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Feature Report

“Artificial Intelligence, Strategic Stability and Nuclear Risk: Euro-Atlantic Perspectives—New SIPRI Report”. Published by SIPRI; May 6, 2019

<https://www.sipri.org/news/2019/artificial-intelligence-strategic-stability-and-nuclear-risk-euro-atlantic-perspectives-new-sipri>

Since the beginning of this decade, breakthroughs in machine learning and approaches to AI engineering have enabled the development of increasingly capable AI applications and autonomous systems. In the military sphere, these advances have created many opportunities but have also raised concerns from ethical, legal, operational and strategic standpoints. This edited volume focuses on a new aspect: the impact on AI on nuclear strategy.

The report, edited by Dr Vincent Boulanin, Senior Researcher at SIPRI, investigates why—and how—machine learning and autonomy might become the focus of an arms race among nuclear-armed states. It also examines the impact that the adoption of these technologies might have on their calculations on strategic stability and nuclear risk at the regional and global levels.

The contributors—14 experts from the Euro-Atlantic community—agree that AI could enable major transformations in many areas of warfare, including the nuclear domain; however, future developments will differ from the common representation of military AI in popular culture. In fact, the report emphasizes that the types of risk posed by AI in the nuclear domain are not necessarily new: recent advances in AI exacerbate old and well-known risks familiar from the cold war confrontation between the Soviet Union and the West. This means that solutions already exist.

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NUCLEAR WEAPONS AND DETERRENCE

U.S. News and World Report (Washington, D.C.)

How the Coronavirus Has Changed the Way America Prepares for Nuclear War

By Paul D. Shinkman

July 9, 2020

THE CORONAVIRUS HAS forced the Air Force to reconsider how it operates the most powerful weapons in the U.S. nuclear arsenal, yielding unprecedented measures to remain ready for war as the pandemic spread across the globe.

The Air Force officers within the intercontinental ballistic missile program, known colloquially as "missileers," traditionally worked single shifts in their bunkers roughly 60 feet underground, sheltered by blast doors and supported by seemingly endless redundancies and backups. But facing the threat posed by the virus, and adversaries who seem determined to exploit it, now they and the staff who support them are working shifts as long as two weeks, isolated in facilities at the silos across missile fields in Montana, North Dakota and Wyoming to ensure they don't contract the virus.

The moves are unprecedented and stretch beyond even the training scenarios for doomsday events that these forces previously practiced.

"We've never had a crisis in our history where we needed to have that type of capacity at our missileer facilities for that long a period of time," Air Force Maj. Gen. Ferdinand "Fred" Stoss told U.S. News in an interview shortly before ending his tenure this week as commander of the 20th Air Force, which oversees the nation's intercontinental ballistic missile force.

And so far it appears to have worked. Though some members of the 20th Air Force have contracted the virus, none of those charged with what Stoss calls the "vital mission set" has yet tested positive for it.

That admission stands in stark contrast to other elements of the U.S. military that were effectively sidelined earlier this year by the spread of the disease, including the USS Theodore Roosevelt aircraft carrier, which only returned to full duty last month.

The Air Force has documented almost 2,200 cases of the coronavirus as a part of the 22,000 positive diagnoses among all uniformed and civilian members of the Defense Department, according to the latest available figures. It is trailed only by the much smaller Marine Corps in cases among the active duty services.

A spokeswoman for the 20th Air Force declined to say specifically how many of its airmen had contracted the coronavirus. The Pentagon has hesitated to release too much detail about how the virus has affected its warfighting forces for fear of emboldening potential adversaries.

The airmen working in the missile fields had routinely conducted training exercises for contingencies that would interrupt their usual schedule of rotating in a new crew every day. Isolated moments in the past, such as the Cuban Missile Crisis in 1962, have also contributed to plans they've developed for how to adapt to emergency situations.

But the circumstances during this pandemic, heightened by the persistent threat of the nuclear arsenals of China, Russia and North Korea, presented new challenges for the missileers, as well as the security forces, facility managers and staff like chefs that support them.

The missileers are now operating on 14-day schedules, during which time they stay in contained facilities at the silos with no outside contact other than electronic communication and the internet. Their replacement crews also enter a strict isolation for 14 days – matching the known incubation period of the virus – with limited abilities to travel during that time.

Their support staff had previously operated on a similar 14-day schedule, including the cooks at the facilities and the troops who protect them, but due to more abundant testing are now changing over every five days, Stoss says.

"We've never had one that is so long-term," Stoss says of the new scheduling requirements. "Now we've actually done it. We've documented it, we've improved upon it, and I just made some modifications last week. These will be enduring."

Some of the effects of the sweeping changes were unexpected. Stoss says morale has improved among crews that now spend more time together. The 20th Air Force has also improved internet connectivity to allow airmen to communicate more easily with the outside world and even play video games more readily to help pass the time.

"There's a synergy when they all deploy out together, stay out together and return together," he says.

And he echoed assertions from other senior members of the Defense Department, including Air Force Chief of Staff Gen. David Goldfein, that the military must remain prepared to continue on this unusual footing indefinitely: "This is going to be an issue, a real issue for us, for a long time."

After leaving his current position, Stoss will transition to U.S. Strategic Command, which oversees the entire military's nuclear forces among other forms of strategic deterrence, where he will become director of plans and policy.

Paul D. Shinkman, Senior Writer, National Security

Paul Shinkman is a national security correspondent. He joined U.S. News & World Report in 2012 ...

<https://www.usnews.com/news/national-news/articles/2020-07-09/how-the-coronavirus-has-changed-americas-nuclear-missile-force>

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Aiken Standard (Aiken, S.C.)

Plutonium Mishap at Los Alamos National Lab Accentuates Pit Production Worries

By Colin Demarest

July 8, 2020

Fifteen workers at Los Alamos National Laboratory might have been exposed to plutonium, a potentially grave mishap that some industry observers and critics say portends trouble for plutonium pit production, a separate cross-country nuclear weapons mission.

At least one lab worker received "significant contamination" on his hair, skin and protective clothing, according to the Defense Nuclear Facilities Safety Board, following a June breach in a glovebox, a sealed piece of equipment used to handle dangerous or toxic substances.

"The room experienced significant" airborne radioactivity at the time and alarms triggered, inspectors with the independent board reported. A Los Alamos spokesperson on Wednesday said

"laboratory employees responded promptly and appropriately, and cleared the room in a safe manner."

The one worker, the DNFSB noted, was successfully decontaminated and provided chelation therapy, a treatment for heavy-metal poisoning.

Los Alamos is investigating the June 8 exposure, and the total 15 workers are being monitored and evaluated, the same spokesperson said. The area where it happened at the New Mexico lab has been secured, pending a review.

Exactly how long that review will take is unclear, as are its consequences.

The "serious" incident last month is a "tiny window into long standing problems here," Greg Mello, with the watchdog Los Alamos Study Group, said in an interview with the Aiken Standard. It comes at a time, too, when the lab is maneuvering toward and preparing for jumpstarted plutonium pit production, the forging of nuclear weapon cores.

Federal law mandates the production of 80 plutonium pits per year by 2030 – a tight schedule, defense officials have acknowledged. While the Savannah River Site would produce 50 of those pits per year, according to a joint recommendation made by the National Nuclear Security Administration and the U.S. Department of Defense in 2018, Los Alamos would produce 30.

What recently transpired at Los Alamos "casts a long shadow" over the lab's "pell-mell rush to acquire a huge plutonium production mission, namely pit production," Mello said this week. Stephen Young, a Washington representative for the global security program at the Union of Concerned Scientists, described the circumstances as "tricky, dangerous," expensive and time consuming.

"This is yet another example of why the current pit production plan is doomed to failure," Young said.

Savannah River Site Watch Director Tom Clements on Wednesday similarly said the plutonium exposure is troubling – for both South Carolina and New Mexico.

"The rush by DOE to quickly expand plutonium pit production to SRS is fraught with risks and this accident serves as a red alert about those fast-tracked plans," he said. "NNSA must immediately pause their overly ambitious pit production plans and fully review this troubling plutonium accident and its implications in environmental documents being prepared on pits at both SRS and Los Alamos."

Los Alamos, near Albuquerque and Santa Fe, has been recognized as a plutonium center of excellence. Plutonium-238, what was being handled June 8, is not used in nuclear weapons, as NASA has noted.

Pit production at the Savannah River Site, according to the 2018 recommendation, would mean repurposing the failed and incomplete Mixed Oxide Fuel Fabrication Facility.

https://www.aikenstandard.com/news/plutonium-mishap-at-los-amos-national-lab-accentuates-pit-production-worries/article_8892690a-c12d-11ea-8538-c3eedbb2f65e.html

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Air Force Magazine (Arlington, Va.)

Strategy & Policy: A New Bomber Vision

By John A. Tirpak

June 1, 2020

The 16-year-old “continuous bomber presence” mission at Guam is gone, replaced with “dynamic force employment,” in which bombers will pop up unexpectedly around the world to demonstrate a perpetual ability to project power.

The Air Force’s stance on how many new, stealthy B-21 bombers it needs is changing. Instead of “at least 100,” the number appears to be 145. Air Force leaders don’t actually quote that number, but they’re now comfortable saying they need 220 bombers overall to fulfill the National Defense Strategy (NDS), and that 75 of those will be re-engined B-52s. That leaves 145 other aircraft, after the B-1 and B-2 retire.

