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Feature Item: "Missile Defense and Defeat: Considerations for a New Policy Review" by CSIS

https://missilethreat.csis.org/missile-defense-and-defeat/

https://csis-prod.s3.amazonaws.com/s3fs public/publication/170228_Karako_MissileDefenseDefeat_Web.pdf

The national defense authorization act signed into law in 2016 contained a provision mandating a review of missile defeat policy, strategy, and capability, to be completed and submitted to Congress by January 2018. This Missile Defeat Review (MDR) appears likely to serve as a successor to both the Department of Defense's 2010 Ballistic Missile Defense Review and other publications by the Joint Staff. The first of its kind, the MDR represents a unique opportunity for the Donald Trump administration to articulate a vision for the future of air and missile defense and determine how that vision is to be implemented by the Missile Defense Agency, the Joint Staff, the services, and other entities. This review will take place in the context of both an evolving strategic environment and several recent strategic analyses on related issues.

Featuring contributions from Thomas Karako, Keith B. Payne, Brad Roberts, Henry A. Obering III, and Kenneth Todorov, this collection of essays explores how the strategic environment has evolved since 2010, and offers recommendations to help guide and inform the MDR's development.

U.S. Nuclear Weapons

1. How US Nuclear Force Modernization is Undermining Strategic Stability: The Burst-Height Compensating Super-Fuze
2. Los Alamos Expert: U.S. Unable to Conduct Nuclear Tests
3. Air Force Nuclear Officer: New START Treaty is 'Good For Us'
4. Evaluating Nuclear Weapons: Sandia Labs Taking a Modern Approach

U.S. Counter-WMD

1. 'Iron Rangers' Hone Skills During Counter WMD Training
2. Local Responders Train With WMD Team
3. In Southeastern Colorado, Robots Carefully Disarm WWII-Era Chemical Weapons
4. PHEMCE Review: Accomplishments and Future Areas of Opportunity

U.S. Arms Control

1. Trump and the Nuclear Threat
2. Russia Has No Plans to Change New START Treaty - Diplomat
3. THAAD: A Critical Litmus Test for South Korea-China Relations

Asia/Pacific

1. Kim Jong Nam Slaying Shows Precision Strategy for Chemical Weapons
2. M'sian Army Under UN Ready to Face Threat of Nuclear, Chemical, Biological Weapons
3. DPRK Diplomat Brushes Off Use of Chemical Weapons in DPRK Man's Death
4. N Korea: How Did Duo Survive Contact With VX Nerve Agent?

Europe/Russia

1. Germans are Debating Getting Their Own Nuclear Weapon
2. The Nuclear Fallout From Brexit
3. Radioactive Isotope Over Europe: Western Media Blame 'Bogeyman' Russia
4. A Visit to Russia's Secret Nuclear Labs

Middle East

1. Russia and China Veto UN Sanctions on Syria for Chemical Weapons Attacks
2. U.N. Nuclear Watchdog Chief to Discuss Iran Deal with Trump Officials
3. Egypt Abstained in UNSC Vote on Syria Sanctions to Await Conclusion of Probe: Ministry

India/Pakistan

1. India Must be Prepared for Biological Warfare: Manohar Parrikar
2. Pakistan Is Literally Sitting on a (Nuclear) Powder Keg
3. A Weapon-Locating Radar for the Army

Commentary

1. Russia Sides With Chemical Weapons
2. Australia Can Not Ignore Threat of Biological Terrorism
3. The Terrorist North Korea Regime Must be Changed
4. America Needs Its Underwater Nukes. Delaying New Subs Would Be a Disaster

Return to Top

Bulletin of the Atomic Scientists – Chicago, IL

How US Nuclear Force Modernization is Undermining Strategic Stability: The Burst-Height Compensating Super-Fuze

By Hans M. Kristensen, Matthew McKinzie, Theodore A. Postol

March 1, 2017

The US nuclear forces modernization program has been portrayed to the public as an effort to ensure the reliability and safety of warheads in the US nuclear arsenal, rather than to enhance their military capabilities. In reality, however, that program has implemented revolutionary new technologies that will vastly increase the targeting capability of the US ballistic missile arsenal. This increase in capability is astonishing—boosting the overall killing power of existing US ballistic missile forces by a factor of roughly three—and it creates exactly what one would expect to see, if a nuclear-armed state were planning to have the capacity to fight and win a nuclear war by disarming enemies with a surprise first strike.

