



USAF Center for Unconventional Weapons Studies

(CUWS) Outreach Journal

Issue No. 1129, 22 August 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 resources 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.

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FEATURE ITEM: *"Ensuring a Strong U.S. Defense for the Future"*. The National Defense Panel Review of the 2014 Quadrennial Defense Review; Co- Chairs: William J. Perry and John P. Abaza. Published by the United States Institute of Peace; 31 July 2014; 83 Pages.

http://www.usip.org/sites/default/files/Ensuring-a-Strong-U.S.-Defense-for-the-Future-NDP-Review-of-the-QDR_0.pdf

In this report, we examine in some detail the growing threats from different actors in different regions of the world, and note the challenges they present to calculating an appropriate mix of capabilities and force structure.

America's strategic weapons today play an essential role in deterring potential adversaries and reassuring U.S. allies and partners. We therefore are quite concerned about the aging of the suite of nuclear forces procured in the latter half of the Cold War. Some units of our nuclear force are approaching obsolescence, and, indeed, some modernization is already underway. But it is clear that modernizing the present force would be a substantial cost on top of the already costly increase in general purpose forces recommended in this report. Our panel did not have the time or scope to study the nuclear force modernization issue, but we understand its importance. Therefore we believe that the impending nuclear force modernization program be subjected to a thorough review, including the assumptions and requirements of strategic nuclear deterrence in the present era. We recommend that Congress form a commission to study the recapitalization of America's nuclear arsenal in hopes that it might be freed from the malign combination of neglect and political whiplash it has endured since the end of the Cold War in favor of a sustainable program plan.

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Nextgov.com – Washington, D.C.

Key Targeting Tech for Future U.S. Nuclear Missile Has Gone Unfunded

By Elaine M. Grossman

August 19, 2014

OMAHA, Neb. -- A lapse in funding is potentially delaying by two years the development of a new U.S. nuclear missile, according to budget documents provided to Congress and interviews with defense sources.

The little-noticed spending gap of \$28 million -- a minuscule fraction of the Defense Department's annual \$500 billion budget -- is for developing and testing new solid-state components seen as essential for guiding the future Ground-Based Strategic Deterrent missiles to their targets.

The Air Force intends to begin replacing today's 450 Minuteman 3 intercontinental ballistic missiles by 2030 with up to 420 of the so-called GBSD weapon systems.

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Some military insiders attribute to Air Force infighting the diversion of the \$28 million to other uses in fiscal 2014 -- and a service failure to request any such funds in fiscal 2015 -- that would have provided Air Force Research Laboratory-built hardware to three defense contractors for their further development.

Lacking the lab's government-furnished equipment -- which contractors Boeing, General Dynamics and Lockheed Martin have each requested -- none of the three firms is expected to invest its own funds to militarize commercial off-the-shelf solid-state guidance technology used widely today in aircraft and missile systems.

During a major Air Force study effort of what the new GBSD missile should be -- with options ranging from a simple Minuteman 3 look-alike to a brand new design -- the service settled on what it has called a "hybrid" concept. This recommendation emerging from the "analysis of alternatives" -- begun last year and completed in early July -- has been tentatively approved in recent meetings with Defense Secretary Chuck Hagel's office, *Nextgov* has learned.

A Mobile Option

The hybrid plan for the Minuteman 3 replacement would involve using some of today's missile features -- its basic design, communications systems and existing launch silos -- while replacing aging rocket motors and targeting-guidance systems.

While the Air Force awaits formal, written confirmation that its hybrid option can proceed, this missile design also would maintain a possibility for the GBSD weapons to be made mobile. The optional feature could allow the missiles to be removed from their silos and dispersed by rail or truck if a nuclear attack against the United States appeared imminent, increasing their ability to survive, officials said.

Several spoke on condition of not being named to offer candor in addressing sensitive nuclear-arms matters.

Yet one aspect of the high-level thumbs-up -- direction that the GBSD system should feature an uptick in accuracy compared to any of today's U.S. nuclear systems -- already appears to have jumped the rails.

Inclusion of the solid-state guidance system in the Minuteman 3 replacement would allow the United States to hit some of the toughest-to-destroy enemy targets by using just a single warhead rather than a barrage. This is a top-level but rarely discussed U.S. nuclear-weapons objective, supported by both Democratic and Republican administrations, dating back to a Reagan-era interest in precision targeting as a substitute for carpet bombing -- a trend that has emerged more publicly in conventional warfighting.

Today, in the event of a nuclear conflict, a U.S. president may want to go after heavily reinforced underground Russian military-command centers -- an example of high-priority facilities said to be on the Pentagon's top-secret target list. In such a case, warfighters here at the Omaha-based U.S. Strategic Command would have to lob multiple Minuteman 3 land-based missiles or Navy Trident D-5 submarine-based missiles to ensure the target's disabling or destruction.

Speaking to reporters last week at a command-sponsored symposium on nuclear deterrence (the military art of preventing the most undesirable violence from occurring) Adm. Cecil Haney avoided discussing any specific capabilities needed for the new Ground-Based Deterrent System.

As head of U.S. Strategic Command -- the top officer who would carry out any White House order to launch a nuclear weapon -- Haney did say how "absolutely" important it is that the GBSD missile meets his own warfighter requirements, and noted that simply sustaining today's Minuteman 3 capabilities into the future would not be sufficient.

The Air Force analysis of alternatives was "to make sure that we have the requirements we need now and into the future," he said. Augmenting the other two legs of the U.S. nuclear triad -- bomber aircraft and submarines -- the ground-based missile arsenal "really has an impact associated with our deterrence calculus and capabilities," he added.

Yet, some officials at the Air Force Systems Directorate based at Hill Air Force Base, Utah, have suggested as a possible alternative to the more accurate solid state guidance system required to meet longstanding warfighter

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targeting requirements the use instead of today's Minuteman mechanical guidance components in the future GBSD system.

Units based at Hill perform maintenance and repair on today's Minuteman 3 guidance units, giving officials there what some see as a parochial stake regarding which technology is selected for the future ICBM replacement missiles and their components, including the guidance systems.

Mixed Messages

Compared to the mechanical guidance instruments found in today's Minuteman 3 missiles, solid state offers longevity, meaning these systems would not have to be repaired anywhere near as often, Air Force briefings suggest. Today's Minuteman 3 guidance systems break down roughly every three years, whereas solid state units are expected to last approximately 20 years without requiring repair or replacement, according to Defense Department data.

Air Force officials and documents also suggest that because solid state inertial measurement units are ubiquitous in commercial aviation and a number of the Pentagon's conventionally armed missile systems, they offer significant cost advantages from the get-go. Even after being militarized for use on a nuclear missile, the solid state technology developed by the Air Force research lab is estimated at \$800,000 apiece, compared to a \$2.5 million unit cost for old-generation mechanical guidance systems used by today's Minuteman 3.

"Hill Air Force Base ought to be very concerned about the cost profile of . . . replacing the Minuteman 3," said Jeffrey Lewis, a nuclear-arms expert at the James Martin Center for Nonproliferation Studies in Monterey, Calif. "Anything they do that drives that cost up or delays the ability to start those programs I think imperils the whole ICBM force. There will come a point at which people will [say], 'This is really expensive and it's going to take a long time. Maybe we should just not do it and spend the money on the bomber instead.'"

Industry officials are receiving mixed messages from the Air Force about which direction it will take with the GBSD guidance system: proceeding with the stalled effort to begin sled testing in 2016 (had funding continued uninterrupted that testing would have begun last year), versus attempting to include the older Minuteman 3 targeting technology in its hybrid replacement.

Those attending a July 16 briefing by the ICBM System Directorate at Hill Air Force Base on the results of the Air Force analysis of alternatives were told an increase in accuracy would, in fact, be needed in the new GBSD system. To at least some in the business community, that seemed to imply that the solid state technology largely defunded in fiscal 2014 and 2015 would be key.

The Air Force declined a reporter's request for information presented at the "industry day" event. Although prospective defense contractors saw both secret and non-secret slides about how the Air Force anticipates proceeding with the Minuteman 3 replacement effort, "an unclassified version of the written briefing does not exist for release," Lt. Col. Jared Yarrington, who heads Air Force Global Strike Command's ICBM Requirements Division, told *Nextgov* in a written response to questions.

Despite the service's discussions of the analysis results with industry representatives last month, Yarrington said that pending formal approval of the document by Hagel's office, "all materials are pre-decisional and not releasable at this time."

<http://www.nextgov.com/defense/2014/08/key-targeting-tech-future-us-nuclear-missile-has-gone-unfunded/91790/>

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Portland Press Herald – Portland, Maine

Mixed Reviews on Proposed Missile Defense Site in Maine

Critics raised concerns about construction damaging the natural beauty.

The Associated Press

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August 16, 2014

FARMINGTON — Building a missile defense site in western Maine aimed at protecting the East Coast would mean upgrading some roads, building housing and a backup power plant, and scattering missile silos to accommodate hilly terrain, a defense official said.

The 55-foot-long interceptors would be taken from Bangor International Airport to the site using public roads, and road upgrades could be necessary for transport of 75-foot silos, officials said.

The Missile Defense Agency provided details of the proposal to local residents during a series of public hearings last week in Rangeley and Farmington. The agency is considering four possible locations for an interceptor site aimed at protecting the East Coast in response to a perceived threat from Iran.

If it's built in Maine, the missile interceptor base would encompass 600 to 800 acres of about 12,000 acres at the U.S. Navy's training site in Redington Township.

Not everyone was thrilled by the idea. Critics raised concerns about construction damaging the natural beauty. Others were concerned about the toxicity of missile fuel, the Sun Journal reported.

"It is a no brainer; totally inappropriate for this location," Bob Kimber of Temple said. "Why is that kind of money being spent on more defense when people are starving in the U.S.? Why are we continuing to start wars in this country?"

But Darryl Brown of Livermore Falls said the interceptor site is a great opportunity for the state to help in the nation's defense and to create jobs at the same time.

The site would start with 20 missiles, and eventually have 60. There would be no test-firing; missiles would only be fired in defense of the country, officials said.

Other sites under consideration for an interceptor site are Fort Drum in northern New York; Camp Ravenna Joint Military Training Center in Ohio; and Fort Custer CTC in Michigan.

The defense department is currently considering the environmental implications of the sites. Once the environmental study is put in draft form more than a year from now, there will be public review meetings for the 1,000- to 1,500-page document, said Eric Sorrells of the Missile Defense Agency.

The land-based interceptors would supplement Navy warships equipped with ballistic missile defense systems. Currently, the only land-based sites are at Alaska's Fort Greely and California's Vandenberg Air Force Base.

<http://www.pressherald.com/2014/08/16/mixed-reviews-on-proposed-missile-defense-site-in-maine/>

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Watertown Daily Times – Watertown, NY

Missile Site Considered for Fort Drum Could Employ 1,800

By GORDON BLOCK, *Times* Staff Writer

Wednesday, August 20, 2014

CARTHAGE — Residents got their first look Tuesday at what a potential missile defense site at Fort Drum could mean for the region: a facility costing as much as \$4 billion to build that would create as many as 1,800 permanent jobs.

The sprawling site, covering hundreds of acres along Route 3A, initially would contain 20 ground-based interceptors, with the ability to expand to 60 interceptors, designed to shoot down incoming enemy missiles. The Defense Department says the missiles would be for defensive purposes and would not contain warheads.



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The military has not decided whether a site is need on the East Coast to augment America's current missile defense locations at Fort Greely, Alaska, and Vandenberg Air Force Base, Calif. If such a facility is ultimately approved, however, Fort Drum is on the short list of sites to host it.

The economic impact on the north country would be substantial. The site would create 400 to 600 temporary construction jobs, and an estimated 1,200 to 1,800 permanent military, civilian and contractor jobs, according to Lt. Col. Chris W. Snipes, program manager for continental United States interceptor sites.

The public comments taken during Tuesday night's meeting will help shape the agency's environmental impact statement, a two-year process that is in its early stages.

"There is a lot to come," Col. Snipes said.

Nearly 100 people attended an open house-style meeting at Carthage High School to hear Fort Drum and Missile Defense Agency officials describe the project, from the size of the missiles, 55 feet long and 4.2 feet in diameter, weighing 22 to 27 tons, to the missile interceptor process, compared to firing a bullet at another bullet.

Two sites on existing government-owned land off Route 3A in the town of Wilna were mapped out for the complex.

One is 726.3 acres to the north of the state highway, with an potential 260.6-acre expansion area. A second site, to the south, is 367.9 acres in size, with a 257.7-acre expansion area that would require a section of Route 3A to be reconfigured.

Looking at a map, Kurt A. and Terry C. Neibacher of Carthage studied impacts to Route 3A, along with some hunting areas they enjoyed. Mr. Neibacher, who retired from the Army at Fort Drum, said he thought the potential missile complex could help the post's standing.

"For me, it's something else to keep Fort Drum here," he said.

Many echoed their support of the project.

John F. Gallagher, of Carthage, saw military value in such a placement, comparing it to missile defense resources in Israel.

"The missiles that worry me are the ones coming in," he said. "If you don't think it'll happen, you may be living in a hole."

Dan C. Nevills, a Wilna town councilman, said he was 75 percent in favor of the complex, because of its economic benefit, and 25 percent opposed due to fears of potential danger.

Col. Gary A. Rosenberg, the garrison commander at Fort Drum, said the main concerns for 10th Mountain Division leaders were potential impacts on training.

Starting from 10 parcels at Fort Drum under consideration, the list was whittled down to the two off Route 3A, he said.