Gen. Timothy Ray, whose Air Force Global Strike Command (AFGSC) flies those bombers, used that 220 figure throughout a media blitz this spring. It amounts to five squadrons more than the old figure of 175, which he told defense writers in April was “programmatically derived,” rather than a practical answer to NDS requirements.

Today’s bomber fleet includes just 158 airplanes: 7 B-52s, 20 B-2s and 62 B-1s, and would shrink by another 17 B-1s if the Air Force’s 2021 budget request is approved. Giving up its most maintenance-hungry B-1s would leave the B-1 fleet at 45, but Ray said he’ll retain the same number of crews and maintainers to keep the jets more ready for action. Once available, they will receive hypersonic ARRW (Air-launched Rapid Response Weapon) missiles mounted on external hardpoints. The B-2s would remain the sole “penetrating” bomber until the B-21 comes along, but with only a down-scoped version of the planned Defensive Management system upgrade.

Air Force Deputy Chief of Staff for Plans and Programs Lt. Gen. David Nahom said the longer-term goal is a “two-bomber fleet.” Speaking at a Mitchell Institute for Aerospace Studies “Aerospace Nation” event, Nahom said the B-1 will stay in the inventory just long enough to “shake hands” with the B-21—circa 2032.

“I know the reality of developing new programs,” Nahom said. The B-21 is certain to experience “bumps along the way,” which could require extended service from the B-1 and B-2. The B-21 is “just starting production” now and will soon enter the test phase, Nahom said, adding the Air Force plans to accelerate production once the planes start flying.

That forecast is what happens “in a perfect world,” Nahom said. “And in a very perfect world, we’ll get to 220.”

Even 220 bombers may not be the ceiling, though.

“Right now, we know the requirement for long-range bombers is north of 220,” Ray said. The B-1’s readiness is far better now than it’s been in a long time, he said, with the “Bones” able to fly “more sorties in a month than we’ve seen in the last three or four years.” B-1s logged 100 sorties in March alone, he noted, thanks to “a significantly larger number of mission-ready crews” and “good momentum.”

Ray said in addition to fitting the B-1s with up to six ARRW hypersonic missiles, the Air Force is also still thinking about fielding a derivative of the Hypersonic Air-breathing Weapon Concept, or HAWC, a joint USAF-Defense Advanced Research Projects Agency program.

“We think we’ve got a good game plan” on hypersonics, Ray said. “We think an air-breathing missile in the long run would also be something to consider, but we’re very comfortable with where the Air Force is going in their selection” of ARRW.

With more emphasis on the near-peer mission, Ray also signaled the end of using B-52s and B-1s for close air support in Afghanistan and, more recently, in Syria and Iraq. That mission was tough on the aircraft, requiring them to fly outside their design profile.

The National Defense Strategy “by necessity ... focuses us to increase our long-range strike regardless of the platform,” Ray said.

A future “arsenal plane” could help with that requirement. Ray envisions it as a new design, rather than a converted B-52, and imagines it could be developed using the Air Force’s “Digital Century Series” model. Lower-cost “attritable” platforms, such as the Air Force’s “Skyborg” airframe, or short-lived platforms intended to remain in service only until newer technology emerges, are both options. Under Air Force acquisition chief Will Roper’s “Digital Century Series” concept, new designs would be rapidly developed, built, fielded, and upgraded—then retire after 10 or so years of service. Shorter life spans would translate to lower costs.

“The arsenal plane concept is probably better described as more of a clean-sheet approach,” Ray said, that could “go down more innovative paths.”

Meanwhile, to ensure bombers get the needed focus on readiness and modernization, Air Force Materiel Command (AFMC) is creating a separate Program Executive Officer (PEO) to oversee bombers, naming Brig. Gen. John Newberry, previously the PEO for tankers, to the post. USAF’s Rapid Capabilities Office will continue to run the B-21 program, but Newberry will have the primary train and equip duty for personnel working on the B-21 at AFMC’s Life Cycle Management Center.

A B-1B Lancer, top, flies with a Polish F-16 during a long-range, long-duration training mission for Bomber Task Force Europe, May 11. Polish Air Force photo

Operationally Unpredictable

To go with all the bomber programmatics, the Air Force surprised many with the April announcement that it’s ending its continuous bomber presence mission at Andersen AFB, Guam. Bombers have been at Andersen almost without interruption since 2004, a highly visible reminder to friends and adversaries that the Air Force was ready and active in the Pacific theater. Instead, Global Strike Command will emphasize a new concept where bombers will operate without a predictable schedule in an effort to make the U.S., as the NDS states, “strategically predictable, operationally unpredictable.”

USAF mounted an “elephant walk” in Guam just days before the announcement, lining up on the Andersen runway with bombers, tankers, reconnaissance drones, and helicopters. Such demonstrations show that a base can fuel, arm, and prepare to launch a large number of aircraft rapidly—though they stop short of actually launching the airplanes.

More demonstrations followed. A B-1 from Ellsworth Air Force Base, S.D., made a 30-hour training flight to form up over Japan with Air Force F-16s and Japanese Air Self-Defense Force F-2s; Pacific Air Forces commander—and the next Air Force Chief of Staff—Gen. Charles Q. Brown Jr. said the solo bomber mission “showcases our unwavering commitment to the security and stability” of the Indo-Pacific region.

On May 1, two B-1s deployed to Guam and flew over the South China Sea “to support [PACAF]’s training efforts and strategic deterrence missions to enforce the rules-based international order” of

the region, PACAF said. On May 7, two B-2s from Whiteman AFB, Mo., and two B-52s each from Barksdale AFB, La., and Minot AFB, N.D., launched for training missions in Europe.

Less than two weeks later, on May 11, B-1s flew from Ellsworth to Eastern Europe, overflying Denmark, Latvia, Lithuania, and Poland alongside Danish and Polish F-16s and Polish MiG-29s. U.S. Air Forces Europe commander Gen. Jeffrey Harrigian said the exercise was meant to put adversaries and allies, alike, on notice that “we are ready, able, and willing to deter and defend when called upon.” The B-1s exercised with Canadian CF-18s on the way home.

“We can come and go anytime they need us,” Ray said. “We don’t need to be there, physically.”

“Dynamic force employment” acknowledges that USAF must be more agile and flexible in deploying air power, particularly in the Pacific. Leaders expect combat units to be more expeditionary than ever, deploying with just a C-130 or two of support gear, and with multiskilled Airmen able to handle a wider array of duties. Brown has said he wants the Air Force to develop more mobile airbase defenses and suggests some roles and missions should be shuffled to make that possible. The threat posed by longer-ranged Chinese missiles makes this essential, Brown stated.

Pulling back to the U.S. from the South Pacific, however, will still be a challenge. From Guam, bombers could reach the most chronic areas of conflict in a few hours, without tanker support. From anyplace else, they’ll be at least 12 hours away, requiring extensive tanking to get to and from their destinations. Support gear and crews will also have to deploy to whatever Pacific base USAF will use to generate bomber sorties, taxing limited mobility assets.

Esper Endorsement

Air Force leaders came under fire for offering to trade those older B-1s for better readiness and future joint all-domain command and control capabilities. Bomber advocates warned the existing force is already too small to carry out the National Defense Strategy, and members of Congress worried that giving up airframes would cost jobs at bomber bases.

But Defense Secretary Mark Esper stated in May that modernization—not current capacity—is his priority. When asked what his budget priorities would be if COVID-19-related expenses put pressure on the Pentagon’s budget, he said he would “pull out more of the legacy programs” rather than risk modernization. Without naming specifics, Esper said there are “dozens” of legacy programs that ought to be halted across the armed services.

DOD should “invest those dollars in the future,” he said. Despite “near-term risk,” China and Russia are modernizing too rapidly not to keep up.

<https://www.airforcemag.com/article/strategy-policy-9/>

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Breaking Defense (Washington, D.C.)

Senate, House Set to Rumble over Who Controls Nuke Budget

By Theresa Hitchens

July 8, 2020

WASHINGTON: The two sides of the Capitol are set for a fight on whether DoD should be given a stronger hand in developing the annual budget for nuclear weapons development — a fight that will be complicated due to the diametrically opposed positions of the committees involved.

The House Appropriations Committee's 2021 budget bill for the Energy Department would block the use of funds for DoD's Nuclear Weapons Council to participate in development of the National Nuclear Security Administration (NNSA) budget. The bill says in section 309 that no NNSA or any other DoE funds may be used "in furtherance of working through the Nuclear Weapons Council to guide, advise, assist, develop, or execute a budget for the National Nuclear Security Administration."

The provision seeks to prevent the Nuclear Weapons Council "from further encroaching on the development of the NNSA budget," Kingston Reif, director of arms control and threat reduction policy at the Arms Control Association, told Breaking D.

That is a direct slap at the Senate Armed Services Committee (SASC), which is pushing to give the Defense Department — for the first time — levers to influence NNSA's nuclear weapons development budget. One of the longest-standing policy decisions governing nuclear weapons — not their delivery systems — is that funding and work would be controlled by civilians, in this case the Department of Energy. SASC can only engage in oversight of "national security aspects of nuclear energy."