Because of improvements in the killing power of US submarine-launched ballistic missiles, those submarines now patrol with more than three times the number of warheads needed to destroy the entire fleet of Russian land-based missiles in their silos. US submarine-based missiles can carry multiple warheads, so hundreds of others, now in storage, could be added to the submarine-based missile force, making it all the more lethal.

The revolutionary increase in the lethality of submarine-borne US nuclear forces comes from a "super-fuze" device that since 2009 has been incorporated into the Navy's W76-1/Mk4A warhead as part of a decade-long life-extension program. We estimate that all warheads deployed on US ballistic missile submarines now have this fuzing capability. Because the innovations in the super-fuze appear, to the non-technical eye, to be minor, policymakers outside of the US government (and probably inside the government as well) have completely missed its revolutionary impact on military capabilities and its important implications for global security.

Before the invention of this new fuzing mechanism, even the most accurate ballistic missile warheads might not detonate close enough to targets hardened against nuclear attack to destroy them. But the new super-fuze is designed to destroy fixed targets by detonating above and around a target in a much more effective way. Warheads that would otherwise overfly a target and land too far away will now, because of the new fuzing system, detonate above the target.

The result of this fuzing scheme is a significant increase in the probability that a warhead will explode close enough to destroy the target even though the accuracy of the missile-warhead system has itself not improved.

As a consequence, the US submarine force today is much more capable than it was previously against hardened targets such as Russian ICBM silos.

A decade ago, only about 20 percent of US submarine warheads had hard-target kill capability; today they all do.

Article truncated for brevity. Full text can be found at the link below.

http://thebulletin.org/how-us-nuclear-force-modernization-undermining-strategic-stability-burst-height-compensating-super10578

Return to Top

The Washington Free Beacon – Washington, DC

Los Alamos Expert: U.S. Unable to Conduct Nuclear Tests

By Bill Gertz

March 2, 2017

Test readiness shortfalls include lack of people, infrastructure to gauge reliability of nuclear arms

The United States is losing the capability to conduct underground nuclear tests that could be needed in the future to gauge the reliability of the nuclear arsenal.

According to John C. Hopkins, former head of nuclear testing at Los Alamos National Laboratory, the Energy Department needs to bolster testing capabilities that could be needed in a future national emergency.

"With every day that passes, the United States grows more out of practice and out of resources—including the most important resource: people with experience—that are critical to nuclear testing," Hopkins stated in an article published Wednesday in the Los Alamos newsletter.

He urged the three national laboratories, Los Alamos, Lawrence Livermore, and Sandia, to set up a unified test preparation program.

"The time delay following the decision to resume testing would, in my opinion, be dangerously long," Hopkins said, adding that archiving of past testing procedures should be carried out right away.

Test site / Los Alamos National LaboratoryTest site / Los Alamos National Laboratory

Hopkins is among a dwindling number of experts involved in past U.S. nuclear tests. He took part in five atmospheric tests in the Pacific and 170 tests in Nevada through the 1980s.

Based on his experience and knowledge of what is needed in terms of skills, equipment, facilities, and infrastructure for a full-scale nuclear test, "I have grown increasingly concerned at the steady degradation of U.S. nuclear test readiness—that is, the capability of the United States to test its nuclear weapons should the need to do so arise," Hopkins said.

The U.S. government halted all large nuclear tests in 1992 and further codified the ban by adopting an international moratorium on nuclear testing in 1996 under the Comprehensive Nuclear Test Ban Treaty. The treaty was signed and informally adopted despite never being ratified by the Senate over concerns its anti-testing provisions could not be verified.

Disclosure of the nuclear testing problems comes as President Donald Trump has called for building up nuclear arms.

Trump told Reuters last month the United States nuclear forces should be unrivaled.

"I am the first one that would like to see nobody have nukes, but we're never going to fall behind any country even if it's a friendly country, we're never going to fall behind on nuclear power," he said.

"It would be wonderful, a dream would be that no country would have nukes, but if countries are going to have nukes, we're going to be at the top of the pack," the president said.