"What's left suits their needs, and suits our needs," Col. Rosenberg said.

Asked about how a missile site could affect Army evaluations of Fort Drum's future, he said it could add another dimension to the post's offerings.

"On the surface it would seem to be a good thing," Col. Rosenberg said.

Other contenders for the missile site placement are Camp Ravenna Joint Military Training Center, Ohio; Naval Air Station Portsmouth SERE Training Area, Maine; and Fort Custer Training Center, Mich.

Having already held meetings regarding the Ohio and Maine sites, the Missile Defense Agency officials will hold a pair of hearings in Michigan next week.

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The agency is studying the possibility of an East Coast missile defense site following orders from Congress in the 2013 National Defense Authorization Act.

Public comment will be taken until Sept. 15.

<http://www.watertowndailytimes.com/article/20140820/NEWS03/140829948>

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RIA Novosti – Russian Information Agency

Russia, US to Discuss Agreement on Mid, Short-Range Missiles in September - Source

21 August 2014

MOSCOW, August 21 (RIA Novosti) - Russian and US experts will meet in September to discuss a bilateral agreement on mid- and short-range missiles, a source in the Russian Foreign Ministry told RIA Novosti Thursday.

“A meeting will be held on the expert level. This will be consultations on mutual concerns,” the source said in reference to the Intermediate-Range Nuclear Forces (INF) Treaty.

Washington earlier accused Moscow of “breaching its INF obligations of not testing, producing or developing cruise missiles with a range between 500 and 5,500 kilometers.” The Russian Foreign Ministry said the accusations are unfounded and that the United States has not released any evidence of Russia breaching the agreement.

The Russian authorities have expressed their own complaints about US compliance with the treaty in light of Washington’s plans to deploy Mark 41 Vertical Launching Systems to Poland and Romania.

Last week, Russian Defense Minister Sergei Shoigu and US Defense Secretary Chuck Hagel discussed the necessity of more meetings and open lines of communication on the treaty.

The INF Treaty was signed by the United States and the Soviet Union in 1987 to prevent the use of nuclear and conventional missiles with an intermediate range, defined as 500 to 5,000 kilometers (310 to 3,100 miles).

http://en.ria.ru/military_news/20140821/192212639/Russia-US-to-Discuss-Agreement-on-Mid-Short-Range-Missiles-in.html

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Defense One.com- Washington, D.C.

Top Six Strategic Threats to Worry About in Today’s Global Headlines

By Elaine M. Grossman

August 20, 2014

OMAHA, Neb. — What do hundreds of nuclear-weapons wonks discuss when cloistered for two hot August days in a windowless Midwest conference center? Turns out, it’s not just nuclear weapons. It’s about their deepest and well informed fears of how conflicts dominating today’s global headlines could translate into real life-altering events for Americans.

No one is ruling out the risk — even if remote — that a newly aggressive Russia or China might someday put a mushroom cloud over New York City. But the more urgent worries today are radical extremists who will stop at nothing, new nuclear powers stumbling into cataclysmic mistakes, and attacks in the cybersphere or space that might paralyze a nation.

The threats facing the United States and its allies now are “complex and dynamic, perhaps more so than at any time in our history,” Adm. Cecil Haney, commander of U.S. Strategic Command, told an annual symposium last week on “strategic deterrence.” That military term refers to the largely mysterious art of preventing the most

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undesirable violence from occurring. Historically, it essentially meant preventing nuclear war from the Soviet Union. But Haney is carrying the torch in a new era of strategic deterrence, one that tries to deter even an individual terrorist from acquiring radiological materials to make a “dirty bomb.” And the community is looking beyond singular, end-of-the-world nuclear events at a globe in constant conflict, from Gaza to the Internet and beyond.

“In some ways, we’re in a very different political environment...where conflict is the norm,” said James Lewis, senior fellow and director of the Strategic Technologies Program at the Center for Strategic and International Studies. “It’s going to be a world of continuing low-level conflict.”

Shai Feldman, who heads Middle East studies at Brandeis University, described an instant-classic letter to the editor published last August in London’s *Financial Times*, underscoring how the rapidly shifting alliances in that complex region boggle defense and diplomatic strategies around the planet. Particularly when groups like Hamas, Hezbollah and the Islamic State are involved. “Can deterrence work in a chaotic realm?” Feldman asked. “What do you do when you don’t have a single address for deterrence?”

The threats frowning the brows of government officials and top issue experts begin with terrorism.

For starters, conference-goers had more questions than answers about how Washington could deter radicals bent on large-scale violence who simply cannot be stopped. What to do about suicide bombers — potentially in larger numbers than seen to date — detonating at local cafes or setting off explosives at an inadequately guarded fertilizer-production plant down the road? Or violent extremists in Pakistan whose possible attempts to obtain a nuclear device might someday succeed, thanks perhaps to bribing a few disgruntled army troops with inside access?

“There could be two reasons people could be undeterrable: One is their objective or their willingness to die, and the other is that you just can’t get through to them,” said Robert Jervis, an international politics scholar at Columbia University. “But even [with] people who are willing to die, it doesn’t mean they’re necessarily undeterrable, because what we can ask is whether there are things they value that you can threaten and hold at risk. And often the answer to that can be yes, even if they themselves are willing to die for their cause.”

A second anxiety is that the newest members of the global nuclear-arms club run a higher risk of making catastrophic mistakes. “We face new classes of opponents,” Lewis said. “They have different risk tolerances.”

“North Korea, Iran, China and Russia — the countries we’re most likely to fight with, and now maybe you could add Syria to that list — how they think about they risk, how they think about benefit is very different from the stodgy old opponent” that Washington had in Moscow during the Cold War, he said.

“They have a lack of experience,” Lewis said. Iranian and North Korean officials, for example, “don’t have the long background of arms control, negotiating experience and military doctrine that the Soviet Union had. And that means it’s more likely that they’re going to miscalculate.”

A third worry in and of itself: North Korea’s Kim Jong-Un won’t be giving up his nation’s nuclear capacity anytime soon. Isolated North Koreans are indoctrinated to believe that the nation’s 31-year-old supreme leader descended from a “god,” his grandfather Kim Il-Sung.

“Non-nuclear, for the son of god, Kim Jong-Un, is completely unacceptable,” said retired U.S. Army Maj. Gen. John Macdonald, whose military career included a decade based along the Korean Peninsula’s demilitarized zone. “And that nuclear capability is so well hidden in the near 11,000 underground facilities that it’s near-impossible to take away from him.”

On the other hand, with Kim consolidating political and military power, in theory it could be easier dissuade North Korea from using its estimated handful of warheads for blackmail or detonation than to deter other nations with more complex or shared authority over the use of these deadly arms. “It’s one guy — how hard is that?” mused Macdonald. He rejected speculation that the little-understood Kim is “loony, he’s narcissistic, he’s bipolar.”

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“Not really,” said the general, now an independent consultant. He suggests instead that the young Kim — while “he makes Stalin look like a cream puff when dealing with his people” — has demonstrated strategic thinking on a range of issues, developed over months and years. “I think he’s crazy like a fox.”

Even if Kim clings to his nukes, Macdonald said, he could be open to a bid to move North Korea “toward a Chinese communist-capitalist model with outward rationality and a more open, market-based society.” In other words: A North Korea that poses less of a nuclear threat to the region and to the world.

A fourth notion on the tongues of conference-goers could be dubbed “Back to the Future”: The Cold War may be long over, but the globe’s most powerful nations remain today the ones to fear. Julian Miller, Britain’s deputy national security adviser for defense and nuclear matters, has had to think long and hard about the worst-case scenario facing the United Kingdom, as Washington’s closest ally has reduced its nuclear firepower to what it calls a “minimum and credible deterrent.”

By that yardstick, a Kremlin led by Vladimir Putin — whose venture into Ukraine has rattled the world, particularly those closest to Russia’s borders — is reason enough to maintain Britain’s fleet of four nuclear-armed submarines.

“Threats from large states with substantial resources and capabilities” have become the benchmark for London’s worries about worst-case scenarios, and U.K. responses to other potential threats can be tailored and scaled down accordingly, Miller said.

Some U.S. experts say Washington would do well to borrow a page from the Brits.

“I don’t see a need to retain [U.S.] nuclear weapons for the foreseeable future for any but peer or near-peer adversaries — Russia and to some extent China — because smaller adversaries probably can be adequately deterred by the overwhelming conventional military forces of the United States and its allies,” Hans Kristensen of the Federation of American Scientists said in an email exchange.

“But even the nuclear forces needed to deter Russian and China are significantly in excess of what is needed and can be reduced significantly without undermining deterrence and strategic stability,” he said.

For cyber attacks, only major powers — namely Russia and China — are serious offenders. Criminal and terrorist hackers play only bit parts. The seemingly boundless expansion in American dependence on the Internet for commerce and communications could make this Target No. 1 in any future U.S. conflict against a major power.

“The U.S. relies on space systems and cyber things more than adversaries,” said Jervis. “This is one of our Achilles’ heels.” What to do? The United States could build more resilience into its space and cyber networks, but this “is a little difficult,” he said, and the price tag is not yet known.

In the meantime, as a fifth strategic fret, space is getting to be a pretty dangerous place, where “rules of the road” just don’t exist. With a U.S. global economy that relies ever more on space — facilitating everything from the smart phone in your pocket to spy satellites overhead — what seems like today’s quality-of-life panacea could be tomorrow’s top security vulnerability.

“What will be the consequences if the space environment were to become unusable?” asked Frank Rose, the U.S. deputy assistant secretary of State for space and defense policy. More than 60 countries and non-governmental entities are space-faring today, but “all nations and peoples have seen a radical transformation in the way we live our daily lives and in our understanding of our planet and universe. ... Irresponsible acts in space by one entity can have damaging consequences for all.”

Last month, China conducted what the U.S. government has determined with “high confidence” to be an anti-satellite test, despite Beijing’s denials. Not much is known publicly about the July 23 interceptor launch, which did not result in any destruction and Chinese officials say was related instead to their ground-based missile-defense program. Obama administration spokesmen have declined to provide technical details.

The incident comes seven years after China’s 2007 “kinetic-kill” test against one of its own weather satellites that “created thousands of pieces of debris, which continue to present an ongoing danger to the space systems of all

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nations, including China [itself]," Rose said. He also noted public remarks by Russian leaders that their military has anti-satellite weapons and continues to research their use.

Michael Krepon, a co-founder of the Stimson Center, has long championed the idea of a global "code of conduct" spelling out acceptable activities in space aimed at preserving it as a peaceful domain. But with Krepon says Washington need not await other major powers before a global treaty moves forward.

"There are norms for nuclear weapons, there are norms for chemical and biological weapons, maybe there'll be some norms for cyber," he said. In space, "if there are no norms, there are no norm-breakers."

A sixth chilling thought pondered at the conference: What do we do after a nuke detonates somewhere around the globe? "The other guy uses a few," said M. Elaine Bunn, the deputy assistant defense secretary for nuclear and missile defense policy. "Then what?"

Thinking on the topic is in relatively nascent stages: How does the world prevent yet another weapon from being set off and bring an end to the crisis? And how to meet that tall order in a war zone contaminated by nuclear fallout?

One key challenge Washington policymakers face in advance of any such disaster — think Pakistan squaring off against India, its richer and more militarily capable rival next door— is "convincing nuclear-armed adversaries they cannot escalate their way out of failed conventional aggression," said Bunn. She called that "a big issue right now we're grappling with."

Yet an even bigger issue, according to some thinkers, is whether the United States should be tallying such lists of geopolitical and military worries to deter at all.

"America's national-security elites act on the assumption that every nook and cranny of the globe is of great strategic significance and that there are threats to U.S. interests everywhere," John Mearsheimer of the University of Chicago wrote in *The National Interest* earlier this year. "Not surprisingly, they live in a constant state of fear."

The effect — intended or otherwise — of broadening strategic deterrence to address myriad threats falling short of endangering U.S. vital interests, Mearsheimer argues, is that Washington is left with "no choice but to pursue an interventionist foreign policy. In other words, it must pursue a policy of global domination if it hopes to make the world safe for America."

<http://www.defenseone.com/threats/2014/08/top-six-strategic-threats-worry-about-todays-global-headlines/92000/>

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Want China Times – Taipei, Taiwan

PLA's JL-2 SLBM set to enter service in near future

Staff Reporter

August 16, 2014

The JL-2, China's second-generation submarine-launched ballistic missile, is set to enter service. China may develop its next generation with a range of at least 12,000 km in order to reach North America from the South China Sea, reports our Chinese-language sister paper Want Daily.

The PLA Navy's nuclear-powered Type 094 submarine was spotted patrolling with the missile, which has a range of around 8,000 km and can carry multiple warheads, at the beginning of this year. The Chinese military ended its decade-long research, development and trials for the missile at the end of 2012 and has been preparing to introduce it to its arsenal. State broadcaster CCTV recently aired a documentary on the missile's development process with video clips of its firing tests.

Photos posted by military enthusiasts show three Type 094 submarines, capable of launching the JL-2, in Sanya, Hainan province. A fourth of the class of submarine is said to be under construction.

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The missile's range still falls short of China's ideal target range however since the Type 094 submarines need a missile with a range over 12,000 km to strike North America from South China Sea. The Trident missiles that US Navy launched from submarines in June this year have a maximum range of 11,000 km and can carry 11 warheads.

<http://www.wantchinatimes.com/news-subclass-cnt.aspx?cid=1101&MainCatID=11&id=20140816000143>

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Defense News – Washington, D.C.