Despite being forced to compromise with leaders of the Energy and Natural Resources Committee during the Senate floor vote July 2 on a package of amendments, SASC Chair James Inhofe was able to protect a provision in the 2021 National Defense Authorization Act (NDAA) that gives DoD budgetary review rights.

Energy Committee Chair Lisa Murkowski and Ranking Member Joe Manchin, along with Sen. Maria Cantwell, threatened to block the NDAA and were able to strip one section of the bill, Section 3111, that would have allowed DoD to veto Energy Secretary Dan Brouillette's budget decisions. However, the compromise with Inhofe left another provision, Section 1652, that would allow the Nuclear Weapons Council a chop on the NNSA budget before it reaches Brouillette's desk.

"It's not as ludicrous as the original Section 3111, but would nonetheless significantly expand the budget role and authority of the Nuclear Weapons Council," Reif said.

However, a SASC aide said the provision in Section 1652 doesn't do much more than clarify the Nuclear Weapons Council's current role.

"Section 1652 just provides more detail than the existing section of code it is replacing (10 USC 179(d)(10)) but is consistent with the responsibilities of the Nuclear Weapons Council as laid out in law for many years," the aide told Breaking D today in an email. "It is also consistent with revisions to section 3111 made by the Cantwell/Manchin amendment. Note that, as many have pointed out, the original version of 3111 would have effectively allowed DOD to make changes to the NNSA budget before submittal to OMB. Extant 10 USC 179(d)(10), section 1652, and section 3111 as amended simply specify points in the process for coordination and approval, consistent with current law."

As if the disagreement on what SASC is trying to do wasn't complicated enough, the issue of who is expected to do what to whom in setting the rules is just as complicated. The SASC and the House Armed Services Committee (HASC) set DoD policy via the NDAA — just as the Senate and House Energy committees set DoE policy. But the HAC has the power of the purse, providing funds for DoE and DoD via its energy and defense subcommittees; as does its Senate counterpart. That means there are four committees with fingers in the pie — all with differing positions on the issue of how NNSA's budget should be put together.

The HASC, for its part, has not included any language on the issue — so it is unclear what the full House will do when the NDAA comes up for a vote; and more unclear about how the House might come down in conference committee with the Senate. Of course, the safe bet is that the HASC doesn't want to change things since it did not include any language. That said, House Democrats

(who are the majority party) have expressed some concerns about the powers already vested in the Nuclear Weapons Council, according to one Hill watcher, and what they see as a lack of transparency in its decision-making. Indeed, the HASC in its 2020 version of the NDAA asked for more regular briefings by the council.

On the Senate side, where the Republicans hold the majority, there has been bipartisan push back on the SASC language. Opponents include Sen. Lamar Alexander, who chairs the Senate Appropriations subcommittee on energy and water, making it unclear if the SAC will go along with the SASC — as is normally the case on the defense budget.

Indeed, Alexander signed a July 1 letter to the SASC, obtained by Breaking D, opposing any transfer of NNSA budget authority to DoD. The letter says:

“As currently written, the Senate NDAA bill would strip the Secretary of Energy of the ability to manage some of the most sensitive national security programs that account for almost half of the Department’s budget. Such changes could impede accountability and Congressional oversight, as well as imperil future funding for other critical DOE responsibilities such as promoting scientific and technological innovation, managing our National Laboratories, sponsoring basic research in the physical sciences, and ensuring cleanup of the nation’s nuclear weapons complex.”

The letter, however, was written before Inhofe and Murkowski reached their NDAA compromise. The upshot? It’s just too soon to predict which way the debate will go.

<https://breakingdefense.com/2020/07/senate-house-set-to-rumble-over-who-controls-nuke-budget/>

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US COUNTER-WMD

Breaking Defense (Washington, D.C.)

Future Missile War Needs New Kind of Command: CSIS

By Sydney J. Freedberg Jr.

July 7, 2020

WASHINGTON: Don’t try to shoot down each arrow as it comes; shoot the archer. That’s a time-honored military principle that US forces would struggle to implement in an actual war with China, Russia, North Korea, or Iran, warns a new report from thinktank CSIS.

New technology, like the Army’s IBCS command network – now entering a major field test — can be part of the solution, but it’s only part, writes Brian Green, a veteran of 30 years in the Pentagon, Capitol Hill, and the aerospace industry. Equally important and problematic are the command-and-control arrangements that determine who makes the decision to fire what, at what, and when.

Today, the military has completely different units, command systems, doctrines, and legal/regulatory authorities for missile defense – which tries to shoot down threats the enemy has already launched – and for long range offensive strikes – which could keep the enemy from launching in the first place, or at least from getting off a second salvo, by destroying launchers, command posts, and targeting systems. While generals and doctrine-writers have talked about “offense-defense integration” for almost two decades, Green says, the concept remains shallow and incomplete.

“A thorough implementation of ODI would touch almost every aspect of the US military, including policy, doctrine, organization, training, materiel, and personnel,” Green writes. “It would require a fundamental rethinking of terms such as ‘offense’ and ‘defense’ and of how the joint force fights.” Indeed, it easily blurs into the even larger problem of coordinating all the services across all five domains of warfare – land, sea, air, space, and cyberspace – in what’s known as Joint All-Domain Operations.

The bifurcation between offense and defense runs from the loftiest strategic level down to tactical:

At the highest level, US Strategic Command commands both the nation’s nuclear deterrent and homeland missile defense. But these functions are split between three different subcommands within STRATCOM, one for Air Force ICBMs and bombers (offense), one for Navy ballistic missile submarines (also offense), and one for Integrated Missile Defense.

In forward theaters, the Army provides ground-based missile defense, but those units – Patriot batteries, THAAD, Sentinel radars – belong to separate brigades from the Army’s own long-range missile artillery, and they’re even less connected to offensive airstrikes from the Air Force, Navy, and Marine Corps.

The Navy’s AEGIS system arguably does the best job of integrating offense and defense in near-real-time, Green says, but even there, “different capabilities onboard a given ship can come under different commanders,” one with the authority to unleash Standard Missile interceptors against incoming threats and the other with the authority to fire Tomahawk missiles at the enemy launchers.

This division of labor might have worked when warfare was slower. But China and Russia have invested massively in their arsenals of long-range, precision-guided missiles, along with the sensors and command networks to direct them to their targets. So, on a lesser scale, have North Korea and Iran. The former deputy secretary of defense, Bob Work, warned of future conflicts in which “salvo exchanges” of hundreds of missiles – hopefully not nuclear ones – might rocket across the war zone within hours.

It’s been obvious for over a decade that current missile defense systems simply can’t cope with the sheer number of incoming threats involved, which led the chiefs of the Army and Navy to sign a famous “eight-star memo” in late 2014 that called, among other things, for stopping enemy missiles “left of launch.” But that approach would require real-time coordination between the offensive weapons, responsible for destroying enemy launchers, command posts, and targeting systems, and the defensive ones, responsible for shooting down whatever missiles made it into the air.

While Navy Aegis and Army IBCS show some promise, Green writes, neither is yet capable of moving the data required among all the users who would need it: Indeed, IBCS is still years away from connecting all the Army’s defensive systems, while Aegis only recently gained an offensive anti-ship option, a modified SM-6, alongside its defensive missiles. As two Army generals cautioned in a recent interview with *Breaking Defense*, missile defense and offense have distinctly different technical requirements that limit the potential of using a single system to run both. There are different legal restrictions as well: Even self-defense systems operate under strict limits, lest they accidentally shoot down friendly aircraft or civilian airliners, and offensive strikes can easily escalate a conflict.

Long-Range All-Domain Prompts Roles & Missions Debate

“It’s ridiculous, to be quite candid. It is encroachment on roles and missions,” says Mitchell Institute’s Dave Deptula about Army plans for super long-range weapons that rival the capabilities of Air Force combat aircraft.

Green's 35-page paper doesn't solve these problems. But it's useful examination of how complex they can become.

<https://breakingdefense.com/2020/07/future-missile-war-needs-new-kind-of-command-csis/>

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US ARMS CONTROL

CNN (Atlanta, Ga.)

China Says It Won't Join Nuclear Talks until the US Reduces Its Arsenal

By Steven Jiang and Ben Westcott

July 8, 2020

Beijing (CNN)China would be "happy" to join trilateral nuclear arms control talks with the United States and Russia, on the condition that Washington significantly reduces its arsenal to match China's own level, a senior Chinese diplomat said Wednesday,

The Chinese military currently has far fewer nuclear weapons than either the US or Russia, both of which have at least 5,000 nuclear warheads each.

In comparison, it is estimated that China only has about 320, according to the Stockholm International Peace Research Institute (SIPRI), meaning the US would be required to eliminate more than 4,500 warheads from its arsenal to match Beijing.

US President Donald Trump has repeatedly called for China to join nuclear arms control negotiations between the US and Russia, but Beijing has said it is out of the question while its nuclear arsenal is still comparatively small.

"I can assure you that if the US says that they are ready to come down to the Chinese level (of nuclear weapons), China will be happy to participate the next day. But actually we know that's not going to happen," Fu Cong, head of the Chinese Foreign Ministry's arms control department, said at a press briefing in Beijing Wednesday.

An unarmed US Minuteman III intercontinental ballistic missile launches during an operational test in California in 2016.

