S. to invest in cheaper, non-stealthy aircraft to meet future needs. While surface ships carrying longer-range cruise missiles would be more vulnerable to attack than submarines, they would be more mobile than missiles confined to small island bases.

These systems also impose costs on China. Submarine launched missiles could force China to develop expensive anti-submarine warfare capabilities as well as invest in defenses against the missiles themselves. Both of these capabilities are complex and expensive and take a long time to develop the systems, tactics, and skills to accomplish. Both submarine and air-launched missiles could also launch from a far larger area of the Western Pacific than missiles confined to small island bases, forcing China to deploy sensors against a larger number of threat azimuths and to deploy forces to conduct anti-submarine patrols over large expanses of the Pacific.

INF-class weapons offer few political benefits to the United States. A U.S.-initiated abrogation or modification of the INF could undermine the ability of the United States to make arms control or non-proliferation gains in other areas of the globe. Should it be necessary to deploy land-based missiles to allied territory, which seems unlikely as the U.S. already deploys significant forces to protect allies in Asia, shorter-range anti-ship missiles that would not violate the INF would be a less expensive and potentially more useful alternative. A recent RAND study concludes that 200-nautical mile range missiles deployed in the First Island Chain in Japan, the Philippines, and Indonesia would be sufficient to prevent PLAN forces from breaking out into the wider Indo-Pacific.

Changes to the INF are not necessary to influence Russian behavior simply because Russia already pays little heed to the strictures of the treaty. Russia is likely to deploy the first RS-26 missiles, which are essentially IRBMs that comply with the letter but not the spirit of the INF, to Irkutsk, possibly to threaten China. While modifying the INF would allow Russia to avoid the additional costs of acquiring missiles that are technically ICBMs to perform intermediate range missions, the benefits of widening this loophole are likely to be marginal.

The illusory benefits of deploying intermediate range weapons in the Western Pacific should not figure into U.S. decision making about the future of the INF treaty. IRBMs or GLCMs would do little to enhance U.S. striking power or deterrent capabilities in the region due to their vulnerability to attack and failure to impose strategic costs on China. Concerns that the United States has made insufficient investments into bombers and submarines should be addressed directly by making greater investments into bombers and submarines and into weapons that will ensure the effectiveness of legacy platforms and not by modifying treaties to allow for acquiring new, costly, and vulnerable weapons systems.

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<http://nationalinterest.org/feature/chinas-mighty-missile-threat-what-should-america-do-about-it-11271?page=show>

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Eurasia Review.com – Albany, OR

OPINION/Op-Ed

India's Hostile BMD Program and Pakistan's Security Option – OpEd

By Hassan Sohail

September 13, 2014

India's BMD capability has evolved after many years of clandestine research and development. Since July 1983, Indian scientists have been engaged in fusing the foreign and domestic research and components for the development of the Theatre Missile Defence (TMD).

India's other preference for augmenting its TMD potential is to buy these missiles from the friendly states. The Russian Federation and Israel have signed agreements with India, under which India has been receiving TMD components and technology from these states. The U.S has been forging a new strategic partnership with India, in order to contain its future adversaries in Asia. Therefore, instead of opposing India's missile build-up, the U.S is supporting it.

Earlier this year, The Hindu reported V.K. Saraswat claiming that incoming ballistic missiles with a range of 2000km could be destroyed with the shield and this capability would be enhanced to meet missiles with a range of 5000km by 2016.

The Indian Defence Research and Development Organisation (DRDO) is developing a two-tier Ballistic Missile Defence (BMD) system that provides a multi-layered shield against ballistic missile attacks. The BMD system consists of a Prithvi Air Defence (PAD) missile and an Advanced Air Defence (AAD) Missile for high and low altitude interception. The PAD intercepts missiles at altitudes between 50km-80km and the AAD missile destroys them at altitudes of 15km-30km.