North Korea Threatens 'Merciless' Strike against US-South Korea Drill

By Agence France-Presse (AFP)

August 17, 2014

SEOUL, SOUTH KOREA — North Korea warned Sunday of a possible “merciless” pre-emptive strike as it blasted an upcoming joint US-South Korean military exercise as a rehearsal for nuclear war.

South Korea vowed to go ahead from Monday with the annual Ulchi Freedom Guardian drill, which is aimed at testing readiness to combat any North Korean invasion.

Although largely played out on computers, the exercise involves tens of thousands of South Korean and US troops.

In a statement carried Sunday by the official Korean Central News Agency, the North’s military accused Washington and Seoul of planning a “dangerous” rehearsal for nuclear war.

“We declare once again that we will mercilessly open the strongest ... pre-emptive strike of our own style any time at our discretion,” it said.

North Korean soldiers were ready to “turn the strongholds of aggression into a sea of fire and ashes,” the statement said.

“Our troops will strongly retaliate against any provocations from North Korea,” the South’s joint chiefs of staff warned in a statement.

Tensions have been high on the Korean Peninsula following an extended series of North Korean missile and rocket tests in recent months.

UN resolutions bar the North from any launches using ballistic missile technology.

The nuclear-armed communist country has defended the tests as a legitimate exercise in self-defense.

Seoul had proposed holding high-level talks with Pyongyang to discuss family reunions for those separated by the 1950-53 Korean War and other issues of “mutual interest.”

But there has been no official response from Pyongyang.

<http://www.defensenews.com/article/20140817/DEFREG03/308170011/North-Korea-Threatens-Merciless-Strike-Against-US-South-Korea-Drill>

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Want China Times – Taipei, Taiwan

China may Obtain Russia's Latest Air Missile System S400

Staff Reporter

August 18, 2014

Chinese military commentators said China may become the first foreign buyer of Russia's S400 surface-to-air missile system, which could help the country integrate its air defense and anti-missile systems, reports Chinese national broadcaster CCTV.

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The S400 system comes with powerful radar and has anti-jamming capabilities. It is able to create a multi-layer air defense structure with three guided missiles of different ranges as well as tracking hundreds of targets and attacking up to 36 of them at once.

The system could affect regional security if China bought the system and planted it within range of the disputed Diaoyutai island (Diaoyu or Senkaku), said Paul Schwartz, a researcher for the Center for Strategic & International Studies' Russian and Eurasia Program.

Negotiations between China and Russia over the system have been difficult since China has different needs for its air defense, said military commentator Du Wenlong. The system's operational height and range, the range of its radar and the number of targets the radar tracks will all need to be adjusted. Du said the sale will not be simple weapons trade but a technology transfer that could enhance China's air defense and anti-missile capability as a whole in the future.

Unlike the system's predecessor S300, S400 is compatible with weapons made by other countries and sports superior performance. The system can hit a target 10m to 60km above ground and intercept a ballistic missile from 30km away. Its life span has also greatly improved to 20 years.

With the S400 system and the existing surface-to-air guided missiles Hongqi-9, S300 and the advanced version of S300, China will be able to build an air defense system covering long, medium and short distances, said Du. The country will also be able to integrate the system with anti-guided missile systems. The chance of intercepting high-precision guided weapons such as guided missiles is likely to increase significantly in the future, also expanding the types of targets that China could intercept, said the commentator.

Song said America's Asia Pivot policy will be severely impacted if China obtains the S400 system. The S400 could cover the airspace over Taiwan and or even its eastern coasts and counter-attack US aircrafts coming from Guam and Okinawa if the system was deployed on the coastal regions of the East China Sea. Du said Russian experts reveal the system's sales to media deliberately in order to demonstrate it still has the ability to make the US uncomfortable.

<http://www.wantchinatimes.com/news-subclass-cnt.aspx?id=20140818000019&cid=1101&MainCatID=11>

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The Washington Free Beacon – Washington, D.C.

China Secretly Conducts Second Flight Test of New Ultra High-Speed Missile

Wu-14 hypersonic glide vehicle poses major strategic weapons threat

By Bill Gertz

August 19, 2014

China recently conducted the second flight test of a new, ultra-high-speed missile that is part of what analysts say is Beijing's global system of attack weapons capable of striking the United States with nuclear warheads.

The latest test of the new hypersonic glide vehicle (HGV) known as Wu-14 took place Aug. 7 at a missile facility in western China, said U.S. government officials familiar with details of the test reported in internal channels.

Pentagon spokesman Lt. Col. Jeffrey Pool said when asked about the test: "We routinely monitor foreign defense activities, however we don't comment on our intelligence or assessments of foreign weapons systems."

He added that the Pentagon has encouraged China to adopt greater "transparency" for its defense programs "to avoid miscalculation."

Pool confirmed the first test in January, but declined to provide a similar confirmation on the recent test. However, two other U.S. officials said the Aug. 7 test involved the Wu-14 HGV.

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The first flight test of the Wu-14 took place Jan. 9 and flew at speeds of around Mach 10, or 10 times the speed of sound—around 7,680 miles per hour. Hypersonic speeds pose severe guidance and control challenges for weapons engineers and produce extreme stress to metal and components.

The Chinese hypersonic test is further evidence of what is viewed in intelligence circles as an emerging hypersonic arms race. In addition to China, the United States, Russia and India are building high-technology hypersonic strategic arms. The weapons are sought for their hard-to-counter features and ability to defeat strategic missile defenses.

Disclosure of the latest weapons test comes as Secretary of State John Kerry, in a speech last week, called for closer cooperation with China. Tensions between Washington and Beijing have increased over aggressive Chinese maritime claims in Asia.

“We are committed to avoiding the trap of strategic rivalry and intent on forging a relationship in which we broaden our cooperation on common interests and constructively manage our differences and disagreements,” Kerry said during a speech Aug. 13 in Hawaii.

In China, state-run press outlets made no mention of the Aug. 7 test, but Chinese Internet reports revealed a possible Wu-14 launch was carried out as the upper stage of a missile on Aug. 7 from the Jiuquan satellite launch facility located in the far western Gobi Desert.

Reports and photos posted online indicated that the booster rocket used in the test crash landed in China’s Inner Mongolia autonomous region.

The booster crash is consistent with a hypersonic test, analysts said. Hypersonic glide vehicles travel in near space and thus the rocket that launched it may not have left the atmosphere, thus preventing it from burning up as would have occurred if it had reentered the atmosphere.

Photos posted on Chinese Internet sites and later removed showed debris from a booster that had Chinese characters painted on pieces indicating the rocket belonged to the China Aerospace Corp.—China’s main missile manufacturer.

The pro-Beijing Hong Kong newspaper *Oriental Daily* reported Aug. 11 that Chinese microbloggers identified the Inner Mongolia crash as a failed Wu-14 test, but the newspaper said the impact was most likely caused by debris from a falling rocket booster.

China military affairs analysts said the second test of the HGV relatively soon after the January test is a significant strategic threat and a sign China has placed a high priority on the new weapon.

“The decision to conduct a second Wu-14 test only a few months after its first test shows China’s commitment to fast-tracking this program,” said Lora Saalman, a specialist on China’s hypersonic development with the Carnegie Endowment.

“When compared with the yearly gaps in between its [anti-satellite] and [ballistic missile defense] tests in 2007, 2010, 2013, and 2014, the WU-14 accelerates China’s development timeline exponentially,” Saalman said in an email.

Rick Fisher, a senior fellow at the International Assessment and Strategy Center, said the second test portends two near-term threats.

“First would be a potential for early deployment of a maneuverable HGV warhead for theater-range and then intercontinental-range missiles,” Fisher said.

“Secondly, accelerated HGV testing could potentially allow China to develop a second generation anti-ship ballistic missile (ASBM) warhead that is more maneuverable and more difficult to counter.”

Saalman said China has produced thousands of papers and writings on hypersonics and boost-glide technology that “further support the idea that this is a priority” program.

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In a report published in April for the U.S. Pacific Command's think tank, Asia Pacific Center for Security Studies, Saalman stated the Wu-14 appears to be part of China's efforts to build a counterpart to the U.S. Prompt Global Strike initiative.

Prompt Global Strike (PGS) is a U.S. military program to develop weapons—mainly missiles—that can strike targets at any location on earth within 30 minutes using conventional warheads. China fears the system will be used to knock out its nuclear missiles on the ground in the early stages of a conflict.

The U.S. PGS capability is being designed for use against terrorists or nuclear and other mass destruction weapons that are identified by intelligence agencies and must be attacked quickly before the targets flee or are moved.

Saalman said the Wu-14 represents “a potential leap in global reach, if mounted on an intercontinental ballistic missile” and potentially “a conventional or nuclear form of Chinese prompt global strike.”

The Chinese regard the Wu-14 as a “sword” strike weapons that likely will be combined with missile defenses—a “shield.”

The first test in January took China's “regional weapons advances and thrust them onto the global stage,” she stated.

“This [January] test serves as a sign of China moving towards longer range, stronger retaliatory and potentially preemptive capability,” Saalman said, adding that the capability “could propel China from what has historically been a more reactive posture to a more active one.”

Fisher said for the United States, the options for responding to the new strategic weapon are stark. The Pentagon should accelerate investments in both deterrent and defensive capabilities, he said.

“The U.S. Navy should have a theater-range, HGV-ASBM to arm its [attack submarines],” Fisher said. “The Navy also requires funding for faster development of energy weapons to defend against China's looming HGV threat.”

Mark Stokes, a specialist on China's strategic weapons, said the test signals Beijing's priority for building hypersonic weapons.

“I don't think there's any debate that the PLA is investing in the development of hypersonic technology, including scramjet engines and at least one hypersonic glide vehicle,” Stokes said in an email.

Stokes said it is possible the recent test was carried out atop a medium-range or intermediate-range ballistic missile.

According to Stokes, many of China's missile engineering R&D tests and operational live-fire tests are carried out from Jiuquan, in Gansu province, where missiles are labeled “SC” for the Shuangchengzi missile range, another name for the missile test base. Other tests are conducted at the Taiyuan launch facility near Wuzhai, in Shanxi province further east, where developmental systems are labeled “Wu,” Stokes said.

China's Jiuquan launch facility took part in the January 2010 missile defense test involving a CSS-X-11 medium-range ballistic missile used as a target for the SC-19 missile defense interceptor.

Earlier this year, U.S. intelligence agencies assessed the Wu-14 appears linked to China's strategic nuclear weapons systems.

Lee Fuell, an analyst with the Air Force National Air and Space Intelligence Center, told a congressional hearing that the strike vehicle is “basically a ballistic missile-launched system that gets the payload fast and high, pitches over, dives to hypersonic speed, and then basically just glides to the target.”

“At this point, we think that's associated with their nuclear deterrent forces,” Fuell told the U.S.-China Economic and Security Review Commission on January 30. Fuell added: “Of great concern would be if they were to apply the same technology and capability with a conventional warhead or even just without a warhead because of the kinetic energy that it has.”

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The Pentagon, for its part, has conducted work on several hypersonic weapons platforms. They include the X-37B Space Plane, the Lockheed Hypersonic Technology Vehicle-2, and the Air Force's Force Application and Launch from Continental United States, known as FALCON. Boeing also has built an experimental hypersonic craft known as the X-51 WaveRider.

However, funding for U.S. hypersonic strike craft has been limited as a result of sharp Pentagon budget cuts under the Obama administration.

Russia's military also has made developing hypersonic strike vehicles a priority. But Moscow is believed to be trailing both China and the United States in the capability.

<http://freebeacon.com/national-security/china-secretly-conducts-second-flight-test-of-new-ultra-high-speed-missile/>

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Yonhap News Agency – Seoul, South Korea

Ex-U.S. Intelligence Chief Says N. Korea Has Nuclear Line in Sand

August 21, 2014

By Chang Jae-soon

WASHINGTON, Aug. 20 (Yonhap) -- North Korea will conduct a nuclear test and other provocations whenever it determines more tensions are necessary, but the regime cannot use an atomic bomb or start a war because it means the end of the country, a former U.S. intelligence chief said.

"If North Korea conducts a serious provocation, if it starts a war, it will be the end of the North Korean regime. If they use a nuclear weapon, the U.S. would retaliate with nuclear weapons and there would be no more North Korea," former Director of National Intelligence Dennis Blair said.

In an interview with Yonhap News Agency, Blair also said the North is well aware of such consequences, and that's why the regime has limited its provocations to "below the threshold" of starting a war, and took advantage of such provocations to gain concessions.

"They will play that game for as long as they can because it's been successful for them in the past. It's maintained their hold on power, it's kept the (Kim) family well supplied with a lot of individual wealth and so on," Blair said.

"We know they know through intelligence and defectors and other means that there's a limit to how far they can go because it will be the end of their country, the end of their regime. It will be the last Korean war," he said.

Blair, a retired admiral who also served as commander of the U.S. Pacific Command, said the North can carry out another nuclear test whenever it wants to "create a threat and create a crisis situation" in an attempt to extract concessions from the U.S. and South Korea.

"So, when they decide they want to create more tension ... they will pop up another nuclear test. It's not a technical question. It's a political question," he said.

North Korea has so far carried out three nuclear tests, in 2006, 2009 and last year. Earlier this year, brisk activity was detected at the North's Punggye-ri underground nuclear test site, sparking speculation that regime was close to a fourth test.