An unarmed US Minuteman III intercontinental ballistic missile launches during an operational test in California in 2016.

Trump wants China to join in a three-way treaty designed to replace the Measures for the Further Reduction and Limitation of Strategic Offensive Arms, known as the New START nuclear agreement, between Washington and Moscow, which is expected to expire in 2021.

New negotiations are already underway between the US and Russia, but the Chinese government has flatly refused to take part in any nuclear agreement with the US.

Fu said that while China is a "strong advocate for nuclear disarmament," Beijing's position on trilateral talks had been made clear on "numerous occasions."

"China has no interest in joining the so-called trilateral negotiations, given the huge gap between the nuclear arsenal of China and those of the US and the Russian Federation," Fu said.

"For us, this trilateral negotiation is nothing but a 'hoax,' to use a word of the US President," he added, referring to a favorite term of Donald Trump.

Speaking on June 24, Marshall Billingslea, the top US envoy for nuclear negotiations, said that Beijing had an "obligation" to negotiate, and accused the Chinese government of engaging in a "rapid buildup" of its nuclear program, to achieve parity with the US and China.

Fu dismissed claims that there was a rapid escalation of China's nuclear missile capabilities and accused the US of trying to use China as an excuse to shirk their treaty commitments.

"The real purpose is to get rid of all restrictions and have a free hand in seeking military superiority over any adversary, real or imagined," he said.

Experts believe there are nine nuclear-capable states: China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom, and the United States. All but North Korea are believed to have weapons developed enough to be readily deployed.

<https://www.cnn.com/2020/07/08/asia/china-us-nuclear-treaty-intl-hnk/index.html>

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Al-Monitor (Washington, D.C.)

The Takeaway: US Envoy: Iran 'Missing Good Opportunities' to Talk with Washington

By Andrew Parasiliti

July 8, 2020

The US special envoy for Iran, Brian Hook, told Al-Monitor that Iran is "missing good opportunities" by refusing direct talks with the United States.

Door for diplomacy "wide open." In an exclusive interview with Al-Monitor's "On the Middle East" podcast, Hook, who also serves as special adviser to Secretary of State Mike Pompeo, said he hopes the prospects are good for further prisoner exchanges with Iran and perhaps progress on other issues as well. But despite repeated offer of direct talks, Iran won't come to the table.

"I have requested a consular in-person dialogue with the regime," Hook said, adding that he doesn't believe Iranian Supreme Leader Ayatollah Ali Khamenei has provided his diplomats with a mandate for direct negotiations.

Until there are such talks, Hook said, the US will rely on the good offices and mediation of the government of Switzerland, which represents US interests in Tehran.

Missed opportunities. If there were talks, Iran could explore US President Donald Trump's offer of a "bigger deal," Hook said. "That's what the president would like to see. He's had the door wide open for diplomacy for a number of years...This is another example of the Iranian regime missing good opportunities to make progress. The president would like to get a better deal, and that's what he communicated in his statements after we brought home Michael White."

No hurry. The US is not in a hurry, said Hook. "Our strategy against Iran is working."

No right to enrichment. Any new nuclear deal with Iran would not include a right to enrichment, Hook said. Absent enrichment, there is no pathway for an Iran to acquire nuclear weapons. Hook referred to the United Arab Emirates as a "shining example of the right path on nuclear energy."

UN arms embargo on Iran must stay. Hook said, "There is no national security argument to allow the UN arms embargo on Iran to expire" in four months, as stipulated in the Iran nuclear deal. No

member of the Security Council can argue “with a straight face that what the region needs is the arms embargo to expire on the world’s leading state sponsor of terrorism ... and anti-Semitism.”

On Iraq. Hook said, “We are very pleased with the trend lines in Iraq. Iraqi Prime Minister Mustafa al-Kadhimi is off to a very good start,” adding, “The Iraqi people are fed up with Iranian interference in their domestic matters.”

Three quick takes: Israel; Iraq; Lebanon

1. Israel: Will Bibi go for broke to stop Iran nuclear threat?

On July 2, an explosion destroyed the upper level of Iran’s centrifuge upgrading and uranium enrichment plant in Natanz. While Israel did not take responsibility for what Iran initially described as an “incident,” The New York Times said a “Middle Eastern security source” told it that Israel had planted the bomb.

The Natanz explosion follows a blast in late June at a weapons manufacturing plant at Parchin and sabotage at a Tehran hospital, as well as a widely reported cyberwarfare exchange between Iran and Israel in the spring.

Our take: Netanyahu is facing a political firestorm over the economic costs of the COVID-19 spike, and the international blowback on annexation. For now, the best card Bibi has left to play, concludes Ben Caspit, “is the security card, and he is going for broke. That means setting back the Iranian nuclear program in order to allow Israel and perhaps the US to block an Iranian nuclear breakout should Iran abandon its ‘strategic patience’ policy” — that is, Tehran keeping its powder dry until after the US presidential election. Netanyahu, for his part, may see an advantage to pressing ahead on Iran while Trump is in office. With no Iran nuclear deal in place, Israel’s seeming undeclared war on Iran’s nuclear program may be the best and only option to scale back Iran’s nuclear weapons potential. That said, more aggressive action against Iran could also elicit blowback on other fronts.

2. Iraq: Prime minister vows to bring assassins to justice

Assassins gunned down renowned Iraqi scholar Husham al-Hashimi on July 6, sparking outrage, protests and memorials in Iraq and on social media.

A challenge to Iraqi reformists: As Toby Dodge wrote in a tribute to Hashimi, the killers “threw down a challenge to the new reformist team in the prime minister’s office.”

The Islamic State takes responsibility. The Islamic State’s Amaq News Agency claimed responsibility for killing Hashimi. However, as Ali Mamouri reports, “Many Iraqis, including Hashimi’s colleagues, are questioning the idea of IS involvement, pointing fingers at the militias that have attacked Hashimi over social media for his criticism of their activities against the Iraqi state and the foreign diplomatic missions in Iraq.”

Pompeo condemns killing: The secretary of state said July 8 that the US “joins partner nations in strongly condemning his assassination, and call for the Government of Iraq to bring to justice the perpetrators of this terrible crime and bring them swiftly to justice.”

3. Lebanon: Baalbeck Festival dazzles and inspires viewers

The COVID-19 pandemic and spiraling political and economic crises can’t keep the Lebanese down. On July 5, The Lebanese Philharmonic Orchestra played a concert in the spectacular Bacchus Temple at Baalbek called “The Sound of Resilience,” featuring 150 musicians from Antonine and Notre Dame Universities, Qolo Atiqo and Lebanese musicians playing music and symphonies from an international classical repertoire, including renowned Lebanese composers, writes Marita Kassis from Lebanon

Maestro Harout Fazlian, the festival's artistic director and conductor, said, "I would not call it a concert...I'd call it a message of solidarity and unity."

"Culture is not a luxury but a necessity," Fazlian added.

You can read Marita Kassis' article here, and watch the concert here.

Read more: <https://www.al-monitor.com/pulse/originals/2020/07/the-takeaway-brian-hook-iran-missing-opportunities.html#ixzz6RinGO4gN>

<https://www.al-monitor.com/pulse/originals/2020/07/the-takeaway-brian-hook-iran-missing-opportunities.html>

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South China Morning Post (Hong Kong)

North Korea Nuclear Programme: Seoul Hopes Trump Can Learn the Art of the 'Small Deal'

By John Power

July 9, 2020

South Korea's renewed push to revive moribund denuclearisation talks between North Korea and the United States faces hurdles including intransigence in Pyongyang and scepticism of half-measures in Washington, analysts say, amid reports Seoul hopes to salvage a "small deal" between the sides.

US Deputy Secretary of State Stephen Biegun was on Thursday due to wrap up a three-day visit to Seoul during which he spoke with South Korean officials about ways to rekindle long-stalled efforts to convince the North to relinquish its nuclear weapons programmes. The diplomat's flurry of engagements included talks with Foreign Minister Kang Kyung-wha, First Vice-Foreign Minister Cho Sei-young and top nuclear envoy Lee Do-hoon.

The visit came after South Korean President Moon Jae-in, who has made rapprochement with the North a priority, last week called on US President Donald Trump and North Korean leader Kim Jong-un to hold a third summit before the US presidential election to resolve the nuclear stand-off.

The North, which last month blew up an inter-Korean liaison office on its side of the border in a major blow to Moon's engagement efforts, has in recent days twice ruled out returning to talks with the US. The sides haven't held dialogue since the breakdown of working level talks in Sweden in October.

"The Moon administration wants to make a breakthrough before the November election [in the US]," said Choi Kang, vice-president of the Asan Institute for Policy Studies in Seoul, describing the South as "desperate" for any deal that would help it repair relations with the North. "It is their hope. But I am sceptical about the possibility of it."

Biegun's trip came after South Korea's Donga newspaper reported on Monday that Seoul's recently reshuffled national security team was pushing for Washington and Pyongyang to reach an agreement on partial denuclearisation that would leave some nuclear sites intact. The team led by Suh Hoon, the new director of the presidential Blue House's National Security Office, has set its sights on a deal under which the US would relax sanctions on Pyongyang in exchange for the dismantling of the North's Yongbyon nuclear facility and its intercontinental ballistic missiles, according to the newspaper. Under the "small deal plus" proposal, sanctions would snap back into

place in the event of the agreement being violated, the report said, citing an anonymous diplomatic source.