India has also shown interest in the Israeli Arrow ballistic missile defence system. Indo-Israeli relations improved considerably in the 1990s. Israel assumed the role of becoming the second biggest seller of weapons to India after Russia. However, India has acquired a number of weapons systems from Israel.

The Arrow missile system was jointly developed by Israel and the US. Arrow 2, an advanced version of Arrow, is designed to intercept short and medium-range ballistic missiles, and can detect and track up to 14 missiles simultaneously at distances as far a 500 km away.

With an Indian BMD system, Pakistan would be forced to respond in some way in order to ensure the integrity of its nuclear deterrent. Although it is difficult to gauge Pakistan's response, it would depend on the type, size and shape of an Indian BMD.

There are a number of options that Pakistan could possibly pursue. Pakistan could either go for its own defence systems or build up its offensive forces to overwhelm India's defences.

Pakistan's ability to produce its own missile defence systems is extremely limited both from technological point of view as well as from an economic one. A less costly and more effective option for Pakistan could be a qualitative and quantitative improvement in its nuclear and missile forces and its strategy.

The simplest solution for Pakistan would be to go for a larger number of nuclear warheads and delivery systems, especially ballistic missiles. This would entail an increase in the number of missiles both Multiple Independently Targetable Re-entry Vehicles (MIRV-ed) and single warheads. Pakistan would also have to increase its fissile material production in order to have more warheads.

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The purpose of the numbers approach would be to saturate Indian defences. This would mean, for example, if India has the capability to intercept twenty-five missiles, Pakistan should have thirty.

Another option for Pakistan could be deployment. This could entail maintaining assembled form of missiles to reduce the reaction time. This could be taken a step further to the level of actually deploying the assembled missiles tipped with nuclear warheads. Pakistan can also go for a triad of nuclear forces. At present, Pakistan has land- and air-based nuclear forces but no sea-based one.

In the short term, a mix of qualitative and quantitative improvements in Pakistan's offensive capabilities might be a more viable solution for Pakistan.

In the long term, Pakistan needs to acquire advance technologies, like perfecting cruise missile technology, reducing the conventional asymmetry between India and Pakistan, to neutralise the effects of Indian missile defence systems. Moreover, Pakistan can also pursue a diplomatic course by suggesting an ABM treaty between India and Pakistan, or by negotiating a zero missile regime between the two countries.

Hassan Sohail is a Research Fellow at the South Asian Strategic Stability Institute (SASSI), London, U.K.

<http://www.eurasiareview.com/13092014-indias-hostile-bmd-program-pakistans-security-option-oped/>

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The National Interest.org – U.S.

OPINION/Feature

If America Could Rebuild Its Nuclear-Weapons Force from Scratch...

"Start from zero, and add enough survivable nuclear weapons to destroy the regime of any nation that attacks us with nuclear arms."

By Tom Nichols

September 14, 2014

"If I were creating the world I wouldn't mess about with butterflies and daffodils. I would have started with *lasers*, eight o'clock, Day One."

So said the personification of Evil in Terry Gilliam's 1983 classic film, *Time Bandits*. If we were able to dismantle the entire defense establishment and bring it back one piece at a time with 2014's technology, what would it look like? In the case of the U.S. strategic nuclear deterrent, I would start with land-based intercontinental ballistic missiles buried in silos in North America.

This might seem an odd choice. Why choose such destabilizing weapons? After all, ICBMs are ill-suited for very much besides killing millions of people. They only have an offensive role; they cannot be meaningfully defended; they cannot be recalled once launched; their existence cannot be hidden; their flight times are terrifyingly short. Why not start with something with a little more flexibility?

History and the state of technology in the 1950s did in fact lead to a different conclusion at the time. Before the invention of long-range missiles, the United States and the Soviet Union created huge bomber forces over six decades ago. All of the vices of missiles are reflected – supposedly – in the virtues of bombers: they're slow, they can be recalled, they have human beings in them who can make real-time decisions, and they can be used for a broad array of missions. They are a perfect nuclear Swiss Army knife, suited for all kinds of missions.