Six-party talks aimed at ending Pyongyang's nuclear program have been stalled since the last meeting in late 2008. The North has called for the resumption of negotiations, but Seoul and Washington demand the North first take concrete steps to demonstrate its denuclearization commitment.

That stance reflects deep skepticism the U.S. and the South have about North Korea, a country that has a track record of starting a crisis, coming to negotiations and reaching an agreement in exchange for economic and other concessions, before ditching the deal.

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Blair also expressed doubts about dialogue with North Korea.

"We've had so many dialogues with North Korea that we know exactly where those end. So, it's a ploy from North Korea," he said.

As a board member of the Sasakawa Peace Foundation USA, a U.S.-Japan relations think tank in Washington, Blair also offered advice on how to improve long-strained relations between South Korea and Japan.

"I think what is important for Koreans and Japanese is to face the facts of the past squarely and then to look to the future," he said, adding that Seoul "doesn't need to be dominated by its colonial past."

The U.S. can play a role in helping the two allies mend fences by organizing trilateral meetings that bring officials from the two countries together. Earlier this year, President Barack Obama hosted such a meeting for South Korean President Park Geun-hye and Japanese Prime Minister Shinzo Abe on the sidelines of a nuclear conference in The Hague.

Blair also called for a Seoul-Tokyo summit, but he said that such a meeting should take place on the basis of preparation that ensures that the summit advances the interests of both countries.

"There has to be some sort of understanding of what will come out of the summit meeting and I think that that's what Japan and South Korea have to work on," he said.

<http://english.yonhapnews.co.kr/national/2014/08/21/0301000000AEN20140821000200315.html>

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The Korea Herald – Seoul, South Korea

New N. Korean Launch Site near Completion: Think Tank

August 22, 2014

North Korea will be able to test longer-range rockets at its new launch site before the end of this year, a U.S. think tank has said.

A major construction program has been under way at the North's Sohae Satellite Launching Station since mid-2013, focused on upgrading facilities to handle larger, longer-range rockets with heavier payloads.

Satellite images taken this month indicate that several significant construction projects there are nearing completion despite heavy rain this summer, the U.S.-Korea institute at Johns Hopkins University said in a post dated Thursday.

"The effort underway since late last year — to upgrade the gantry tower and launch pad — that will enable the North Koreans to test space launch vehicles with greater ranges and carry larger payloads than the Unha rocket fired in 2012 should be finished by fall," it said.

"As a result, the North will be able to conduct new launches from this site before the end of the year should it decide to do so."

There is little doubt that North Korea has an active ballistic missile development program, but it remains unclear how much progress it has made.

Development of a working ICBM that could reach the continental United States would bring the North's regular nuclear strike warnings to a whole new level.

Last month, the same U.S. think-tank said North Korea might be wrapping up engine trials on an intercontinental ballistic missile, citing satellite images.

"If the engine tests are concluded, the next stage in development of the KN-08 road-mobile ICBM may be full-scale flight tests of the missile," it said.



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It stressed, however, that it was unclear just how successful the tests had been.

The KN-08 was first unveiled at a military parade in April 2012, but many analysts dismissed the models on show as mock-ups.

In December the same year, Pyongyang demonstrated its rocket capabilities by sending a satellite into orbit on a multistage launch vehicle.

But it has yet to conduct a test that would show it has mastered the reentry technology required for an effective ICBM. (AFP)

<http://www.koreaherald.com/view.php?ud=20140822000864>

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The Economic Times – Mumbai, India

China's Second Hypersonic Tests to Deliver Nuclear Weapons Fail

By Press Trust of India (PTI)

22 August 2014

BEIJING: China's military has conducted a second test, though an unsuccessful one, in its bid to develop a hypersonic vehicle to deliver nuclear weapons evading enemy's defence systems, a media report said today.

The test was held on August 7 at a missile and satellite launching facility in Shanxi province, about 300 kilometres from its capital Taiyuan, Hong Kong based South China Morning Post reported.

The vehicle broke up soon after its launch. It was the second time the People's Liberation Army has tested the system, the paper quoted two military sources as saying.

The first test took place on January 9, and it was confirmed by the National Defence Ministry as successful a few days later, the report said.

The latest model is designed to be carried by a ballistic missile to an undisclosed suborbital altitude, then released. The vehicle then dives towards its target at speeds of up to Mach 10, more than 12,000km/h.

The Pentagon has termed the Chinese vehicle WU-14. The United States is the only other nation known to have developed similar technology. Russia and India are also known to be developing similar vehicles, the report said.

The defence ministry in Beijing did not respond to requests for comment, it said.

Wang Xudong, a satellite adviser to the Chinese government, said: "It's a necessary for China to boost its missile capability because the PLA's weapons are weaker than the US' shields, which are deployed everywhere in the world".

Professor Arthur Ding Shu-fan, the secretary general of the Taipei-based Chinese Council of Advanced Policy Studies, said if Beijing successfully developed the vehicle, existing US missile defence systems might be rendered obsolete.

"The WU-14 will become China's global strike weapon that would cause a great threat and challenges to the US," he said.

A hypersonic expert told the daily in January that more than 100 teams from leading research institutes and universities were involved in the project.

"Developing [the vehicle] could definitely help China enhance its military deterrence, but Beijing will also stick to a no-first use nuclear doctrine," Beijing-based military expert Li Jie said.

<http://economictimes.indiatimes.com/news/international/world-news/chinas-second-hypersonic-tests-to-deliver-nuclear-weapons-fail/articleshow/40696565.cms>

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The Moscow Times – Moscow, Russia

Battle Robots to Guard Russian Missile Silos by 2020

The Moscow Times

August 18, 2014

Russia expects to deploy battle robots to protect intercontinental ballistic missile launch sites by 2020, Defense Ministry spokesman Dmitry Andreyev told journalists Monday.

Testing of the automatic weapons system is currently under way, and is set to wrap by year's end, Andreyev said in comments carried by Interfax.

Andreyev refrained from elaborating on the finer details of the battle robot, which he referred to as a "remote-controlled firing system."

But Russia's Strategic Missile Forces said in April — when the robots initially entered testing — that the silo protector weighs 900 kilograms, wields a 12.7-mm machine gun, can speed up to 45 kilometers per hour, fight for up to 10 hours and remain operational in standby mode for up to a week, according to Vesti.ru.

Russia will begin training its own military robot operators next year at the branch of the military forces' Peter the Great Academy in the city of Serpukhov outside Moscow, Andreyev said.

Deputy Prime Minister Dmitry Rogozin announced last March that Russia had begun developing a remote-controlled android with driving and shooting skills. He too shied away from disclosing details of the project.

<http://www.themoscowtimes.com/article/battle-robots-to-guard-russian-missile-silos-by-2020/505307.html>

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The Plymouth Herald – Plymouth, U.K.

Plymouth Nuclear Weapons Move Would Prompt "National Debate" on Trident

By SAM BLACKLEDGE, *Herald* reporter

August 18, 2014

MOVING nuclear submarines and missiles from Scotland to Plymouth would create a "national debate" about the future of the UK's Trident programme, according to a leading researcher.

Last week the Royal United Services Institute (RUSI) published a report stating that Devonport would be the most feasible alternative for the nuclear-powered ballistic missile submarines if Scotland votes for independence.

Malcolm Chalmers, who compiled the report, took part in a discussion on the Jeremy Vine Show on Radio 2 today.

Mr Vine asked Mr Chalmers whether the proposed move to Devonport would prompt the UK Government to reassess whether the country needed nuclear weapons at all.

Mr Chalmers said: "Basing Trident in the South West of England is inferior in all sorts of ways to basing it in Scotland and would require some additional costs and a lot of looking at safety cases.

"A lot of local people would not like suddenly the appearance of lots of Scots workers, never mind nuclear weapons on their territory, so it would provoke a national debate."

The RUSI report found that moving the submarines to Devonport and the weapons loading facility to an estuary near Falmouth would cost between £3bn and £4bn, less than had previously been estimated.



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"It is a very complex and difficult job, and we can't be sure sitting outside Government that it would be feasible, but we've based our cost estimate on how much it cost to build comparative facilities in the past," Mr Chalmers said. "The most difficult issues are around meeting the high safety measures rather than costs."

Mr Chalmers said he believes no decision would be made on whether to renew Trident until the UK Government knew where the submarines and missiles would be located.

Mr Vine said: "If Scotland votes for independence and a nuclear-free SNP takes power, you can't have, as the rest of the country, your nuclear weapons parked somewhere where they may not be allowed to be used."

Mr Chalmers said: "That is a very strong tension which would arise right at the start of those post yes vote negotiations on day one, along with the currency and other big issues on which clearly there is a fundamental disagreement."

Mr Chalmers said the issue of the future of Trident could be used as a "bargaining card" for the new Scottish government in the event of independence.

<http://www.plymouthherald.co.uk/Plymouth-nuclear-weapons-prompt-national-debate/story-22763147-detail/story.html>

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The Moscow Times – Moscow, Russia

Russian Army to Expand Nuclear Missile Forces

The Moscow Times

August 19, 2014

Russia's Strategic Missile Forces, or RVSN, the branch of the military that manages Russia's vast nuclear arsenal, will grow by 8,500 troops in line with the Kremlin's massive defense rearmament program, a military spokesman said Tuesday, ITAR-TASS reported.

"In connection with the rearmament of the RVSN with new missile systems, new positions [of troops] will be introduced to the RVSN for the second year in a row. By 2020, the number of troops will be increased by 8,500," RVSN spokesman Dmitry Andreyev said.

The RVSN's staff numbers are expected to reach 18,000 this year, according to earlier media reports.

The missile forces, like the navy and the army, is in the process of being overhauled through a 23 trillion ruble (\$650 billion) military modernization and rearmament program through 2020. The RVSN itself will see 98 percent of its equipment — much of which is comprised of aging Soviet-era ICBMs — replaced with newer models.

<http://www.themoscowtimes.com/business/article/russia-to-expand-nuclear-missile-forces/505410.html>

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ITAR-TASS News Agency – Moscow, Russia

Combat Vehicles Typhoon to Guard Missile Formations Rearmed with ICBMs Yars

Combat anti-sabotage vehicles Typhoon-M passed all tests in 2012

August 20, 2014

MOSCOW, August 20. /ITAR-TASS/. Combat anti-sabotage vehicles Typhoon will guard Russian Strategic Missile Forces' formations, rearmend with thermonuclear intercontinental ballistic missiles Yars.

These combat machines will be delivered to all reequipped missile units this year, spokesman for Russian Strategic Missile Forces Major Dmitry Andreyev told ITAR-TASS on Wednesday.

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“Combat anti-sabotage vehicles are unique as they are armed with unmanned aerial combat vehicles and can detect the enemy at a distance of up to five kilometres,” he said.

Strategic Missile Forces are improving their combat capability to fight terrorism and are keeping all existing Russian computerized security systems on combat alert.

Combat anti-sabotage vehicles Typhoon-M passed all tests in 2012. Their delivery to missile formations started in 2013.

<http://en.itar-tass.com/russia/745866>

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RIA Novosti – Russian Information Agency

Russian Aerospace Defense Forces to Launch 20 Missiles during Exercise

20 August 2014

ASHULUK, August 20 (RIA Novosti) – Russia’s Aerospace Defense Forces are practicing the repelling of a massive air missile strike as part of large-scale exercises at the Ashuluk testing range in southern Russia, involving surface-to-air missile systems field firing, Russian Defense Ministry spokesman Col. Igor Klimov told the press Wednesday.

“Today, S-300 (SA-21 Grumble) and S-400 Triumf (SA-21 Growler) surface-to-air missile systems will carry out around 20 rocket launches. Air defense missile units are to repel an aggressor’s massive air missile strike and destroy high-altitude, low-altitude and ballistic targets,” Klimov said.

He added that the drills simulate real combat conditions with the enemy using the entire range of airspace attacks.

Russia’s Defense Ministry earlier reported that the exercise would involve some 800 Airspace Defense Forces servicemen and over 200 pieces of hardware, including S-300 (SA-21 Grumble) and S-400 Triumf (SA-21 Growler) and Pantsir-S air defense systems.

Klimov also said that the drills involve six air defense and radio-technical regiments as well as Air and Missile Defense Command of the the Aerospace Defense Forces.

According to the Defense Ministry spokesman, almost all Air and Missile Defense Command staff are in Ashuluk, despite the ongoing celebration of the 60th anniversary of the establishment of Moscow’s Air Defense District. The commander of the Air and Ballistic Missile Defense Command Maj. Gen. Andrei Dyomin is in charge of the drills.

http://en.ria.ru/military_news/20140820/192171977/Russian-Aerospace-Defense-Forces-to-Launch-20-Missiles-During.html

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ITAR-TASS News Agency – Moscow, Russia

Russia to Get New Intercontinental Ballistic Missiles Path Control System

The system will determine the flight trajectory parameters of tested intercontinental ballistic missiles (ICBM)

August 20, 2014

MOSCOW, August 20. /ITAR-TASS/. A new trajectory measurement system for strategic missile launches is being created for Russia’s Strategic Missile Forces (RVSN), a Defense Ministry spokesman said on Wednesday.

“The advanced system, equipped with a new radar station, is to undergo tests at the Kapustin Yar firing range (Astrakhan region in southern Russia). It will work in the unified digital system of measuring data collection and



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take measurements along the whole missile flight trajectory, including in the areas that have no ground control and engineering facilities," the ministry spokesman for the RVSN Dmitry Andreyev told ITAR-TASS.

The system will determine the flight trajectory parameters of tested intercontinental ballistic missiles (ICBM).