Although the North's nuclear and missile programmes remain shrouded in mystery, the regime has numerous unacknowledged nuclear facilities, according to researchers at the Washington-based Centre for Strategic and International Studies and other analysts. Trump reportedly walked out of his second summit with Kim in Hanoi in February 2019 after the North Korean leader rejected complete denuclearisation in exchange for normalisation of economic relations.

"Pyongyang has maintained denuclearisation is out of the question. So that means the regime wants the US and South Korea to accept a nuclear North Korea," said Soo Kim, a former CIA intelligence analyst who specialised in the North. "Pyongyang has also demonstrated – especially in recent weeks – that tensions will not be eased and confrontation maintained. There have been little if any signs to suggest Pyongyang is even entertaining peaceful relations with Seoul. So if you imagine what peace and reconciliation might look like here, it's natural for your mind to draw a blank."

Biegun on Wednesday denied he had requested any meeting with the North during his visit, but said Washington remained committed to "continuing our work for a peaceful outcome on the Korean peninsula".

"When Chairman Kim appoints a counterpart to me who is prepared and empowered to negotiate on these issues they will find us ready at that very moment," Biegun said. "Dialogue can lead to action, but action is impossible without dialogue."

In an apparent sign of support for Moon's outreach efforts despite reported differences over sanctions relief for the North, Biegun also said Washington believed in inter-Korean cooperation as an "important component in creating a more stable environment on the Korean peninsula".

Trump told US media on the same day he would be open to a third meeting with Kim, following summits in Singapore and Hanoi, if he "thought it was going to be helpful".

But Nam Chang-hee, a professor of political science and international relations at Inha University, said it was doubtful Washington would ultimately accept a partial deal that could be "conveniently interpreted as de facto recognition" of North Korea as a nuclear power.

Ryo Hinata-Yamaguchi, a visiting professor at Pusan National University, said the South's reported "small deal" offer would represent a major lowering of expectations for the US.

"The fact that North Korea has previously offered to close the Yongbyon facility already indicates that there is not much to lose for them in doing so," Ryo said. "North Korea is known to have other enrichment plants, thus it still has the capacity to continue with its nuclear weapons programme."

<https://www.scmp.com/week-asia/politics/article/3092400/north-korea-nuclear-programme-seoul-hopes-trump-can-learn-art>

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The Hill (Washington, D.C.)

Spending Bill Would Block Funding for Nuclear Testing

By Rebecca Kheel

July 6, 2020

A spending bill released by House Democrats would ban funding from being used to conduct a nuclear test.

The House Appropriation Committee's draft fiscal 2021 appropriations bill for the Energy Department would prohibit funding from being used to "conduct, or prepare to conduct, any explosive nuclear weapons test that produces any yield," according to text released Monday.

"Critically, the bill would prevent the Trump administration from using any funds to carry out its dangerous and short-sighted plan to resume nuclear testing," committee Chairwoman Nita Lowey (D-N.Y.) said in a statement Monday.

The provision was included in the panel's energy spending bill after reports earlier this year that the Trump administration raised the prospect of resuming nuclear testing as a negotiating tactic against Moscow and Beijing.

The Trump administration is seeking a trilateral nuclear agreement with Russia and China to replace the expiring bilateral New START nuclear treaty with Russia. But Beijing has repeatedly rejected the administration's invitation to join nuclear talks.

The Washington Post first reported in May that the idea of conducting the United States's first nuclear test in decades was raised at a May 15 meeting of senior officials. One official told the Post the idea for a test is "very much an ongoing conversation," while another official said a decision was made to avoid resuming testing.

The United States has not conducted an explosive nuclear test since 1992, checking the efficacy and reliability of its weapons instead with subcritical tests that produce no nuclear yield, computer simulations and other scientific methods.

The only country known to have conducted a nuclear test this century is North Korea.

The Trump administration, without evidence, has also in recent months accused Russia and China of conducting very low-yield tests.

Opponents of resuming nuclear testing, including Democrats and arms control advocates, argue a U.S. test would trigger nuclear testing by other countries and open the door to an arms race. An explosive would also be detrimental to human health and the environment without providing any benefits to studying the U.S. nuclear arsenal, they argue.

Last month, top House Democrats, including Lowey, sent a letter to the Pentagon and Energy Department calling the idea of conducting a nuclear test "unfathomable."

The Senate's version of a defense policy bill, meanwhile, would back preparations for a nuclear test.

An amendment to the Senate Armed Services Committee's version of the National Defense Authorization Act offered by Sen. Tom Cotton (R-Ark.) would make at least \$10 million available to "carry out projects related to reducing the time required to execute a nuclear test if necessary." The amendment was approved in a party line 14-13 vote last month.

<https://thehill.com/policy/defense/506067-spending-bill-would-block-funding-for-nuclear-testing>

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COMMENTARY

Strategist (Barton ACT, Australia)

Defence Update Signals Australia's Waning Faith in US Extended Deterrence

By Rod Lyon

July 6, 2020

Australia's defence strategic update is not recommended reading for the faint-hearted. It depicts a starkly divided world in which the prospects of conflict are growing. In this post, I'll explore only one small part of the document, namely paragraph 2.22. It contains only three sentences. But those sentences carry weighty implications.

Let's begin with the paragraph itself:

Only the nuclear and conventional capabilities of the United States can offer effective deterrence against the possibility of nuclear threats against Australia. But it is the Government's intent that Australia take greater responsibility for our own security. It is therefore essential that the ADF grow its self-reliant ability to deliver deterrent effects.

If the first sentence sparks a sense of déjà vu, that's because readers have—probably—seen it before. It's a sentence lifted from the 2016 defence white paper. There it was part of paragraph 5.20, outlining the benefits which flowed to Australia from its close association with the US:

Australia's security is underpinned by the ANZUS Treaty, United States extended deterrence and access to advanced United States technology and information. Only the nuclear and conventional military capabilities of the United States can offer effective deterrence against the possibility of nuclear threats against Australia. The presence of United States military forces plays a vital role in ensuring security across the Indo-Pacific and the global strategic and economic weight of the United States will be essential to the continued effective functioning of the rules-based global order. [Emphasis added.]

In its 2016 role, the sentence underlined the contribution made to Australia's security by US extended nuclear deterrence.

The 2013 defence white paper, released by the Gillard Labor government, contained a similar reference, although not in exactly the same terms. Paragraph 3.41 of that document reads:

Finally, as long as nuclear weapons exist, we rely on the nuclear forces of the United States to deter nuclear attack on Australia. Australia is confident in the continuing viability of extended nuclear deterrence under the Alliance, while strongly supporting ongoing efforts towards global nuclear disarmament.

Similarly, the Rudd government's 2009 defence white paper made clear the importance of US extended nuclear deterrence—and of its possible failure. See paragraph 6.34:

It also means that, for so long as nuclear weapons exist, we are able to rely on the nuclear forces of the United States to deter nuclear attack on Australia. Australian defence policy under successive governments has acknowledged the value to Australia of the protection afforded by extended nuclear deterrence under the US alliance. That protection provides a stable and reliable sense of assurance and has over the years removed the need for Australia to consider more significant and expensive defence options.

So the first sentence of paragraph 2.22 of the 2020 update seems to stand duty as a reference point for a long tradition of Australian acknowledgement of the importance to Australia of US extended deterrence. Remember the metric involved here: what offers ‘effective deterrence against the possibility of nuclear threats against Australia’? Unsurprisingly, only US conventional and nuclear capabilities offer such an assurance. So at this point the reader of the update might reasonably expect a form of words underlining the growing importance of US extended deterrence in more difficult times. Right?

Wrong. There’s nothing in the update about US extended deterrence—which is hard to interpret as anything other than signalling by omission. The update, in short, suggests a loss of faith in US extended deterrence among Australian policymakers. We might speculate about the causes of that. President Donald Trump’s eccentricities have undoubtedly been aggravated by a longer-term shifting global balance. But what matters is the outcome. In a document freighted with growing threats, extended deterrence is horribly absent.

Indeed, let’s go back to paragraph 2.22. The second and third sentences head off in a different direction. The second sentence even begins with the word ‘but’, one of those conjunctions that ties the subsequent thoughts to the previous judgement:

But it is the Government’s intent that Australia take greater responsibility for our own security. It is therefore essential that the ADF grow its self-reliant ability to deliver deterrent effects.

It’s hard to read those sentences as anything other than a claim for greater self-reliance in the deterrence of nuclear threats against Australia. Further, it’s hard to accept that the government believes that an Australia armed solely with conventional weapons can deter an adversarial nuclear-armed great power. After all, it has just said it doesn’t believe that even a US armed solely with conventional weapons can deter such threats: go back and read the first sentence again.

What’s the conclusion? A simple—and tempting—conclusion is that either there’s been some grievous infelicities of meaning in the drafting process, or the update is an attempt to signal the possibility of a future nuclear-armed Australia. But that conclusion places a great deal of weight on three sentences, and on what they don’t say as much as on what they do. The premise of a future Australian nuclear arsenal shouldn’t be based on words that aren’t there.