That's exactly what makes them dangerous, however. They're tempting to policymakers who might want to use nuclear weapons while remaining in denial about the immense consequences of using nuclear weapons. If the goal is purely to deter the use of nuclear weapons against us, ICBMs (and their submarine launched little brothers, SLBMs) are adequate to the job. If the goal is to give the President all kinds of options for nuclear use – which I would seek to avoid – then by all means, buy more bombers. If the mission is purely deterrence, however, we have to rethink the accumulated decisions of a different time.

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The notion of going toe-to-toe with the Russkies in nuclear combat made at least some sense in the 1950s. During the Cold War, we expected to fight the Soviet Union in a protracted nuclear war with far smaller nuclear weapons than we have now. The whole thing was supposed to look like World War II, only bigger: conventional war in Europe, naval engagements on the seas in and around Eurasia, fighter jocks once again blasting each other out of the German skies. In the midst of that war, bombers would not only have discrete missions against enemy military targets and infrastructure, they could be used for signaling, warnings, and “intra-war” deterrence (as in, “my bombers are in the air, and you now have eight hours to back off”).

ICBMs appeared at the end of the 1950s and were institutionalized as the backbone of the American strategic deterrent by 1970. Once missile technology appeared, the only real question about missiles was whether to hide them underwater, or to bury some in holes while attaching others to aircraft. The Air Force won this bitter interservice dispute, and Admiral Arleigh Burke and the Navy lost in their bid for a “minimum deterrent” of a few hundred missiles at sea. (The Air Force, Burke later complained, was as “ruthless as the Communists” and used the same methods.)

In the end, America split the difference three ways: henceforth, we would have a “triad” of forces, whose goal was less to create options than it was to survive a total Soviet onslaught with enough bombs left to reduce the USSR to ash. So why not just replicate this structure today? After all, that’s what we keep doing anyway. Every revision of our nuclear policies only ends up producing a Mini-Me of our previous force structures. We still have land, sea, and air based weapons, just in smaller numbers and tighter configurations. And it must have worked, since we’re all still here. Right?

Maybe. But the conditions that created the nuclear force of 1964 are not the conditions of 2014. If we’re serious about establishing nuclear weapons solely as a deterrent against nuclear attack on the U.S. or its closest allies, then we have to structure our forces *so they can do nothing else but retaliate for such an attack*.

ICBMs are the perfect retaliatory weapons precisely because they cannot be hidden, defended, or tailored to tactical missions. Moreover, they have one essential quality that establishes their deterrent value: they are located in the United States of America. There is no way to attack those weapons, and to strip America of its retaliatory capability, without attacking the sovereign territory of the United States. Prospective enemies must be denied any hope of half-way measures against us: if they mean nuclear war, then they must decide upon nuclear war.

Nuclear exchanges on the high seas or plucky bomber pilots making their runs deep inside enemy territory only happen in Tom Clancy’s pulpy novels. During the Cold War, we thought hard about how to convince the Soviets that a conventional war – one we would certainly lose on the ground – would escalate to nuclear conflict. Today, America is the preeminent conventional power and will remain so for decades to come (assuming we decide to maintain those abilities). There is nothing that nuclear weapons can do for us, short of deterring nuclear use by others, which we cannot achieve with conventional arms.

This issue of nuclear “utility” is one we avoided during the Cold War in the name of deterrence. But sooner or later, we have to face two realities. First, the consequences of even a tiny nuclear exchange are more than any of us – and that includes Russia and China – are really willing to bear. Second, the use of even the smallest nuclear arms in crowded areas like Asia and the Middle East will inflict costs on our friends and allies that we, and they, will never accept.

So here’s what our new deterrent should look like.