At present, the Kama-N radar station and equipment that uses global satellite systems' signals take trajectory measurements at the range.

<http://en.itar-tass.com/russia/745811>

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ITAR-TASS News Agency – Moscow, Russia

First S-500 Missile Complex to be put on Combat Alert in Central Russia

Open military sources say the S-500 will be capable of tracking down and incapacitating simultaneously up to ten ballistic targets traveling at 7 kilometers per second

August 20, 2014

ASHULUK, August 20. /ITAR-TASS/. First combat package of the S-500 anti-aircraft and anti-ballistic missile system will shield Moscow City and the regions around it, traditionally referred to in this country as Central Russia, reporters were told Wednesday by the Commander of Air Defense and Anti-Missile Defense branch of Russia's Aerospace Defense Troops, Major General Adrei Demin.

"I'm sure that after the development and testing the first package of the S-500 system will be entered on the tables of equipment of the branch of our troops shielding Moscow and Central Russia," Gen Demin said after the trial tests held on the Ashuluk range in the southern Astrakhan region.

As it was reported earlier, deliveries of the S-500 packages to the Aerospace Troops are expected to begin in 2016.

Open military sources say the S-500 will be capable of tracking down and incapacitating simultaneously up to ten ballistic targets traveling at 7 kilometers per second and the warheads of hypersonic cruise missiles.

The S-500's are supposed to have the characteristics highly superior to those of Russia's S-400 Triumph missiles and their US competitor, the Patriot Advanced Capability 3 complex.

<http://en.itar-tass.com/russia/745920>

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FARS News Agency – Tehran, Iran

Sunday, August 17, 2014

President Rouhani: Iran's Missile Program No Issue for Talks

TEHRAN (FNA) - Iranian President Hassan Rouhani said Tehran would never accept to include its missile program in the talks with the world powers, and stressed Tehran's serious intention for continuing uranium enrichment.

"Iran's missile power cannot undergo negotiation at all and at any level," President Rouhani said in a meeting with visiting Director General of the International Atomic Energy Agency (IAEA) Yukio Amano in Tehran on Sunday.

He said any agreement between Iran and the Group 5+1 (the US, Russia, China, Britain and France plus Germany) as envisaged in the Geneva deal inked by the seven nations in November should entail Iran's continued uranium enrichment for civilian purposes inside the country and removal of all unilateral and international sanctions against Tehran.

"We have no fear of cooperation to obviate the ambiguities since use of the Weapons of Mass Destruction (WMDs) has no room in Iran's defensive doctrine based on the codes of ethics and within the framework of

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religion and the fatwa (religious decree) issued by Supreme Leader of the Islamic Revolution (Ayatollah Seyed Ali Khamenei)," President Rouhani stressed.

"Undoubtedly, reaching a comprehensive agreement can be a win-win game for both sides and will help further peace and stability in the region and the world, and Iran's further and more effective relations with the world," President Rouhani said.

He expressed the hope that the IAEA would play "a positive and indiscriminate role in recognizing the countries' right of using peaceful nuclear technology once unreal ambiguities about Iran's nuclear activities are removed", and said, "Iran is serious in its negotiations with the G5+1 countries and the IAEA, and wants nothing more than its right, including enrichment for peaceful purposes."

Rouhani said that Iran has always sought technical, legal and transparent cooperation with the UN nuclear watchdog and it will never give up using civilian nuclear technology for power, medical, agricultural and industrial purposes.

He called on the IAEA to release periodic reports on the step-by-step and growing progress in cooperation with Iran.

Amano arrived in the Iranian capital on Sunday morning at the head of a high-ranking delegation.

Iran and the IAEA deepened cooperation last November as Iran closed in on an interim nuclear deal with the six powers.

In late July and in its latest report on Iran, the IAEA confirmed Tehran's commitment to the interim deal it struck with the Group 5+1 in Geneva in late November, 2013.

The IAEA's report showed that Iran had met the terms of the six-month agreement, under which it limited its atomic activities in exchange for some easing of sanctions.

The discussions between the IAEA and Iran are a separate track of talks from the international negotiations between Iran and six powers on Iran's future nuclear activities and removal of the western sanctions.

On July 20, the deadline for reaching a final agreement on Iran's future nuclear activities was postponed by four months—until November 24—to give more time for diplomatic efforts.

Iranian Foreign Minister Mohammad Javad Zarif and EU Foreign Policy Chief Catherine Ashton in a joint statement after over two weeks of talks stressed the need for more efforts and time to reach an agreement with the world powers over Tehran's nuclear program.

Zarif and Ashton who presided the negotiating sides, emphasized at the end of Iran-G5+1 negotiations that they have held different sessions in different forms and in a constructive atmosphere to reach a final comprehensive agreement.

Due to certain differences over some fundamental issues the two sides agreed to extend the Joint Plan of Action by November 24, they added.

<http://english.farsnews.com/newstext.aspx?nn=13930526001130>

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Xinhua News – Beijing, China

IAEA Chief Says Visit to Iran "Useful"

August 18, 2014

TEHRAN, Aug. 17 (Xinhua) -- The head of the International Atomic Energy Agency (IAEA) said on Sunday that his brief visit to Iran and talks with top Iranian officials were "useful," as he offered new proposals to boost cooperation between the UN nuclear watchdog and the Islamic republic, according to official IRNA news agency.

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Visiting IAEA Director-General Yukiya Amano praised Iran's high-ranking officials for underscoring their commitments to the cooperation framework between Iran and the IAEA, hoping that all the remaining ambiguities over Iran's nuclear program could be solved soon based on an agreement signed in November 2013, which outlined a roadmap on their cooperation on certain outstanding nuclear issues.

Amano also said that the IAEA is committed to helping resolve past and present issues through mutual cooperation, for which he offered some new proposals that are expected to be implemented in the near future.

After meeting the IAEA chief, Iranian President Hassan Rouhani said that "Iran is serious in its nuclear talks with the world powers as well as with the IAEA, and it does not want anything beyond its right to enrich uranium for peaceful purposes."

The president added that with serious goodwill on both sides aiming to resolve the remaining issues around Iran's nuclear program, Iran and the IAEA can conclude their talks in less than a year.

In its effort to be transparent about its nuclear program, Iran has allowed the IAEA to observe its "peaceful" nuclear activities, Rouhani said, adding that "Iran will only agree with the legal observations of the UN nuclear watchdog within the framework of the (Nuclear Proliferation Treaty) directive."

He also stressed that Iran's missile program will not be on the discussion table during its nuclear talks with the powers.

On Sunday, head of Iran's Atomic Energy Organization Ali-Akbar Salehi said that Iran has provided the IAEA with the necessary answers to all questions on issues related to the so-called Exploding Bridge Wire (EBW) detonators, Tasnim news agency reported.

Amano discussed EBW detonators with the Iranian officials, saying that Iran presented information on its decision to develop detonators in the past, while adding the agency should evaluate Iran's need for developing EBW.

Amano arrived in Iran on Saturday night to enhance collaboration between Iran and the UN nuclear watchdog. His visit came ahead of Iran's Aug. 25 deadline for providing the IAEA with updated information on its nuclear program.

A July 20 report by the IAEA said that Iran has complied with its obligations under the interim Geneva nuclear deal. The agency said that Iran has diluted part of its 20-percent enriched uranium stockpile to five-percent purity, while the rest is being converted into uranium oxide as agreed under a so-called Joint Plan of Action reached in Geneva last November. The report added that Iran has also stopped enriching uranium beyond the five-percent level.

http://news.xinhuanet.com/english/world/2014-08/18/c_133563719.htm

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FARS News Agency – Tehran, Iran
Monday, August 18, 2014

Zarif Calls on World Powers to Lift UNSC Sanctions against Iran

TEHRAN (FNA) - Iranian Foreign Minister Mohammad Javad Zarif called on the six world powers (the US, Russia, France, China, Britain plus Germany) to fulfill their undertakings and annul the UN Security Council sanctions against Iran.

"The members of the Group 5+1 should comply with their undertaking and annul the UN Security Council sanctions against Iran," Zarif told reporters after meeting Romanian Deputy Foreign Minister Carmen Burlaco in Tehran on Monday.

Asked if the Group 5+1 (the five permanent UN Security Council members plus Germany) enjoy the necessary power and authority to remove the UNSC sanctions against Iran without any need to the consent of the other member states, Zarif said, "The Group 5+1 cannot annul the UN Security Council sanctions by themselves, but they

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as the five permanent Security Council members know that no agreement will be put into effect unless the 5+1 members comply with their undertaking for removing the UNSC sanctions against Iran.

Zarif said Iran has stressed this issue in all its nuclear talks with the the six powers.

He said one of the major undertakings which goes under discussion in every round of Iran-powers nuclear negotiations pertains to the abovementioned topic, meaning that "the G5+1 should help to the removal of the sanctions through UN Security Council mechanisms".

The Iranian foreign minister further pointed out that he would have a meeting with EU foreign policy chief Catherine Ashton as well as several bilateral talks with the G5+1 members on the sidelines of the upcoming UN General Assembly meeting in New York in September.

Last week, Iranian President Hassan Rouhani said the US-led sanctions have harmed both the eastern and western states and their removal will help strengthen security and stability in the region.

"We have weakened and shaken the bases of sanctions and the conditions will never return to the past, we are serious and determined in the negotiations (with the world powers), but the world should know that the opportunity provided by the Iranian nation is not indefinite," Rouhani said, addressing an economic forum in Tehran on Tuesday.

"An agreement (between Iran and the Group 5+1) will benefit all and the western and eastern countries are telling us that the sanctions have harmed them and the removal of sanctions will benefit all," he added.

"On the other hand such an agreement will strengthen stability in the entire region and God willing, if the two sides enjoy a good will, we can reach a final settlement over this issue," Rouhani underlined.

On July 20, the deadline for reaching a final agreement on Iran's future nuclear activities was postponed by four months—until November 24—to give more time for diplomatic efforts.

Zarif and Ashton in a joint statement after over two weeks of talks stressed the need for more efforts and time to reach an agreement with the world powers over Tehran's nuclear program.

The two officials who presided the negotiating sides, emphasized at the end of Iran-G5+1 negotiations that they have held different sessions in different forms and in a constructive atmosphere to reach a final comprehensive agreement.

Due to certain differences over some fundamental issues the two sides agreed to extend the Joint Plan of Action by November 24, they added.

<http://english.farsnews.com/newstext.aspx?nn=13930527001255>

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ITAR-TASS News Agency – Moscow, Russia

600 Tons of Syrian Chemical Weapons Neutralized — OPCW

Five hundred and eighty-one tons of precursor chemical for sarin gas and 19 tons of mustard gas were neutralized with two Field Deployable Hydrolysis Systems aboard the US ship Cape Ray

August 19, 2014

THE HAGUE, August 19. /ITAR-TASS/. Director General of the Organization for the Prohibition of Chemical Weapons (OPCW) Ahmet Uzumcu on Tuesday confirmed the neutralization of chemical arms onboard the US ship Cape Ray.

Uzumcu said all the 600 metric tons of most dangerous substances had been destroyed. "This ends a crucial stage in the complex international maritime operation to remove and destroy Syria's chemical weapons stockpile," he said.

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Five hundred and eighty-one tons of precursor chemical for sarin gas and 19 tons of mustard gas were neutralized with two Field Deployable Hydrolysis Systems (FDHS) installed on the Cape Ray. The chemicals were mixed in the FDHS units with fresh water and reagents, and then the mixture was heated to reduce the chemicals' toxicity by at least 99.9%, according to the director general.

Uzumcu said that the chemical weapons had been neutralized long before the 60-day schedule and that OPCW inspectors confirmed that no chemicals had escaped into the sea or otherwise impacted the environment.

The Cape Ray will sail to Germany and Finland where the effluent will be eliminated at industrial companies.

A peace initiative brought forward by Russia about a year ago helped reach an agreement on eliminating Syria's chemical weapons stockpile. More than 1,200 tons of chemical agents were taken out of the country for elimination at US and Finnish plants. Britain reported it had eliminated 190 tons of Syria's chemical weapons.

<http://en.itar-tass.com/world/745705>

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Tehran Times – Tehran, Iran

Iran Considers Issue of Detonators Closed: Official

Political Desk

Wednesday, August 20, 2014

TEHRAN – Iranian ambassador to the International Atomic Energy Agency has said that the Islamic Republic believes that the issue of Iran's development of high explosive detonators is closed.

"In our view, the issue of detonators is closed," Ambassador Reza Najafi said in an interview with ISNA published on Tuesday in reference to the UN nuclear agency's investigation into what it calls the possible military dimensions of Iran's nuclear program.

Iran says its nuclear program is only meant for peaceful purposes and denies claims that it might have tried to develop the capability to build nuclear weapons.

In May, Iran gave the IAEA information it had requested about its reasons for developing Exploding Bridge Wire detonators under a framework agreement on further cooperation that Iran and the agency signed last November.

After talks with IAEA director Yukiya Amano in Tehran on Sunday, Atomic Energy Agency of Iran director Ali Akbar Salehi said that Iran expected the UN nuclear agency to take steps to close its investigation of the issue of detonators.

He also said the discussions with Mr. Amano had focused on the issue of Exploding Bridge Wire detonators, adding that Iranian experts answered the agency's questions in this regard.

Elsewhere in his remarks, Najafi said that Iran has started implementing five additional practical measures it agreed in May to take as part of the framework accord.