I suspect something more complex is happening. An Australian government, busily revalidating both the importance of deterrence in national strategic thinking, and the importance of offensive strike to deterrence, is probably arguing here that improving conventional technologies, allied to more capable missile defences, do offer some prospects for offsetting nuclear threats.

That’s a challenging argument to unpack—especially in circumstances where we’re uncertain about how much we can rely on US assistance. Still, those complexities seem to offer a more credible explanation for paragraph 2.22 than the simple, tempting one.

<https://www.aspistrategist.org.au/defence-update-signals-australias-waning-faith-in-us-extended-deterrence/>

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International Affairs Review (Washington, D.C.)

The United States is Making a Miscalculation by Bringing Back Tactical Nuclear Weapons

By Byron Adkins

July 7, 2020

The United States is giving a gift to its adversaries and undermining its own interests by pursuing tactical nuclear weapons. The United States' pursuit of tactical nuclear weapons could destabilize East Asia, exacerbate tensions with Russia, or trigger an arms race among the great powers. Advocates claim that tactical nuclear weapons give the United States increased options to respond to aggression which has become a necessity to counter Russian doctrine. Even if this is true, utilizing tactical nuclear weapons still involves crossing the nuclear threshold and violating the nuclear taboo that some argue has prevented a great power war. The possession of lower-yield nuclear weapons and increased nuclear options can only increase the likelihood of their use and worsen the security dilemma.

Modernization of the nuclear arsenal is a goal listed in the 2017 National Defense Strategy, and Secretary of Defense Mark Esper has confirmed that modernization of the triad is a priority for the Department of Defense. In recent years, Russia has begun to increasingly field low-yield nuclear warheads capable of being used for diverse purposes. The United States has responded by fielding its first new nuclear weapon in decades to counter Russian capabilities. The underlying thought has been that if the United States or one of its allies were attacked by a tactical nuclear weapon, the United States would lack the flexibility for a proportional response. This was demonstrated in a recent wargame played out in Europe.

Tactical nuclear weapons were theorized to serve several purposes in U.S. nuclear policy throughout the nuclear age. These included lending increased credibility to extended deterrence, negating quantitative conventional inferiority and human wave tactics, and the aforementioned flexibility in response. Tactical nuclear weapons were vastly curtailed after the 1987 signing of the Intermediate Range Nuclear Forces Treaty and the collapse of the Soviet Union. The United States withdrew from the treaty in 2019 after alleging Russia had been violating the conditions of the treaty since 2014. Tactical nuclear weapons have had a subsequent resurgence, both in possession and in the military doctrine of the countries that possess them. This resurgence has not been limited to the United States and Russia. China, Pakistan, and India have signaled interest in or a shift in doctrine to accommodate tactical nuclear weapons.

For all the theoretical benefits of possessing tactical nuclear weapons, there are also theoretical downsides that could prove costly and counterproductive to U.S. interests. The pursuit of additional tactical nuclear weapons will have implications for the security dilemma. The security dilemma holds that security-seeking behavior (fielding tactical nukes) can make a state less secure by antagonizing other states, who then seek to increase their security. It is easy to see how a rapid build-up of tactical nuclear weapons could prompt a response. For example, if some of those tactical nuclear weapons are deployed on naval surface ships that operate near mainland China, it could cause China to expand its historically small and benign nuclear arsenal. A shift in the policies of our current adversaries, coupled with no meaningful arms limitation agreements could trigger an arms race that causes U.S. relative capabilities to drop.

The contemporary arguments for increasing the role of tactical weapons in U.S. nuclear policy create its own countervailing energy. If the reason for possessing tactical nuclear weapons is to provide more flexible options for their use, then logically the bar has been lowered for crossing the nuclear threshold. The conceptualization of an escalation ladder in which states differentiate

between the use of tactical and strategic nuclear weapons is purely theoretical. There is no practical way to test the utility of such an idea. This means there is no certainty that a state involved in a tactical nuclear strike can be expected to retaliate differently than if receiving a strategic nuclear strike. With so much nuclear doctrine being purely theoretical, it should be accepted that any action that could lower the bar for nuclear use without knowing the consequences is an unwise policy. Additionally, increasing the likelihood of use for a class of weapons that are widely accepted as a deterrent in nature is contradictory.

Another reason the United States should avoid tactical nuclear weapons is its cost-benefit analysis. The estimated cost of planned nuclear modernization, of which tactical weapons are a part, is expected to be nearly \$500 billion over the next decade. This is a substantial amount of money when considering that a nuclear weapon has not been used in warfare since 1945. It would be difficult to convince people that the nearly \$500 billion is well spent on security while acknowledging the non-use underlying nuclear deterrence.

U.S. policymakers and defense officials should reconsider the inclusion of tactical nuclear weapons in the arsenal and doctrine. The risks of further proliferation, arms racing, and increased opportunities for use are a high price for having flexible options focused on a relatively weak Russia. These unnecessary risks also run counter to the nuclear deterrent theory itself. After all, if a deterrent weapon has to be used, then it has demonstrably failed its own purpose.

Byron Adkins is an Army Officer and current student at George Washington University's Elliott School of International Affairs pursuing his M.A. in Security Policy Studies. His concentration is U.S. National Security and his research is focused on great power competition.

<https://iar-gwu.org/2020/07/07/the-united-states-is-making-a-miscalculation-by-bringing-back-tactical-nuclear-weapons/>

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Arms Control Wonk

Count Every Warhead: A Critique

By Michael Krepon

July 6, 2020

Lyrics of the week

I'm looking and I'm dreaming for the first time

I'm inside and I'm outside at the same time

And everything is real

Do I like the way I feel?

When the world crashes in into my living room

Television man made me what I am

People like to put the television down

But we are just good friends

(I'm a) television man

—"Television Man," David Byrne and the Talking Heads

There ain't no room for the hopeless sinner
Who would hurt all mankind just to save his own, believe me now
Have pity on those whose chances grow thinner
For there's no hiding place against the kingdom's throne
—"People Get Ready," Curtis Mayfield and the Impressions

I'm already on record as saying that the Trump/Bolton proposal to count every Russian and Chinese warhead is a worthwhile goal. And I'm on record as saying that it's a scam designed to reduce or do away with a five-year extension of New START, the foundation for any serious effort to come up with broader coverage. Now let's turn to the proposal itself, or at least the cartoon version of it that we've been given. How does the Trump/Bolton proposal stack up as arms control? Not good. Not good at all. Here's why.

Let's start with the fundamentals. What do we want arms control to accomplish? What should this practice be about? The Founding Fathers (Schelling, Halperin et. al.) said that arms control was about stabilization and risk reduction. Numbers became a means to this end, as did stabilizing forms of transparency. But the heart of the matter was stabilization and risk reduction. You don't reduce nuclear dangers and weapons without stabilization and a mutual willingness to reduce nuclear dangers.

How does the Trump/Bolton approach measure up to these fundamentals? Poorly. The Trump/Bolton approach is about transparency – the means to worthwhile ends – but not stabilization and risk reduction. Counting every warhead – assuming we could reach agreement on this with Moscow and Beijing – doesn't stabilize anything. Nor does it reduce nuclear dangers and risks. It's a measuring stick, and nothing more.

Why are we counting warheads? Is it to set ceilings on them? To reduce them? If so, what ratios does the Trump/Bolton proposal envision? It would be useful to know if this is part of the plan. Counting warheads alone does not reduce nuclear dangers. Counting warheads does not reduce warheads or their means of delivery. Every President with the exception of Trump since Gerald Ford and Jimmy Carter has focused on ways to count both warheads and their means of delivery.

This general approach entailed assigning warhead counting rules to different types of missiles and bombers while employing national technical means and subsequently on-site inspections to verify warhead totals on deployed forces. Different counting rules have been applied at different times, but this approach has worked exceedingly well over the passage of time. By focusing on warheads and their means of delivery, arms control and reduction treaties reduced Cold War excess by 85 percent.

Perhaps because this approach was so successful, some deterrence strengtheners now feel uncomfortable with further reductions and have shifted gears to a count-every-warhead approach. Their preferred approach seems seriously deficient. Counting warheads without limiting their number and without limiting their means of delivery does not reassure, stabilize, and reduce nuclear dangers.

Counting every warhead provides none of the above unless there are limits on how these warheads reach their targets. A count-every-warhead approach, assuming it could be negotiated, succeeds as a transparency measure, but fails as arms control. It also fails to strengthen deterrence. To succeed at strengthening deterrence, an adversary's warhead count would need to be combined with stabilizing and reassuring limits on their means of delivery.

The Trump/Bolton proposal is silent about means of delivery. What limits and ceilings would they propose for U.S., Russian, and Chinese delivery vehicles for warheads? Don't expect answers. They are not needed because they don't expect success in counting every warhead. But a serious arms control proposal – one that reduces nuclear dangers and provides stabilization and reassurance — would answer this question. A serious proposal would cover launchers as well as warheads.

China will not join a three-power control regime limiting launchers as well as warheads that consigns it to a second tier. Insisting that China join Russia and the United States as a second-tier power would encourage Beijing to do exactly what Moscow did while awaiting the beginning of strategic arms limitation talks in the late 1960s – to rush to catch up.