America can defend itself with a small number of strategic nuclear arms, perhaps as low as two or three hundred. Scholars at the Air War College have pegged a number close to 300, which might even be high, but since we’re already at 1550 by treaty with Russia, there’s room to cut. Start with a base of 300 bombs, and keep a third of those on single-warhead missiles in North America. (ICBMs with one warhead would be useless as first-strike weapons and thus their mission of retaliation would be clearer.) Assume the enemy surprises us – these days, pretty much a ridiculous assumption, but always plan for the worst – and somehow manages to destroy two-thirds of them before we even know what’s happening. That leaves 25 land-based missiles landing on enemy cities and

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infrastructure, killing millions, inflicting almost unrecoverable damage, and raising the cost of war beyond any benefit gained by this notional attack.

And then there are the submarines.

If four U.S. nuclear submarines with 16 to 20 missiles (and one to three warheads on each missile) are on patrol at any given moment, that means that the 100 warheads of the land-based force will always be backed up by anywhere from 64 to 240 warheads. Even at the lowest number, with three out of four lost to enemy action, one submarine would still be left to level the enemy's capital and a dozen more cities. If that isn't a deterrent, nothing is.

This reboot would streamline our nuclear forces, simplify our overly-complex nuclear strategies, and save billions of dollars. Conventionally-armed bombers will always be crucial in picking up missions that require the heavy use of airpower. (Bombers aren't going away.) But *nuclear* bombers would be a "nice to have" not a "must-have," and before arming a single bomber with a nuclear bomb, someone would have to make a case based on strategy rather than tradition.

When I worked for the late John Heinz in 1991 when he was the senior senator from Pennsylvania, he voted against continuing funding for the B-2 strategic bomber. The B-2 advocates came to our offices, and made no better case for the nuclear mission of the B-2 other than to say: it's a cool weapon for fighting a long nuclear war with the Soviet Union...oh, and there are lot of subcontractors who need production to keep going. Heinz was undecided until the last minute, and then he went and voted. I was waiting for him outside the Senate chamber, and when came out, he said: "I did the conservative thing: I voted to save money."

Start from zero, and add enough survivable nuclear weapons to destroy the regime of any nation that attacks us with nuclear arms. Put all the exotic toys away, focus on that one mission, and America will do not only a conservative thing, but a sensible thing, by saving money and confirming that our nuclear weapons actually have a real reason for existing besides the science-fiction scenarios of nuclear warfighting.

Missiles and submarines, Day One, eight o'clock.

Tom Nichols is Professor of National Security Affairs at the Naval War College and an adjunct at the Harvard Extension School. His most recent book is *No Use: Nuclear Weapons and U.S. National Security* (University of Pennsylvania, 2014). The views expressed are his own.

<http://nationalinterest.org/feature/if-america-could-rebuild-its-nuclear-weapons-force-scratch-11272?page=show>

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Breaking Defense.com – Washington, D.C.

OPINION/Air, Intel & Cyber

B-2 Pilot's Lessons for LRSB, America's New Bomber

By Lt. Col. Jeff Schreiner

September 16, 2014

The Air Force very quietly released a Request for Proposal (RFP) this summer for the new Long Range Strike Bomber (LRS-B). With a purported fly away cost of \$550 million per aircraft — but with estimates up to \$810 million — the LRS-B will be one of the largest acquisition programs in history with broad strategic implications to the end of this century. Although I am not privy to the RFP, as a career stealth bomber pilot I believe the B-2 program can provide important lessons for this new program. Stealth technology is unique in many ways. We should learn from past struggles as we start at the ground floor of this new platform.

What should we do?

Resist research and development cost overruns: About 80 percent of stealth capability depends on the aircraft's shape and design. The real cost comes in chasing the last 20 percent with cutting edge materials and technology.

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The B-2 evolved over the years to make it more maintainable, but few improvements were made in its baseline stealth signature. A focus on getting the overall shape right coupled with a balanced approach to pushing the technological boundaries can help significantly to control costs.