Under the agreement, Iran among other things undertook to exchange information with the agency with respect to the allegations related to the initiation of high explosives, provide information and arrange a technical visit to a centrifuge research and development centre, and provide information and managed access to centrifuge assembly workshops, centrifuge rotor production workshops, and storage facilities.

IAEA inspectors have so far visited a number of Iranian nuclear sites, including the Saghand uranium mine, the Ardakan concentration plant, the Arak heavy-water reactor, and the Gachin uranium mine, under the framework accord.

According to Iranian officials, Iran has no commitments based on the safeguards agreement to allow such inspections, but it agreed to do so to show the country's will to resolve the dispute over its nuclear program.

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According to Reuters, the UN nuclear chief said on Monday that Iran had begun implementing nuclear transparency measures ahead of an August 25 deadline agreed with the agency to provide more information about its nuclear activities.

"The implementation of these five measures started," Amano told reporters at Vienna airport on his return from Tehran, where he met senior Iranian officials.

"I expect that progress will be made over the next week," said Amano, after securing what he called on Sunday a firm commitment to cooperate with the IAEA's further investigation into Tehran's nuclear program.

<http://www.tehrantimes.com/politics/117804-iran-considers-issue-of-detonators-closed-official->

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FARS News Agency – Tehran, Iran
Thursday, August 21, 2014

FM: Most Technical Problems Settled between Iran, G5+1

TEHRAN (FNA) - Iranian Foreign Minister Mohammad Javad Zarif announced that Tehran and the Group 5+1 (the US, Russia, China, Britain and France plus Germany) have settled most of the technical and legal problems related to Iran's nuclear issue.

Most of the technical and legal issues of Iran's nuclear dispute with G5+1 have been discussed and resolved and the two sides need a political agreement on the remaining issues, Zarif said in a televised interview with Iran's state-run TV on Wednesday night.

He noted that Iran is committed to make a final nuclear deal with G5+1.

Zarif underlined that Iran expects removal of all illegal sanctions as precondition to a comprehensive nuclear deal.

On July 20, the deadline for reaching a final agreement on Iran's future nuclear activities was postponed by four months—until November 24—to give more time for diplomatic efforts.

Iranian Foreign Minister Mohammad Javad Zarif and EU Foreign Policy Chief Catherine Ashton in a joint statement after over two weeks of talks stressed the need for more efforts and time to reach an agreement with the world powers over Tehran's nuclear program.

Zarif and Ashton who presided the negotiating sides, emphasized at the end of Iran-G5+1 negotiations that they have held different sessions in different forms and in a constructive atmosphere to reach a final comprehensive agreement.

Due to certain differences over some fundamental issues the two sides agreed to extend the Joint Plan of Action by November 24, they added.

In relevant remarks earlier this month, Iranian Deputy Foreign Minister Majid Takht Ravanchi stressed Tehran's good will and seriousness in talks with the world powers, but said the members of the Group 5+1 should give up their illusions and come and live in reality.

"Certain members of the opposite side are having illusions and think that they can tear out a part of the chain of Iran's nuclear activities and can make us needful and dependent on the foreigners, but we have announced clearly that this will not happen," Takht Ravanchi, a senior member of Iran's negotiating team, said, addressing a national forum on Iran's nuclear policies in Tehran on Monday.

"We don't want anything more than our rights and we have said since the very first day that we should have our (nuclear) fuel cycle," he added.

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Takht Ravanchi referred to the Geneva agreement inked by Iran and the G5+1 in November which underlines respect for Tehran's enrichment right, and said, "We will continue the negotiations with good will (as in the past) and are interested in seeing this project yield results."

He said that if the western powers didn't show bad-temperedness and didn't raise excessive demands, Iran's nuclear case would have been closed in 2005.

<http://english.farsnews.com/newstext.aspx?nn=13930530000718>

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Press TV – Tehran, Iran

Failure to Reach P5+1 Nuclear Deal No Catastrophe: Iran

Thursday, August 21, 2014

A top Iranian official says no "catastrophe" will happen if Tehran and six world powers fail to reach a final agreement over the Islamic Republic's nuclear energy program.

"The Geneva deal has provided an opportunity for us to reach a final deal; however, even if we don't reach an agreement ... no catastrophe will happen," said Iranian Deputy Foreign Minister for Legal and International Affairs Abbas Araqchi on Wednesday.

Part of the Iran-P5+1 talks revolve around topics such as the level of uranium enrichment in Iran, the country's Arak nuclear facility, the final deal timetable and the anti-Iran sanctions, he said, adding, "divisions still remain on some of these issues, but we have narrowed our differences on some others."

Araqchi expressed hope that Iran and the six countries would be able to bring their views closer together in the coming month. To that end, he said, the opposite side should "show good will and avoid making excessive demands."

He said that representatives of Iran and the five permanent members of the UN Security Council plus Germany would resume their nuclear talks on the sidelines of the annual gathering of the UN General Assembly in New York in September.

He also said that Iran would hold one-on-one talks with six world powers over Tehran's nuclear energy program ahead of the UN General Assembly's meeting.

Araqchi described the talks as complicated and detailed, saying it would require hours of discussion on each issue even after the two negotiating sides reach an initial agreement.

Iran and the five permanent members of the United Nations Security Council - China, Russia, Britain, France, and the United States - plus Germany are to resume their negotiations to discuss ways of reaching a final agreement over Tehran's nuclear energy program.

The two sides clinched a landmark interim deal in Geneva, Switzerland, on November 23, 2013. The agreement, which took effect on January 20 and expired six months later on July 20, has been extended until November 24.

<http://www.presstv.ir/detail/2014/08/21/376087/no-catastrophe-if-nuclear-talks-fail-iran/>

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Press TV – Tehran, Iran

Iran Nuclear Proposal Benefits West, Region: Cleric

Friday, August 22, 2014

A senior Iranian cleric has recommended the five permanent members of the UN Security Council plus Germany to agree to the terms set by Iran in the nuclear talks.

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“Accept Iran’s advice because Iran’s proposal is a win-win one, i.e. it will be in the interest of the region, the West and of course Iran,” Ayatollah Mohammad Ali Movahedi Kermani told worshippers at the weekly Friday Prayers in Tehran.

“If you refuse Iran’s proposal, it would no longer be a win-win [situation] but a win-lose one,” the Iranian cleric added.

Iran and the five permanent members of the UN Security Council – the United States, France, Britain, Russia and China – plus Germany are to resume their negotiations on ways of reaching a final agreement over Tehran’s nuclear energy program.

The two sides clinched a landmark interim deal in Geneva, Switzerland, on November 23, 2013. The agreement, which took effect on January 20 and expired six months later on July 20, has been extended until November 24.

On Wednesday, the International Atomic Energy Agency (IAEA) issued a new report, confirming Iran’s commitment to the interim nuclear deal.

Ayatollah Movahedi Kermani also noted that the United States has always emerged loser in any attempt against Iran, referring to Washington’s support for the former shah of Iran and its supply of arms to Iraq during its 1980-1988 war on Iran.

“Every time the United States has stood against Iran’s people and [the 1979 Islamic] Revolution, it has emerged loser,” he said.

“The US equipped [former Iraqi dictator] Saddam [Hussein] as much as it could to strike a blow to Iran, but at the end, Iran did not lose one iota of its soil and then UN secretary general, [Javier Pérez de Cuéllar], held Saddam responsible [for the war] and even in this case, the US lost,” said the cleric.

<http://www.presstv.ir/detail/2014/08/22/376199/iran-nproposal-benefits-region/>

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Forbes.com

OPINION/Contributor

What If Deterrence Doesn't Work Anymore? Five Reasons to Worry

By Loren Thompson

August 18, 2014

Deterrence is the central organizing concept of current U.S. strategy. In its simplest form, the term means discouraging aggression by threatening unacceptable consequences. Countries have been practicing deterrence since the dawn of history, but the idea took on much greater importance once the appearance of nuclear weapons raised doubts about the practicality of active defense. When only a handful of weapons can cause unprecedented destruction, and both sides have such weapons, leaders tend to focus more on how to avoid wars and less on how to win them. Thus it was that deterrence became a core concern of American policymakers after Russia began building up its nuclear arsenal in the 1950s.

Initially, deterrence was focused mainly on the nuclear threat. Over time, though, military planners began to apply it to other types of aggression. Today, it can be found in official pronouncements about everything from China’s territorial ambitions to global terrorism to cybersecurity. But even as deterrence has come to pervade every facet of U.S. strategy, its relevance and reliability have begun to wane. As the respected strategist Richard K. Betts observed in a *Foreign Affairs* essay last year, “Deterrence isn’t what it used to be.” Betts went on to note that it may not be feasible to deter some types of aggression and aggressors, and that policymakers often misunderstand how deterrence works anyway.

I have a more basic concern that has haunted me ever since I began studying strategy at Georgetown University during the Vietnam era. My concern is that much of the time deterrence is an illusion — that we can never know

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for sure what our adversaries are perceiving or planning, and thus that the foundation for our security in the modern world is deeply suspect. From that pessimistic perspective, the question “What if deterrence doesn’t work anymore?” might be followed by the query, “What if it never did?” Betts doesn’t go that far, asserting that deterrence “was the essential military strategy behind containing the Soviet Union and a crucial ingredient in winning the Cold War without fighting World War III.”

Most students of strategy share that view. Even if it is valid though, the world has changed. Extremists of every stripe have been empowered by new technology, and we often don’t understand how they think. The intelligence community’s failure to anticipate the success of ISIS insurgents in Syria and Iraq is just the latest indication of how little we know about the emerging threat landscape. Unfortunately, effective deterrence requires a fairly precise grasp of adversary values, intentions and thought processes. 9-11 and subsequent events suggest that deterrence may no longer be as useful as (we once thought) it was. Here are five worrisome ways in which circumstances are conspiring to undermine the value of deterrence in national strategy.

1. Fewer enemies fit the “rational actor” model. When deterrence theory was first systematized by economists and mathematicians at places like the RAND Corporation in the early Cold War period, they began with the assumption that adversaries were rational. There wasn’t an alternative: nobody knows how to model idiosyncratic craziness. But some of the potential aggressors that we worry about today, like ISIS and Kim Jong-un, don’t seem to meet a Western standard for sane behavior. Maybe they are rational within their own frame of reference, but not within ours. And even for quasi-Western, presumably sane leaders like Vladimir Putin, wartime stress has a way of changing thought processes. Deterrence might work with irrational adversaries, but not for reasons we can confidently predict or shape.

2. Deterrence requires information we often don’t have. The U.S. intelligence community does not have a good track record when it comes to anticipating threats. From Pearl Harbor to North Korea’s invasion of the South to the Cuban Missile Crisis to the Tet Offensive to Iraq’s invasion of Kuwait to the 9-11 attacks, intelligence agencies always seem to be playing catch-up. That is a clear sign that we seldom understand the thought processes of potential aggressors. If you can’t even predict when one country is going to invade another, how likely is it that you have the fine-grained grasp of their thinking needed to deter unwanted actions? Washington’s interactions with Saddam Hussein are a chronicle of continuous mis-perception on both sides, and chances are U.S. intelligence understood him a lot better than, say, the Taliban. With so little insight into adversaries, deterrence probably can’t work.

3. Elusive adversaries are hard to hold at risk. Deterrence is all about retaliation, or at least the threat of retaliation. It’s the fear of horrible consequences that dissuades a potential aggressor from acting in the first place. But when it takes ten years to find the mastermind of the 9-11 conspiracy, accountability becomes tenuous. Many of the non-traditional adversaries who threaten America today lack a fixed address that can be targeted in retribution. That doesn’t just apply to terrorists and insurgents who “move amongst the people as a fish swims in the sea” (to quote Mao Zedong), it also applies to hackers who invade our networks and traffickers in technologies of mass destruction. The most sophisticated hacks may originate in places like China, but if they arrive via the Chicago municipal healthcare system’s information network and we can’t identify their ultimate authors, how can we deter them?

4. We won’t know whether deterrence is working until it fails. The great philosopher of science Karl Popper insisted that scientific theories can’t be proven, they can only be falsified. The same is true of deterrence. It is a psychological phenomenon that depends on the way in which enemies perceive and process information. Until we learn how to read their minds, we can’t say for sure whether they are deterred. Much of what they do or say may be calculated to mislead us as to their actual intentions. And in the case of organizations like Al Qaeda, we are dealing with the proverbial hydra-headed monster rather than a unitary actor, so what one leader says and does offers little insight into the actions of others. Because deterrence is a psychological process, we cannot follow Ronald Reagan’s dictum to “trust but verify” — we can only speculate as to the meaning of behavior that often is ambiguous.



5. Effective deterrence requires more resolve than Washington exhibits. Under a doctrine known as extended deterrence, the United States provides security guarantees to a wide array of foreign nations. The credibility of these guarantees depends not only on the military capabilities that Washington possesses, but on its perceived willingness to employ them. However, international media have been awash in recent months with stories of what the *Economist* calls the Obama Administration's timidity. This reluctance to use military force extends beyond the White House to Capitol Hill and the broader political culture. The U.S. electorate does not want to get involved militarily in places like Syria or the Ukraine, and as David Sanger observed in the *New York Times*, "adversaries read polls." Sustaining deterrence when the whole world suspects you aren't willing to act sounds like Mission Impossible.

Current U.S. strategy relies too heavily on deterrence, at a time when its workability is increasingly doubtful in coping with emerging adversaries. It has become an excuse for inaction even in dealing with enemies who can be crushed using more traditional concepts of defense. Rather than waiting for the next time deterrence fails, as it inevitably will, Washington needs to think in more concrete ways about how to protect the nation against the military threats it faces. In some cases, that may mean abandoning commitments that are too dangerous or demanding. In other cases, it will mean replacing threats of retaliation with real defenses. But continuing to rely on a strategic concept that cannot be effectively implemented or verified in many cases is a prescription for disaster.