In December, after Russian President Vladimir Putin announced Russia was bolstering its nuclear forces, Trump said the United States would do the same.

"The United States must greatly strengthen and expand its nuclear capability until such time as the world comes to its senses regarding nukes," he stated on Twitter Dec. 22.

Under former President Barack Obama, U.S. nuclear weapons were downgraded in U.S. defense policy. As a result, the current arsenal is rapidly aging and in need of modernization. The modernization is expected to cost tens of billions of dollars over the next decade or more.

Hopkins stated that a review of assessments by the Energy Department, which is in charge of nuclear testing, has raised questions about whether the department could resume nuclear tests in two to three years as legally required under a 1993 presidential directive.

The directive, PDD-15, states that the Energy Department must formulate a plan to "protect the capability to resume U.S. nuclear testing."

Nuclear testing would need to be resumed if the United States builds new, more efficient, and safer nuclear arms.

Both Russia and China are rapidly building up their nuclear forces. China recently tested a long-range missile that in the past carried a single warhead with 10 multiple, independently targetable reentry vehicles, or MIRVs, signaling a major boost in its warhead arsenal.

Russia is building new missiles, bombers, and submarines for its arsenal and currently is above the warhead limits for the 2010 New START arms treaty, which requires cutting deployed warheads to 1,550 by 2018.

Moscow also is building a new unmanned underwater submarine capable of delivering a huge nuclear warhead that can destroy entire harbors. The drone is called Kanyon by the Pentagon. Its existence was leaked by Russian state media.

The Russian military also is developing very low-yield nuclear weapons that could be used in regional conflicts.

During the Cold War, nuclear tests at the Nevada Test Site, now the Nevada National Security Site, were carried out once per day on average.

The 1,375-square-mile test site is located about 65 miles northwest of Las Vegas and was used from 1951 to 1992 for 928 atmospheric and underground nuclear tests.

A nationwide industry of more than 100,000 highly trained experts was involved during nuclear testing.

Hopkins stated that today "much, if not most, of the equipment and technology required for nuclear testing in the past has not been adequately maintained, is obsolete, or has been sold or salvaged."

"More importantly, the knowledge needed to conduct a nuclear test, which comes only from testing experience, is all but gone too," he said, adding that there is no federal funding to support maintaining nuclear test readiness.

"The whole testing process—whether to conduct one test or many—would in essence have to be reinvented, not simply resumed," Hopkins said.

Former Pentagon nuclear policymaker Mark Schneider said the report by Hopkins is a concern.

"The danger is enhanced by the fact that a quarter century without both U.S. nuclear testing and serious design work on new types of nuclear weapons has created a situation in which we are also losing the ability to design new weapons," Schneider said.

Schneider said requests to allow nuclear tests below 1 kiloton were rejected years ago. "As a result, we have much higher costs and much less confidence in our life extended nuclear weapons," he said.

Since the United States halted tests in 1992, China, India, Pakistan, and North Korea have openly conducted nuclear tests. Russia and China also are suspected of conducting hard-to-detect, low-yield nuclear tests.

At the Nevada site, 13 shots were set off at a depth of 3,000 feet or more. Six were fired at least 4,000 feet underground.

If the Nevada testing site could not be used for future tests, a future nuclear testing site could be set up on Amchitka Island in Alaska's Aleutians Islands.

Three tests were carried out there from 1967 to 1971. However, the infrastructure on the island is gone and would need to be built up.

"In addition, Amchitka is now part of the Alaska Maritime National Wildlife Refuge, and going back there to test would certainly be concerning to environmentalists and native Alaskans," Hopkins said.

To conduct nuclear tests, many unique elements would need to be reconstituted, including facilities, materials, and equipment, including goods that are not commercially available.

Underground tests are conducted in shafts using special equipment, including a tall steel structure known as a rack that is 10 feet in diameter and more than 100 feet long. The rack must be surrounded by a tower that allows technicians to work on the test rack.

Some of the contractors that worked on nuclear tests remain in business, but many are defunct.

"A resumption of nuclear testing would involve a large, expensive, and complex program," Hopkins said.