Make it sustainable and maintainable: Closely related to materials and technology is overall sustainability. A 90 percent solution using easily maintained low observable materials creates a vastly better warfighting machine than an edge-of-the-envelope design that is difficult and expensive to maintain. The technical edge lost can be more than offset by good planning. To a stealth pilot, mission planning is life. I'd take a small hit on cutting edge technology if the tradeoff is a reliable low observable signature I can use consistently for planning. We need to resist the urge to make the new plane exquisite and focus on making it a reliable bombing platform that can fly for the next half century or longer.

Decide now on the nuclear mission: The Air Force currently plans to certify the LRS-B as nuclear capable at a later date. This is feasible given the current force structure, but the nuclear mission must play a central role in the aircraft's design from the start, as we've seen what happens when we slight this critical mission area. Build this aircraft as a true dual-role weapons system — don't try to just add the nuclear mission in later. At least 50 of the baseline 100 aircraft should be nuclear capable to pick up the mission as the B-52 finally heads off into the sunset around 2040. Making an aircraft survivable in the nuclear environment comes with significant costs, not just in dollars, but in terms of tradeoffs of hardware capability to ensure its ability to operate in adverse environments. Reengineering the jet at a later date will result in high costs across the board. When the aircraft actually gets certified for nuclear use is a question of policy. But building the right number with nuclear capability is the question that must be answered before LRS-B starts to come off the assembly line.

Shed the silver bullet mindset: Many people still think that stealth implies the ability to tackle missions alone and unafraid. In reality, stealth is designed for integrated operations and frequently requires support on multiple levels, from jamming platforms to escorts, depending on the threat scenario. Chasing on-board solutions for all possible tactical problems will drive design costs up and eventually lead to massive costs in subsequent updates down the road. The B-2 program provides many ready examples.

Build a bomber, not just a delivery platform: At some point, the LRS-B will become the nation's sole heavy bomber. It needs to be a robust bombing machine able to perform flexible and rapid retargeting via data link and onboard radar/targeting pod capability. Contemporary strike missions demand both moving target and maritime targeting solutions.

The B-2 has shown promise as a non-traditional ISR platform. The LRS-B could incorporate signal collection capability from the start. Any consideration for more crew-intensive ISR capabilities, like targeted imagery collection, should be carefully weighed against crew task load. Putting a full suite of Intelligence, Surveillance and Reconnaissance sensors on a deep strike platform represents an excellent capability, but it should not come at a cost to the primary mission. New weapons should be easy to integrate into open architecture software. Don't fall for the trap that precision weapons make bombing a simple exercise of driving to a release point. That works right up until the adversary figures out how to defeat or degrade the technology. That's when you need the pilots and the aircraft to finish the job.

Keep the pilots in the plane: The pilots are what turn the technological edge of stealth into a useful and operational weapon. We should scrap the idea that LRS-B might be capable of being flown without on-board crews; while unmanned platforms are important now and will be more important in the future, this is not the platform to lead that charge.

Unmanned versions of the LRS-B or the ability to control drone versions in a formation certainly has a technological allure. Either option would likely drive up overall cost, add to complexity of both the aircraft and required ground support, and perhaps push an already very busy crew task load to an unsustainable level.

An unmanned or drone variant would also face challenges with fuel. While we may eventually gain some capability for air refueling with unmanned platforms, receiving 100,000 pounds of gas multiple times under a variety of conditions could be insurmountable. I have shown up several times for a tanker late at night, in the weather, and

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low on gas; add in unforeseen changes to the rendezvous plan with some aircraft malfunctions and you will rapidly see why the pilots are needed for global strike missions.

The eventual nuclear mission of the LRS-B makes the feasibility of unmanned use even less palatable. Keep the LRS-B selectively manned with handpicked pilots from across the entire pilot corps of the Air Force. The greatest tactical strength of the B-2 program lies in the diverse pilot force that brings ideas from every community. Couple this with a robust Companion Trainer Program that would allow the bomber to be flown less, but still keep pilots proficient in the air at a fraction of the cost.