Loren Thompson focuses on the strategic, economic and business implications of defense spending as the chief operating officer of the non-profit Lexington Institute and Chief Executive Officer of Source Associates.

<http://www.forbes.com/sites/lorenthompson/2014/08/18/what-if-deterrence-doesnt-work-anymore-five-reasons-to-worry/>

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The Wall Street Journal – New York, NY

OPINION

Russia Always Cheats on Arms Treaties

Since 1963's nuclear Test Ban Treaty, Moscow's policy seems to be comply if convenient, otherwise violate.

By Keith B. Payne and Mark B. Schneider

August 18, 2014

On July 29, the Obama administration announced that Russia has violated its obligation under the 1987 Intermediate-Range Nuclear Forces (INF) Treaty "not to possess, produce or flight test a ground-launched cruise missile with a range capability of 500 to 5,500 kilometers; or to possess or produce launchers of such missiles." The administration's sudden candor is welcome. Yet its new compliance report alleging that the Russians tested a missile prohibited under the INF treaty—doesn't address other apparent treaty violations.

The INF violation fits into a long pattern of Soviet-Russian misbehavior that can only be described as "compliance if convenient." Moscow appears to observe arms-control commitments when convenient but violates them when not. This contrasts sharply with America's scrupulous adherence to the letter and often the supposed "spirit" of treaty commitments, long after Moscow has ceased to do so.

Unclassified presidential and State Department reports have documented Moscow's violation of all the major arms-control agreements, particularly those limiting nuclear arms and testing. Moscow violated the 1963 Limited Test Ban Treaty shortly after it came into force, when Soviet nuclear tests vented radioactive debris beyond the boundaries of the Soviet Union. Washington did not publicly address most treaty violations. Over time the U.S. appears rarely to have threatened any real consequences for Moscow's noncompliance—perhaps helping to explain why Russia violates treaties with such abandon.

One exception was President Reagan, who presented a refreshingly realistic take in 1982: "Simply collecting agreements will not bring peace. Agreements genuinely reinforce peace only when they are kept. Otherwise, we



are building a paper castle that will be blown away by the winds of war." Reagan followed up with annual reports that depicted the scope and significance of Soviet violations.

In 1985 the Reagan administration reported that the Soviet Union constructed a large missile-tracking radar in violation of the ABM Treaty and produced and used biological weapons in violations of the Biological Weapons Convention. It also noted violations of the Geneva Protocol on Chemical Weapons and likely violations of the Threshold Test Ban Treaty.

Similar candor continued through the George H.W. Bush administration. The Clinton administration's 1998 unclassified compliance report did call out Russia's possible maintenance of its capability to produce biological weapons. But the administration was largely silent about the 1991 Strategic Arms Reduction Treaty (Start).

President George W. Bush's 2005 compliance report documented five major violations of Start's verification provisions. Russia illegally prevented the U.S. from accurately counting the number of warheads on Russian ballistic missiles during treaty-mandated inspections, and it illegally based SS-25 mobile intercontinental ballistic missiles outside treaty-required areas.

With the exception of its recent INF report, the Obama administration has largely been silent on Russian compliance. At best its unclassified compliance reports note that "issues" have arisen but provide no specific information. Meanwhile, open, primarily Russian sources have pointed to other possible undisclosed Russian violations of the INF Treaty, Start-I and nuclear-testing restrictions. This includes the deployment of prohibited cruise missiles and three reported violations relating to intermediate-range ground-launched ballistic missiles.

There have also been reports through open sources of Moscow's failure for several years to dismantle the Start Treaty's required number of SS-18 heavy ICBMs; the illegal placing of multiple warheads on the SS-27 ICBM; and Moscow's covert, low-yield nuclear testing (so-called hydronuclear testing).

These Russian violations are not trivial matters. The House of Representatives recently declared on a bipartisan basis that the INF violation "poses a threat to the United States, its deployed forces, and its allies." According to senior Obama administration officials, Russia probably has a 10:1 numerical superiority over the U.S. in battlefield nuclear weapons. This Russian tactical nuclear arsenal, according to Russian press reports, includes weapons that are inconsistent with Soviet and Russian commitments made as part of the 1991-1992 Presidential Nuclear Initiatives to eliminate nuclear artillery and short-range nuclear-missile warheads. That 10:1 superiority may increase if Russia's INF treaty violations stand.

Washington's long periods of silence about cheating are sometimes justified as "quiet diplomacy" designed to bring about Moscow's compliance. Perhaps. But quiet diplomacy did not persuade Moscow in 1991 to stop building the enormous radar prohibited by the ABM Treaty. Rather, it was the George H.W. Bush administration's public threat to call out Russia's behavior as a "material breach."

Russian leaders such as Vladimir Putin appear to read U.S. silence as weakness and timidity, a perception which undoubtedly feeds their arms-control lawlessness. Pretending that Russia is a reliable arms-control partner helps to ensure that it is not. Calling Russia out for misbehavior may hold some hope of moving it into compliance.

Mr. Payne is the director of the Graduate School of Defense and Strategic Studies, Missouri State University (Washington-area campus) and a former deputy assistant secretary of defense. Mr. Schneider is a senior analyst at the National Institute for Public Policy and a former senior official in the Defense Department.

<http://online.wsj.com/articles/keith-b-payne-and-mark-b-schneider-russia-always-cheats-on-arms-treaties-1408404501>

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The Daily Signal.com – Washington, D.C.
OPINION/Commentary

Nuclear Weapons: What Is the NDP Missing?

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Maxwell AFB, Alabama

By Michaela Dodge

August 19, 2014

The bipartisan National Defense Panel (NDP) provided a well-articulated argument for the types of forces the U.S. needs to meet its national security demands. However, the panel comes up short when it comes to making a case for U.S. nuclear weapons.

Granted, the panel's task wasn't to articulate what the U.S. strategic posture should be. As its distinguished members sum up, "Our panel did not have the time or scope to study the nuclear force modernization issue, but we understand its importance."

However, the panel recognizes the importance of credible nuclear forces that play "a cornerstone in broader U.S. defense strategy" vis-à-vis an uncertain strategic environment where nuclear-related technologies and capabilities are spreading. It also recognizes the importance of strategic forces modernization considering that "the United States faces the looming obsolescence of the suite of nuclear forces procured in the latter half of the Cold War."

The panel asserts that the U.S. nuclear triad—bombers, intercontinental-range ballistic missiles, and submarine-launched ballistic missiles—"under current budget constraints is unaffordable." This is a case of the budget driving strategic considerations. Nuclear forces recapitalization is a fairly miniscule part of the U.S. defense budget. Currently, the U.S. spends about 2 percent of its defense budget on nuclear forces. This percentage will increase to about 4 percent of the budget at the peak of new systems' recapitalization.

It is clear that the nation cannot solve its fiscal woes on the back of the nuclear budget (or the defense budget, for that matter). The panel estimates recapitalization at between \$600 billion and \$1 trillion over a 30-year period, but this estimate is problematic because the bombers and the nuclear weapons complex and command and control have conventional and nuclear purposes. The U.S. nuclear weapons complex even serves civilian purposes and is responsible for the dismantlement of U.S. nuclear warheads.

The panel strongly states that any future nuclear posture "should be at least as capable in terms of its relevant attributes (such as survivability, flexibility, controllability and discrimination, and penetration capability) as the current posture." The U.S. nuclear triad is the only configuration that offers such attributes at the levels required by assurance and extended deterrence. Absent U.S. nuclear security guarantees, other nations—especially those facing hostile nuclear-armed adversaries—will be more compelled to develop their own nuclear weapon capabilities.

U.S. nuclear weapons make a critical contribution to the security of the nation and its allies. They are meant to prevent a large-scale conflict and nuclear exchanges, which they have done marvelously since the dawn of the nuclear age. U.S. adversaries are dangerous, and the nation cannot afford to let go of its national security capabilities, a notion that the panel strongly endorses.

Michaela Dodge specializes in missile defense, nuclear weapons modernization and arms control as policy analyst for defense and strategic policy in The Heritage Foundation's Allison Center for Foreign Policy Studies.

<http://dailysignal.com/2014/08/19/nuclear-weapons-ndp-missing/>

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The National Interest.com

OPINION/Feature

Is Nuclear Arms Control Dead?

"If the arms-control mechanisms between America and Russia collapse, then the world loses its ability—and crucially, the example—to properly interpret and recognize nuclear intentions."

By Will Hobart

August 19, 2014

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Amid the wider sense of a global crisis in security, from Iraq to Ukraine to the South China Sea, there is a deeper long-term threat: the risk to nuclear arms control.

In this worsening climate of great-power tension and mistrust, the nuclear arms-control regime long in place between the United States and Russia is in danger. And without it, efforts to stop the spread of nuclear weapons, or at least limit their role in international affairs, are also in trouble. For instance, the prospect of heading off a destabilizing nuclear-arms competition in Asia, including between China and the United States, will further recede, as will the appeal of the U.S.-Russian precedent of restraint for India and Pakistan. America and Russia remain overwhelmingly the world's strongest nuclear-armed powers, and their example is crucial for the future of nonproliferation, disarmament and the global nuclear peace.

A key mechanism here is the historic 1987 intermediate range nuclear forces (INF) treaty, under which Moscow and Washington banned the deployment of a whole destabilizing class of nuclear-armed missiles. Despite signs that Russia had violated this agreement as far back as 2010, and concerns voiced by Putin in 2007 that China also ought to be included, only now have things come to a head. U.S. president Barack Obama recently took the extraordinary step of sending a letter to Vladimir Putin, levelling the accusation that Russia is in breach of its solemn treaty commitments by testing cruise missiles with a range between 500 and 5,500km since 2008.

Given the high state of current tensions, including fears of a Russian invasion of eastern Ukraine and international outrage over the shooting down of passenger flight MH17, it is difficult to imagine Russia and the United States now putting aside their differences to prioritize a reinvigoration of nuclear arms control.

But recent events aren't the only threat to strategic arms control between the United States and Russia—for two reasons. First, existing treaties such as New START (2010) and the INF don't address modern and nascent nuclear capabilities present in the U.S.-Russian relationship, such as sea-launched cruise missiles. And second, politically and strategically, there seems to be no great momentum, nor will in either camp to move forward on nuclear risk mitigation as there was during the abortive "reset" of Obama's first presidential term. President Obama's great hopes for a world without nuclear weapons, proclaimed in Prague in 2009, are more than ever confronted by ugly geopolitical realities.

Of course, the obvious benefit of nuclear arms control is that it reduces the numbers of these devastating weapons deployed for potential use. But equally important is the less-measurable benefit produced by a system of inspections, building confidence and providing strategic warning. Thus under New START, numbers of non-deployed weapons were proverbial low-hanging fruit traded in return for access and verification. In turn, Washington and Moscow established a practical, normative mechanism for crisis stability.

Nuclear weapons may quietly cast a long shadow over the current Ukraine crisis—their very existence must be considered a major restraint on a Western military response, and perhaps as a reminder that Russia has conducted drills simulating a NATO nuclear strike. Whatever else he fears, Putin is presumably concerned that were Ukraine to join NATO, it would become part of a nuclear-armed alliance able to deter Russia and, in theory, strike first in a crisis. It can also be argued that Russia's renewed interest in previously-banned, intermediate-range missiles is partly a product of Russian concern about NATO capabilities, such as ballistic-missile defences, submarine-launched cruise missiles and progress on technology, such as hypersonic glide vehicles required to achieve the objectives of what is known as Prompt Global Strike. Russia's argument, right or wrong, is that these undermine the deterrence stability established during the close of the Cold War.

For its part, Washington has not gone into depth about what is wrong with Russia's violation of the treaty other than it puts European allies at risk and that it hopes it can negotiate a return to "compliance." The United States sees its own actions as being in line with the stabilizing and reassuring objective of having a wide range of non-nuclear options for its treaty commitments in Europe and its capability to deter without having to resort to nuclear threats.

So even if the United States and Russia were somehow to bring their present geopolitical crisis under control and renew their focus on nuclear-arms limitations, they would find new barriers to cooperation, thanks to changing technology. Things may not have come to a head so soon if not for Putin's coercion towards Ukraine, but sooner or

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later New START and the INF would have been endangered by the emergence of new weapons capabilities not covered in either treaty.

If the arms-control mechanisms between the United States and Russia collapse, then the world loses its ability—and crucially, the example—to properly interpret and recognize nuclear intentions. We, therefore, need new causes for their reinvigoration, and preferably not borne out of nuclear crisis. New technologies need to be recognized as potentially destabilizing in their nascent stages of operation, even if in decades to come they form additional or modernized legs to the long-accepted nuclear ‘triad’ (aircraft, land-based missiles and submarine-launched ballistic missiles) and thus contribute to new forms of deterrence stability. Until then, we face the prospect of losing access and channels of communication in times of crisis, leaving decision makers to rely on guesswork, crystal-ball gazing and espionage: not unlike the worst phases of the Cold War.

Ultimately, the real danger may not be that the current arms-control treaties between Washington and the Kremlin might break down, but that whatever (if anything) replaces them won’t maintain the kind of channels of access and communication that have kept the past quarter-century of U.S.-Russian strategic relations stable. Already, this seems to be the trend, as a plan to allow nuclear scientists from the United States and Russia to access each other’s nuclear sites has been put on ice as of March this year, directly related to the crisis in Ukraine.