A three-power, ratio-based approach invites a reinvigorated competition in nuclear arms. It would encourage Beijing, which has not taken the dictates of nuclear deterrence as seriously as Moscow or Washington, to make amends and to narrow these ratios, thereby defeating the purpose of these proposals. And if China rushes to catch up, as deterrence strengtheners fear, U.S. and Russian numbers would likely rise, as well. As the numbers grow, stabilization and reassurance would decline even if there are gains in transparency.

Insisting that China and Russia join a count-every-warhead regime fails as an arms control measure. It succeeds only as a diversion from true arms control. It's a non-starter. It's also a way to bury New START.

<https://www.armscontrolwonk.com/archive/1209604/count-every-warhead-a-critique/>

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War on the Rocks (Washington, D.C.)

Trump's Nuclear Test Would Risk Everything to Gain Nothing

By Justin Key Canfel

July 8, 2020

The Trump administration has exited three major nuclear agreements: the Iran nuclear deal, the Intermediate-Range Nuclear Forces Treaty with Russia, and the Open Skies Treaty. All three decisions were controversial. Former Director of National Intelligence Michael Hayden has called the most recent move — America's withdrawal from the Open Skies Treaty, a useful confidence-building measure between Russia and the West — “insane.” The landmark New START Treaty, which caps nuclear warheads and launchers between Moscow and Washington, is on deck for renewal next. Washington's stance on arms control, Russia's announcement of several new weapons systems, breakneck investments in hypersonics, and Washington's increasing confrontation with Beijing signal that a fresh nuclear arms race is within the realm of possibility. As Jeffrey Lewis writes, “Obama's dream of a nuclear-free world is becoming a nightmare.”

For supporters of arms control, things may be about to get much worse. The Washington Post broke a story in May that the U.S. government has been in an “ongoing conversation” about whether to conduct nuclear weapons testing for the first time since 1992. Presidential candidate Joe Biden called discussions about resuming a test program “reckless” and “dangerous.”

Nuclear testing, even at very low yields, would jeopardize the hard-fought Comprehensive Nuclear-Test-Ban Treaty (CTBT), which prohibits its signatories from testing nuclear weapons in any environment. The treaty was arguably one of the most difficult packages the United States has ever negotiated, and though it has floundered in the Senate since the 1990s, it remains a cornerstone of U.S. nuclear nonproliferation policy. President Bill Clinton, who signed the comprehensive test ban

in 1996, described it as the “longest sought, hardest fought prize in the history of arms control.” More than 160 countries have ratified the treaty — not including the United States and China who are among the few to have signed but not yet ratified it — but the treaty has yet to enter into force. Some have questioned whether the Trump administration has plans to unsign the treaty. Moreover, renewed nuclear testing could unravel all past efforts to generate worldwide buy-in.

The Trump administration’s main justification for nuclear testing is ostensibly based on concerns that China and Russia may be conducting low-yield tests of their own — which both countries have, of course, denied. Those opposed to such testing contend that the United States stands to gain very little from it unless the nation plans to embark on a new and expensive weapons design program; computer simulations are sufficient to ensure that U.S. nuclear capabilities are safeguarded; and U.S. nuclear tests would lead other nuclear powers to do the same.

While the possibility that competitor countries might surpass the United States by cheating on the test ban is concerning, this situation is not altogether new.

In the course of ongoing research, I came across declassified executive agency documents that explain why the White House pursued the Limited Test Ban Treaty of 1963 — the precursor the Comprehensive Nuclear-Test-Ban Treaty — despite high confidence that the Soviet Union would violate it and concerns that those violations could go undetected. The documents demonstrate that Kennedy administration officials recognized that a test ban would be advantageous for the United States even if the Soviet Union found a way to cheat. In particular, they concluded that a test ban could freeze technological progress by U.S. adversaries in the most important classes of weapons. This, in their view, would be worth the risk of losing ground on other technological dimensions. In light of unsubstantiated protestations that China and Russia are now flaunting the norm against nuclear testing, Cold War-era debates are relevant to certain debates today.

Nuclear Testing and the First Test Ban Treaty

Though it may now seem like ancient history, nuclear testing was once widespread. The United States conducted 1,054 nuclear tests from 1945 to 1992, prior to the finalization of the Comprehensive Nuclear-Test-Ban Treaty. For decades, many Americans believed that nuclear war could really happen. Early attempts to restrict or ban nuclear weapons, beginning with the Baruch Plan in 1946, ran into resistance because a nuclear deterrent was considered essential to America’s Cold War defense doctrine. Since the weapons could not be banned, the next best option for arms control advocates was to outlaw testing, since only through testing can new and better bombs be developed. But a test ban was controversial in Washington.

In the 1950s, nuclear testing was ramping up on both sides of the Cold War. Under President Dwight Eisenhower, the United States was faced with an uncomfortable trade-off. The United States at that time led the world in nuclear testing, with the Soviet Union close behind. According to the Comprehensive Nuclear-Test-Ban Treaty Organization’s Preparatory Commission, the United States was detonating nearly three bombs for every Soviet bomb. Nevertheless, the Soviet Union continued to narrow the gap. Nuclear explosions were tried in every conceivable environment — land, air, and sea. Popular backlash began to mount as it became clear that fallout from these tests was causing public health issues and environmental damage. By 1955, the international community was calling on the United States, the Soviet Union, and the United Kingdom (at that time, the only other nuclear power) to negotiate a ban. Supporters of continued testing countered that American allies depended on a strong deterrent, a strong deterrent depended on new and better weapons, and the only way to achieve such weapons was through further testing. Most importantly, if the United States did agree to such restrictions, the Soviets still couldn’t be trusted not to secretly cheat. Since developing new weapons was considered essential for national security, they argued, a test ban would make the free world less safe.

Eisenhower was personally sympathetic to a test ban. In fact, in 1958, he and Soviet Premier Nikita Khrushchev agreed to a voluntary two-way moratorium just four days after Khrushchev came to power. The advent and improvement of underground testing methods had by then relieved some of the pressure to test above ground or in the atmosphere. The main question was whether underground tests could convey the same military-scientific advantages as above-ground ones. After President John F. Kennedy entered office and Moscow and Washington drifted further apart over the 1961 Berlin Crisis, the Soviet Union suddenly abandoned the moratorium and resumed testing, sparking fears that American reluctance to test too would lead to qualitative inferiority.

Kennedy appealed to Khrushchev to resume the moratorium and make it legally binding. After the Cuban Missile Crisis, which brought both countries to the brink of nuclear war, Moscow and Washington restarted formal talks on a test ban. Their efforts over 12 days of negotiations in July 1963 culminated in the Limited Test Ban Treaty (LTBT), which banned all testing under water, in the atmosphere, or in outer space. Although this treaty was eventually ratified with bipartisan support, it faced consistent opposition from skeptics. Critics of the Limited Test Ban Treaty were particularly concerned about the possibility that the Soviets would clandestinely violate the test ban. The Soviet track record didn't look promising. One prominent talking point of skeptics was that the Soviet Union had abrogated 62 out of 64 treaties since its formation. If the Soviet Union cheated, it was feared, it could then engage in breakout development that would render a compliant United States technologically inferior and strategically vulnerable — mirroring arguments made by the Trump administration in recent months about similar ambitions on the part of Beijing.

Ensuring Soviet compliance was an obvious concern for test ban treaty negotiators. After all, deterrence theory has long been premised on the prisoner's dilemma, a paradox in which two parties who can gain from cooperation choose non-cooperative options that leave them both worse off than before due to a lack of trust. The ability to monitor compliance by other parties is crucial, but mid-century verification technology was primitive compared to that of today. The United States had yet to fully deploy constellations of advanced seismological equipment and spy satellites that could detect small, low-yield explosions. For other critics, the prism of confrontation was enough. Future President Gerald Ford, at that time still a member of the House of Representatives, lamented to a constituent that "Russia's mere eagerness for [a test ban treaty] arouses serious doubts" about their intentions. After all, why should the United States bind itself to an agreement that its counterparts can't be trusted to honor?

Debates Within the Kennedy Administration on a Test Ban

Inside the Kennedy administration, the landscape of the nuclear testing debate between top officials was spelled out in a report jointly commissioned — available in the archives at the Ford Presidential Library — by the United States Arms Control and Disarmament Agency (ACDA), headed at the time by William C. Foster, and the Director of Defense Research and Engineering, Harold Brown, who would later go on to become secretary of defense. There are compelling parallels with the present day. The report concludes that even if Soviet cheating was assumed with certainty, a test ban would still be in the U.S. national interest. Kennedy concurred.

Nuclear weapons are commonly divided into two categories: strategic and tactical. Strategic weapons, which tend to have the largest yields, are useful for deterrence and would hopefully never need to be used. Tactical weapons, conversely, tend to have smaller yields and have more niche uses that theoretically make them suitable for the battlefield. According to the report, the Defense Department "believe[d] (without being certain) that [the United States was] ahead of the Soviets in the quality of [its] tactical nuclear weapons." Moreover, among top defense officials, there was a "consensus, [although] not necessarily unanimous," that cheating with low-yield testing would lead to substantial improvements in Soviet tactical nuclear weapons technology. Kennedy had already

campaign on a perceived “missile gap.” The Arms Control and Disarmament Agency admitted that only tests above a 20-kiloton threshold — about the size of the first nuclear test in 1945 — would be detectable. Though this threshold was about an order of magnitude smaller than most nuclear warheads of the day, by 1961 technology had advanced to the point where small-scale tests could yield significant data. If Moscow were to secretly cheat by testing under 20 kilotons while Washington complied with a ban, it was thought, American nuclear superiority in an entire class of weapons could be jeopardized.