Don't forget the little things: Learn from the B-2. If future LRS-B pilots have to bring a lawn chair to sleep on for long duration sorties or make the wonderful choice of sleeping with their head next to the toilet or the hot air vent, that would be unfortunate. I'd be remiss in not calling for an integrated moving map with easy to use inflight replanning system. In all seriousness, if we are going to ask a crew of two pilots to fly 40-plus hour missions we need to think about the little things to keep them comfortable, alert, and alive! Bring in experienced weapons school instructors early in the design process; they will make the cockpit and interface right from the start.

The B-2 program has evolved with the hard work of dedicated leaders, maintainers, base support and pilots since joining the fight in the 1990s. Stealth works, but as it will eventually be the only game in town, the Air Force has to provide a reliable fleet that is ready to fight in large numbers at any time. Decades of experience are out there to help LRS-B become history's greatest bomber if policy makers and industry are ready to listen.

Lt. Col. Jeff Schreiner is a career B-2 pilot and Weapons School Instructor. He most recently commanded the 13th Bomb Squadron, the Grim Reapers, at Whiteman Air Force Base in Missouri. He is a National Defense Fellow at the Stimson Center in Washington. The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense, or the U.S. Government.

<http://breakingdefense.com/2014/09/b-2-pilots-lessons-for-lrsb-americas-new-bomber/>

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OPINION/Feature

How Should America Respond to China's Deadly Missile Arsenal?

Washington should consider modifying the INF treaty to permit the deployment of intermediate-range missiles in Asia while continuing to bar their deployment in Europe—despite the alternatives.

By Evan Braden Montgomery
September 19, 2014

How should the United States respond to Russian noncompliance with the Intermediate-Range Nuclear Forces (INF) Treaty? For more than twenty-five years, this landmark arms-control agreement has prevented both nations from fielding surface-to-surface ballistic and cruise missiles with ranges between 500 and 5500 kilometers, whether they carry conventional or nuclear warheads. In late July, the State Department publicly revealed what the press had been reporting for some time, namely that Russia has violated the treaty by testing a prohibited weapon.

Suspensions of Russian cheating, along with official confirmation of Moscow's transgression, have led to a flurry of articles outlining what the United States should or should not do in response. For instance, I have suggested that Washington consider modifying the treaty to permit the deployment of intermediate-range missiles in Asia, while continuing to bar their deployment in Europe. Unconstrained by INF, China has amassed a large arsenal of missiles that would be captured by the agreement if it were a signatory—missiles that pose a significant threat to U.S. theater bases and forward-operating forces in the Western Pacific. By pursuing similar weapons of its own, the United States could bolster conventional deterrence and enhance crisis stability. In a modern twist on the original "dual track" approach that characterized the deployment of intermediate-range missiles to Europe several decades ago, it might even gain leverage over China to negotiate limits on its offensive forces.

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In a recent article here at *TNI*, Matthew Hallex criticizes this argument. In his view, altering or abandoning the INF Treaty and developing missile forces that are currently proscribed by it would be a bad move for Washington. Not only would these weapons have little utility, but they could also come at the expense of capabilities with greater value.

Would the deployment of intermediate-range missiles help to prevent conflict? According to Hallex, these weapons could be destroyed easily if they were deployed in the first island chain, and therefore are more likely to tempt aggression than deter it. In fact, he argues that they would be just as vulnerable as U.S. aircraft stationed at theater bases in Okinawa. This is a curious claim, because one of the chief virtues of ground-based missiles is their survivability. For instance, even without the cover of active defenses, missile forces can be stored in hardened shelters or silos. Unless they are put in forward-operating locations with no protection at all, it is difficult to believe that they would be as vulnerable as aircraft on the ground, many of which are parked in the open or kept in fragile hangars.