The Ukraine crisis is ushering in a historic low in relations between Russia and the West, and damaging, perhaps even threatening to unravel, some of the greatest achievements of nuclear arms control. Elsewhere in a troubled world, a second nuclear age is underway as China modernizes its arsenal, North Korea continues to develop its provocative capabilities and Indian and Pakistani nuclear programs continue apace. Whatever else their burdens, the United States and Russia hold a special responsibility for leadership as the original and largest nuclear powers. If they fail in that, the repercussions will be felt by the rest of the world long into the future.

Will Hobart is a research associate on nuclear issues with the Lowy Institute. The Institute's work in this field is partly supported through its partnership with the Nuclear Security Project of the Nuclear Threat Initiative. The views in this article are the author's alone.

<http://nationalinterest.org/feature/nuclear-arms-control-dead-11097?page=show>

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Portland Press Herald – Portland, Maine

OPINION/Editorial

Our View: There’s No Place in Maine for Missile Defense Site

The system now in place in California and Alaska should be upgraded, not expanded.

By The Editorial Board

August 20, 2014

The United States has spent billions of dollars in the last decade on a missile defense system designed to protect the country from threats from other nations such as Iran and North Korea. Unfortunately, that system has proved to be as unreliable as it is expensive.

But that isn’t stopping Congress from unnecessarily expanding the program, now based in California and Alaska, to the East Coast, with rural western Maine as one of four sites under consideration.

FRUSTRATING RESULTS

Officials from the Missile Defense Agency, part of the Defense Department, were in Rangeley and Farmington last week to hear public comment on placing what is known as a Ground-based Midcourse Defense system at a Navy survival training camp in Redington Township, just east of Rangeley. They are doing the same at proposed locations in New York, Michigan and Ohio.

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If the expansion is ultimately approved, one of those sites will become home to dozens of silos holding interceptors designed to shoot down intercontinental ballistic missiles fired by an enemy nation, with Iran the biggest presumed threat.

The facility, estimated to cost \$3.4 billion, would be similar to those in Fort Greely, Alaska, and Vandenberg Air Force Base, California.

Those two sites were developed hastily following a 2002 order by then-President George W. Bush to increase air defense capabilities. There are now four interceptor missiles at Vandenberg and 26 at Fort Greely, with 14 more to be placed in Alaska by 2017, at an additional cost of \$1 billion.

The Pentagon has spent an estimated \$40 billion thus far on the ground-based missile system, with frustrating results.

In 17 tests, the system has registered just nine hits. What's more, those tests have been conducted in controlled conditions favorable to the system operators and against targets with neither the range nor the speed of intercontinental ballistic missiles.

NEEDLESS EXPANSION

Placing missiles closer to the presumed enemy launch site, as well as to likely targets on the East Coast, will not help, either.

That's the conclusion of the Pentagon's 2010 Ballistic Missile Defense Review, which said that the missile sites in Alaska and California were sufficient to protect the U.S. from an attack within the capabilities of Iran or North Korea "for the foreseeable future."

The review, approved by then-Defense Secretary Robert Gates, also recommended against developing the missile program "at the same accelerated rate or with the same level of risk as in recent years."

Instead, it advocated for improving the missile system's ability to sense targets from the Middle East and to discern decoys and debris from actual missiles.

Vice Adm. James D. Syring, director of the Missile Defense Agency, came to a similar conclusion last year, writing to Sen. Carl Levin, chairman of the Senate Armed Services Committee: "There is no validated military requirement to deploy an East Coast missile defense site."

MISGUIDED CONGRESS

That leaves only non-military reasons, such as the infusion of federal dollars and the promise of new jobs, for creating an additional site. And that likely explains why Congress, not the Pentagon or the Obama administration, is pushing the matter.

(In Maine, Republican U.S. Sen. Susan Collins has advocated for a missile site in Maine to be considered, while U.S. Sen. Angus King, an independent, said he is awaiting the results of an environmental impact study.)

The potential economic benefits of a new site, however, are disputed. And in any case, it is the proficiency of the system, not its effect on the local economy, that should be the deciding factor on matters of national defense.

Regardless, each of the proposed sites will now undergo the environmental review, funded by \$30 million set aside in the defense budget by House Republicans. It is expected to take two years.

To be sure, there are environmental concerns at each of the sites, particularly in Maine, where the silos would dot the surrounding pristine and rugged mountains.

But we don't need an environmental review to tell us that spending billions to expand an erratic missile defense system is a bad idea.

<http://www.pressherald.com/2014/08/20/our-view-theres-no-place-in-maine-for-missile-defense-site/>

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International Relations and Security Network (ISN) – Zurich, Switzerland
OPINION/Analysis
22 August 2014

Russia's Nuclear Revival and Its Challenges

Russia is slowly but surely replacing its aging stockpile of Soviet-era nuclear weapons with an arsenal that's fit-for-purpose in the 21st century. Richard Weitz reminds us, however, that a weakening Russian economy and less-than-favorable international climate may yet derail Moscow's efforts to revive its nuclear prowess.

By Richard Weitz for ISN

Although attention is naturally focused on the role of Russia's conventional forces in the Ukraine conflict, we should not overlook the modernization of the country's nuclear forces. The last few years has seen Moscow make great progress in stabilizing Russia's decaying nuclear arsenal. The Russian government considers its nuclear weapons as its best tool of defense, deterrence, and global influence-- essential for protecting Russia against external aggression and for preserving its great power status. Despite recent improvements in Russia's conventional forces and Russian mastery of the art of non-kinetic hybrid warfare techniques, Moscow continues to invest enormous sums in reviving its nuclear capabilities, which suffered financial and other problems following the end of the Cold War. Nonetheless, Russia's nuclear buildup will continue to face major challenges in coming years and present risks to other countries.

Systems

In determining their nuclear arsenal, Russian policy makers employ an expansive force-sizing principle, in which Russian nuclear forces must be able to counter the combined arsenal of all other nuclear weapons states. Due to this demanding mission and the weight of the Soviet legacy, the structure and composition of Russia's current nuclear forces strongly resemble the force that it inherited at the end of the Cold War. Russia continues to maintain a strategic triad of land-based intercontinental ballistic missiles (ICBMs), strategic submarines (SSBN) with long-range sea-launched ballistic missiles (SLBMs), and long-range bombers equipped with short-range nuclear-armed missiles and gravity bombs. Many of these have multiple independently targetable re-entry vehicles (MIRVs) for carrying more than one warhead as well as decoys and other penetration aids. Russia has also retained many smaller tactical nuclear weapons that it inherited from the Soviet period and is developing its own strategic defenses even as it criticizes U.S. missile defenses as destabilizing.

The ICBMs of Russia's Strategic Missile Forces (SMF) have historically represented the mainstay of the country's strategic deterrent. Russia's more than three hundred ICBMs can carry approximately 1,000 warheads. Since Russia's operational ICBMs are on average 30-40 years old, many have reached the end of their service lives and are being decommissioned. Moscow is currently in the process of retiring all of its Soviet-era ICBMs (the SS-18, the SS-19, and the single warhead SS-25) and replacing them with systems built and increasingly designed in the years following the Cold War, such as the Topol-M (SS-27) and the multi-warhead RS-24 Yars. At present, the SMF fleet is split roughly equally between the two generations, but in another decade all of Russia's strategic missiles will be post-Soviet. Russia is expected to begin production soon of a new 100-ton ICBM, known as Sarmat, to replace the SS-18. Like the SS-18, the Sarmat will be a heavy ICBM using liquid fuel, based in hardened fixed silos, and capable of carrying ten MIRVs.

The future of Russia's sea-based nuclear deterrent rests with the fourth-generation Project Mk 955 Borey-class nuclear-powered SSBN and its new RSM-56 Bulava SLBM, a combination designed as the foundation of Russia's maritime nuclear triad through at least the 2040s. The first two Borey-class SSBNs, the Yuri Dolgoruky and the Aleksandr Nevsky, joined the fleet last year. However, their entry, and those of the other six planned Boreys, has been repeatedly delayed due to problems with the Bulava missile. About half of the missile's 19 test launches have failed, sometimes spectacularly. After an overhaul of the missile's production process in 2009, the flight test program had a pair of successful launches in 2010-2011, leading to a decision to put it into serial production. However, the Bulava failed its 20th flight test in September 2013, reawakening doubts about the system's reliability and delaying the entry of further Borey-class submarines into the fleet. Russia now plans to resume

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testing of the Bulava missile in late 2014. The new Borey strategic submarines are desperately needed to replace the current fleet of three Project 667BDR Kalmar (NATO: Delta III) and six Project 667BDRM Delfin (NATO: Delta IV) strategic submarines. The Navy is preparing to decommission the Delta IIIs, while modernizing the Delta IVs, to extend their service lives for another 10-15 years.

Russia's strategic bomber fleet remains the weakest leg of its offensive strategic triad. It consists almost exclusively of Soviet-manufactured platforms capable of launching long-range air-launched cruise missiles (ALCMs) armed with nuclear warheads. The Long-range Aviation Command has 55 turboprop Tu-95MS (NATO-designated "Bear") heavy bombers built in the 1950s and 11 swing-wing supersonic jet Tu-160 "Blackjack" bombers, nicknamed "White Swans" by their pilots. The Blackjacks are being modernized to extend their service lives. For example, they are receiving NK-32 engines, which will last longer than their original engines. The upgrades will also enable the planes to use gravity bombs as well as conventionally armed cruise missiles. The Russian government also plans to build a new strategic bomber before the end of this decade. This new bomber, codenamed PAK DA, will likely carry a new long-range nuclear-armed cruise missile, the Kh-102, which is currently under development. Like its U.S. counterparts, the future bomber will probably also have the capacity to conduct non-nuclear strikes with several types of conventional weapons.

Challenges

Although Russia has more than enough nuclear warheads and constituent components, it has nevertheless encountered problems deploying adequate numbers of strategic delivery platforms. Since the breakup of the Soviet Union, Russian defense enterprises have manufactured considerably fewer strategic ballistic missiles than required to replace the country's aging land- and sea-based strategic deterrents. As a result, the mass decommissioning of Soviet-era ICBMs (with as many as ten warheads each) and their replacement by only a small number of single-warhead ICBMs, has resulted in a precipitous decline in the relative contribution of Russia's land-based missiles to the offensive strategic triad, at least measured in terms of warheads.

One way Russia is trying to compensate for the diminished size of its ICBM fleet is to improve the other two legs of its strategic nuclear triad. In particular, the Russian government has devoted vast resources to revitalizing the sea-based leg of its nuclear deterrent, lavishing attention on the Borey-Bulava combination. For political and military leaders who have traditionally relied on land-based ICBMs for most of their country's strategic nuclear warheads, however, Russia's growing dependence on its more vulnerable submarines and bombers must arouse a certain degree of anxiety.

Moscow is trying to counter this trend by increasing the number of warheads it places on each remaining ICBM. The plans to rebuild the land-based ICBM fleet by deploying more MIRV-ed systems should help limit the speed with which the number of warheads on Russia's ICBMs fall, but at the cost of crisis stability. Placing more warheads on a fewer number of strategic systems increases the incentives for its adversaries to strike first in any crisis with the objective of destroying Russia's limited number of MIRV-ed systems before they have launched and released their individual warheads, which exponentially increases the number of targets the defender needs to destroy. Russia also has a strong incentive to launch its MIRV-ed missiles in a crisis rather than risk losing such a concentrated target of warheads to a U.S. first strike.

To cut costs and facilitate maintenance and training, the Russian military is seeking to reduce the types of delivery systems it has in each leg of the offensive triad. Instead of half a dozen ICBMs and SLBMs, the military is developing and producing a pair of each delivery systems. But the decision to reduce the variety of nuclear delivery platforms in service has already created crises whenever one type has experienced production (e.g., the Topol-M) or development (e.g., the Bulava) problems. The reduction in the types of nuclear warheads creates comparable risks from the failure of a particular warhead design.

Russia's smaller number of ICBMs would also make it easier for a strategic defense system to target and destroy them. Russian missile designers have tried to make their systems less vulnerable to BMD systems by making their launchers mobile (so that their launch location and flight path is less predictable); having the missiles cut or drop their engines as soon as possible to reduce their infrared signature; giving missiles auxiliary engines or using

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maneuverable warheads, which are much harder to intercept than those flying a simple ballistic trajectory; applying stealth coatings to warheads that reduce their heat and electromagnetic signature to sensors; and making the decoys' flight path in outer space closely resemble those of their warheads. Nevertheless, the capabilities, efficacy, and availability of these new technologies and tactics remain uncertain.

Through its enormous spending to modernize Russia's nuclear forces, the Putin administration looks likely to stabilize the size of the force in coming years as well as replace its Soviet-era weapons systems. Nevertheless, the weakening Russian economy and the government's plans to spend more on conventional forces by, for example, buying more expensive precision-guided munitions for the army and air force, could further reduce the resources available for modernizing Russia's nuclear arsenal. The Russian government appears prepared to rebalance its funding in coming years and devote more resources on conventional forces and other priorities. The Kremlin is reluctant to cut social spending in such a volatile political situation, even to boost defense spending, and now needs to devote enormous funds to integrating Crimea into the Russian Federation. The sanctions the Western governments imposed on Russia for its aggression in Ukraine are hurting its overall growth prospects and could disrupt Moscow's nuclear modernization since factories in Ukraine were key components of the Soviet military-industrial complex.

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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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