Why would American leaders ever have considered surrendering a technological lead to a country whose leader had only a few years prior threatened to “bury” Western democracy? Discussions between Brown, Foster, and others are illuminating. For them, the question was not whether the United States would be put at any disadvantage, but rather if these disadvantages could be traded for enhanced security in areas where it mattered most — strategic capabilities. As the Brown-Foster report points out, “When both sides have [tactical nuclear weapons], differences in quality appear to make very much less difference [since] either side can so easily escalate the size [of the weapon].” Under a test ban regime, the Soviet Union might have secretly been able to improve its tactical capabilities while the United States lagged behind. But, under no test ban at all, it might have only been a matter of time until the Soviets reached parity in strategic weapons. For proponents of the Limited Test Ban Treaty, potential cheating was a non-issue: Locking in America’s qualitative superiority in the types of weapons that mattered most was far more pressing than watching its short-lived edge across all types be eroded.

Nuclear Testing and Cheating Today

Old debates about the Limited Test Ban Treaty are once again relevant today. Administration officials have accused Russia and China of “probably” violating the test ban, though no evidence has been provided. But, if the United States resumed nuclear testing after nearly 30 years of restraint it would become an international pariah without significantly adding to its own security. An American decision to test again would fulfill its own prophecy, impelling U.S. adversaries to resume their own test programs if they have not done so already.

Even low-yield nuclear tests conducted underground in order to minimize environmental damage would be calamitous for the United States’ reputation as a responsible, reasonable, and trustworthy member of the international community. It would join the ranks of North Korea — the only other country since 1998 to test a nuclear device — and would lose its ability to criticize rogue nuclear aspirants with a straight face. It would also seriously imperil the Comprehensive Test Ban Treaty, which the United States has relied on to keep nuclear weapons from proliferating. In particular, Washington has supported and benefited from the global monitoring system — consisting of 337 facilities in 89 countries around the world — run by the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization. This system complements U.S. national technical means to detect nuclear blasts and is key to engaging the international community in efforts to prevent nuclear proliferation, but could never be sustained if parties began withdrawing in response to American tests.

There are also many unilateral reasons not to resume nuclear testing. Although nuclear modernization has some arguable merits for deterrence, testing is not required for a robust modernization program. Even if the White House is determined to expand the nuclear arsenal by acquiring new warheads, the Defense Department has no doctrine to justify nuclear testing. In a world where the United States has more than enough advanced nuclear weapons to fulfill its strategic deterrence objectives, testing has become an activity that only fledgling nuclear aspirants who are desperate to bolster their budding capabilities need to engage in. Finally, other states — both allies and non-aligned countries — have long looked to the United States for leadership on

nonproliferation matters, something past American administrations were fully cognizant of as they combatted the diffusion of nuclear weapons throughout the 20th century.

The challenges the country faces are much different than they were in 1960, but history still has important lessons. Compared to the first decades of the Cold War, the world is no longer under a nuclear “sword of Damocles.” Nuclear testing by the United States would destabilize the international system and undermine American national interests. By unraveling the tapestry of arms control that previous generations fought hard to achieve, the United States risks creating more problems for itself than it solves. If American leaders could rally to forge a test ban with the Soviet Union — whose propensity to cheat was considered inevitable — during the darkest years of the Cold War, their successors should be able to uphold a test ban now.

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<https://warontherocks.com/2020/07/trumps-nuclear-test-would-risk-everything-to-gain-nothing/>

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Real Clear Defense (Washington, D.C.)

Air Force Bases Need Space-Based Missile Defenses As Soon as Possible

By Norman M. Haller & Peter Pry

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The Air Force recently announced its "new bomber vision" in which "dynamic force employment" replaces continuous bomber presence at Guam. The new vision is for bombers to pop up unexpectedly around the world, thus demonstrating a perpetual ability to project power. [1]

The new vision can depict national resolve in the absence of a hot war. However, during an actual conflict, deploying bombers (or fighters) to bases that are not robustly defended against a range of attacks could be a quick way to lose the use of that base and, depending on the severity of the attack and in-place sheltering, many aircraft and trained personnel.

Air Force Chief General Charles Brown wants the Air Force to develop more mobile airbase defenses in light of longer-ranged Chinese missile threats. Given the panoply of existing and potential threats, General Brown is fortunate to be closely connected to the new Space Force, which can complement current land- and sea-based defenses to provide substantially better protection of potential Air Force bases.

Looking first at threats and defense capabilities

China and Russia have long-range kinetic attack capabilities with missiles launched from land or sea. North Korea and Iran have regional kinetic attack capabilities with missiles launched from land, future longer-range missiles appear possible, and both are developing sea-launched missiles. [2a, 2b, 2c]

The current land-based and properly placed sea-based missile defenses could be effective against unsophisticated North Korean and Iranian missile attacks. However, if China or Russia were to mount sophisticated attacks with ballistic missiles, cruise missiles, or hypersonic missiles—particularly in combination—such defenses would likely be severely challenged or defeated.

It is openly acknowledged that the U.S. cannot currently defend against hypersonic missiles, which have much lower trajectories than ordinary ballistic missiles. [3]

China, Russia, North Korea, and Iran with nuclear developments, could also launch missiles or deploy satellites containing high-altitude electromagnetic (HEMP) warheads. "China's classification of HEMP attack in military doctrine as 'electronic warfare' or 'information warfare' indicates that HEMP is not even considered a form of nuclear attack, but would be equivalent to non-nuclear EMP weapons and cyber warfare." Insufficiently hardened essential electronics in Air Force, Army, and Navy systems at or defending airbases could be disabled by a HEMP field (10-100 kilovolts/meter). [4], [5]

What, specifically, does Space Force offer?

Space Force operates throughout the ultimate global "high ground," which enables looking down and attacking hostile missiles during launch when they are most vulnerable, as well as in flight all along their paths to targets. These look-down capabilities, which are slowly advancing, include developing new LEO (low earth orbit) satellites. [6]

But more than sensors are important for countering advanced missiles! Space-based missile-defense systems, which were proven cost-effective decades ago, could be quickly deployed to provide global coverage of Air Force bases and potential missile-launch avenues toward those bases. Spaceplanes, which also have other mission capabilities (such as countering attacks on U.S. satellites), could significantly assist the missile-defense mission during its development and deployment and their ability to closely observe and, if necessary, eliminate satellites determined to be HEMP-capable. [7]

Space-based defenses could be deployed on top of an optimal combination of land- and sea-based defenses, as determined for different airbase locations. The space-based layer of, for example, 1,000 interceptors and a squadron of space planes, would enormously complement the Earth-based defenses, seriously complicate an attacker's planning, and greatly improve America's ability to deter or defeat missile and satellite attacks on global U.S. interests.

This kind of space-based layer could have relatively short initial deployment timelines (space planes, 2-3 years; interceptors, 5 years) and relatively modest costs—in the range of 3-4% of the approximate \$1 trillion likely needed to simultaneously modernize America's nuclear arsenal to sustain MAD (Mutual Assured Destruction) and catch up, at scale, in the arms race for hypersonic weapons.

Throughout history attacking forces, routinely had to re-evaluate their tactics and strategies for penetrating enemy defenses, which could deter or defeat prior planned attacks. Why should adversaries planning to attack U.S. airbases have the luxury of not confronting the strongest array of defenses?

Regarding America's nuclear deterrent, adding space-based defenses would not diminish the need for a capable triad of bombers plus land- and sea-based missiles; rather, it would balance and complement that purely offensive posture a substantial defensive component to increase deterrence.

To those who oppose space-based defenses because they could be perceived as "weaponizing" space, there is no malevolence to using space to defend America against other nations' weapons that threaten us by flying through or existing in space. Indeed, robust space-based defenses could revolutionize the threat environment presently dominated by offensive missile systems and strategies, deterring and making less likely the use of space for offensive weapons.

Norm Haller has led and assisted analyses, planning, and preparing reports for DoD and Congress on nuclear and non-nuclear forces for deterrence and defense against missile attacks; now a consultant, he served in the Air Force, Office of the Secretary of Defense, and Nuclear Regulatory Commission as the Chairman's Executive Assistant.

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ABOUT THE USAF CSDS

The USAF Counterproliferation Center (CPC) 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's Director for Nuclear and Counterproliferation (then AF/XON) and Air War College commandant established the initial personnel 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.

In 2008, the Secretary of Defense's Task Force on Nuclear Weapons Management 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." This led to the addition of three teaching positions to the CPC in 2011 to enhance nuclear PME efforts. At the same time, 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 professional continuing education (PCE) through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the CPC in 2012, broadening its mandate to providing education and research on not just countering WMD but also nuclear operations issues. In April 2016, the nuclear PCE courses were transferred from the Air War College to the U.S. Air Force Institute for Technology.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies (CUWS) 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. In May 2018, the name changed again to the Center for Strategic Deterrence Studies (CSDS) in recognition of senior Air Force interest in focusing on this vital national security topic.

The Center'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. The Latin inscription "Armis Bella Venenis Geri" stands for "weapons of war involving poisons."

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