Hallex also disputes the idea that mobility can contribute to survivability, because most potential operating locations in the region are small and crowded. Yet some islands, such as Kyushu and Luzon, are quite large, and although deployments there might seem implausible today, that might not always be the case. Moreover, it only takes minutes to break down and relocate a road-mobile launch platform after it releases its payload, and those minutes can make all the difference, even in relatively confined areas. It is worth noting that Japan has already deployed antiship missile launchers to some of its more remote Southwestern Islands during military exercises. As Toshi Yoshihara has written, these road-mobile platforms are ideal for sea denial, in part because they can “shoot and scoot.”

Intermediate-range missiles—whether they operate from fixed locations or rely on mobility to survive—are not a silver-bullet solution to China’s growing military power. But they can complicate its planning and impose significant costs. Destroying hardened storage facilities would likely require missiles armed with unitary, penetrating warheads, rather than the small submunitions that pose a major threat to unprotected aircraft. That means China would have to deplete more of its own intermediate-range missile inventory to degrade U.S. combat power. In addition, neutralizing mobile targets is extremely difficult, as the United States has discovered in the past. Holding them at risk could require persistent, wide-area surveillance systems; loitering strike platforms or standoff munitions that can be retargeted in flight; and the command-and-control infrastructure to rapidly transmit information between sensors and shooters. Any and all of these capabilities would come with a large price tag. Confronting its own missile threat, China might also have to invest more in expensive defense countermeasures.

Rather than developing new missile forces, Hallex argues that the United States should double-down on undersea warfare and long-range strike. Indeed, these areas are incredibly valuable and should be priorities for U.S. defense investment. They do have their limitations, however.

Submarines, for example, are useful in contested environments because they are hard to detect. But they also have shallow weapons magazines, and this constraint will only be magnified as they are tasked with more and more missions. Bombers have many virtues as well, including the ability to operate from distant bases that are beyond the reach of most enemy air and missile forces. Yet they are few in number, especially penetrating bombers, and often rely on support assets that operate from vulnerable close-in bases, including refueling aircraft and electronic warfare platforms. In addition, while I agree with Hallex that both of these capabilities can impose costs on competitors, it is not clear why we should expect more cost-imposing “bang for the buck” from capabilities we already possess (and that China now takes into account) than capabilities we do not yet have (and that China does not currently need to defend against).

Finally, pitting ground-based missiles against other strike options represents a false choice, for two reasons. First, all of these capabilities are complementary. For example, the former could enhance the amount of combat power that the United States has in theater, while mitigating the opportunity costs that will arise as its dependence on undersea assets and long-range strike platforms continues to grow. Second, it is the Army—not the Navy or the Air Force—that is the natural candidate to acquire and operate any new ground-based missile forces.

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**USAF Center for Unconventional Weapons Studies
CUWS Outreach Journal**

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In the end, Russia's violation of INF raises complex questions about the fate of the treaty and the future of arms control. But it also creates an opportunity to reconsider the virtues of military capabilities that the United States abandoned long ago—capabilities that could have value once again.

Evan Braden Montgomery is a Senior Fellow at the Center for Strategic and Budgetary Assessments.

<http://nationalinterest.org/feature/china-has-lots-missiles-asia-time-america-respond-11312?page=show>

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ABOUT THE USAF CUWS

The USAF Counterproliferation Center was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University, while extending its reach far beyond - and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff Director for Nuclear and Counterproliferation (then AF/XON), now AF/A5XP) and Air War College Commandant established the initial manpower and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation .

The Secretary of Defense's Task Force on Nuclear Weapons Management released a report in 2008 that recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." As a result, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide continuing education through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the Counterproliferation Center in 2012, broadening its mandate to providing education and research to not just countering WMD but also nuclear deterrence.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards.

The CUWS's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation - counterforce, active defense, passive defense, and consequence management.

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