"Because the United States has little left from its previous test program, and essentially no test-readiness program, the time delay following the decision to resume testing—because of a loss of confidence in the stockpile or to a geopolitical crisis—would, in my opinion, be dangerously long. Let's not wait to find out how long."

http://freebeacon.com/national-security/los-alamos-expert-u-s-unable-conduct-nuclear-tests/

Return to Top

DefenseNews – Washington, DC

Air Force Nuclear Officer: New START Treaty is 'Good For Us'

By Aaron Mehta

March 2, 2017

A top Air Force officer today defended the New START treaty as a major component of America's strategic security, a week after the agreement with Russia was blasted by President Trump.

Lt. Gen. Jack Weinstein, the service's deputy chief of staff for strategic deterrence and nuclear integration, said Thursday that the agreement was of "huge value" to the U.S., adding that it has "been good for us."

The general's comments were in stark contrast to those of Trump, who in a Feb. 22 interview with Reuters called the New START treaty a "one-sided deal" and a "bad deal," in part because in his view the U.S. has "fallen behind on nuclear weapon capacity."

Signed in 2010, the treaty limits both the U.S. and Russia to limit their deployed forces to 1,550 warheads over 700 delivery systems, including intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs) and bombers, by 2018.

Trump threats to New START could imperil nuclear modernization programs

Analysts have argued that moves away from the pact could create conflict on Capitol Hill, where there has been strong bi-partisan support for nuclear modernization programs. But that support is contingent on the preservation of nonproliferation programs at the same time.

Weinstein, responding to a question about Trump's comments during an appearance at the Exchange Monitor Nuclear Deterrence Summit in Washington, said he had no idea how the Russians would respond to any move to drop out of New START or a decision not to pursue an extension of the agreement.

But he offered support for the deal, saying, "The reason you do a treaty is not to cut forces but to maintain strategic stability among world powers. And the New START treaty allowed us to maintain [that stability]. I think there is a huge value with what the New START treaty has provided."

"So I think the New START treaty has been good, been good for us," he added.

In particular, that stability has been boosted by the treaty-mandated exchange of information between the U.S. and Russia.

"There is a dialogue that we still have with the Russians, where we do New START treaties, Russia is still inspecting our facilities and we are inspecting Russian facilities, so there is a [dialogue] going on between the United States and Russia because we still have the New START treaty enforced," he said. "So I think there is a huge value for that."

http://www.defensenews.com/articles/air-force-nuclear-officer-new-start-treaty-is-good-for-us

Return to Top

Sandia National Laboratories – Albuquerque, NM

Evaluating Nuclear Weapons: Sandia Labs Taking a Modern Approach

By Sue Holmes

March 1, 2017

Sandia National Laboratories is transforming how it assesses nuclear weapons in a stockpile made up of weapons at different stages in their lifecycles — some systems that have existed for decades alongside those that have undergone life extension programs.

Back when the United States was developing new nuclear weapon systems, weapons typically were either in production or were retired before they aged much more than about 10 years. The U.S. today is no longer designing new systems, so scientists and engineers refurbish weapons to ensure the stockpile will function as intended and that weapons are safe, secure and reliable.

Sandia is responsible for developing as much as 97 percent of a weapon system's non-nuclear components. It has created ever-more sophisticated tests and computer models to qualify those systems under its stockpile stewardship role — certifying they always will work as designed when authorized by the president but will never work in any other circumstance, said Scott Holswade, deputy chief engineer.

The stockpile surveillance program assesses each nuclear weapon system to detect or anticipate potential problems.

Components of nuclear weapons age, and scientists and engineers address that through life extension programs or less comprehensive alterations. A life extension program refurbishes components nearing the end of their life, remanufacturing or redesigning them. Some components are reused by being requalified to go back into a weapon without change. Remanufacturing means using the original specifications to remake components that have aged. However, sometimes the original technology is no longer available, so Sandia redesigns parts using modern technology — think switching out vacuum tubes for solid state technology.

"A pediatrician does not look at the same things that a geriatrics expert would. The things you're looking for in 'pediatrics,' the defects in design and production, are different than if you're looking for aging effects late in its lifecycle," Holswade said. "I think that's been the big evolution of the program, to start implementing changes that recognize this, and change the [stockpile evaluation] program to optimize for each system, depending on where it is in the lifecycle."

The U.S. last conducted underground nuclear testing in 1992 and has been in a moratorium ever since. Since then, Sandia has used non-nuclear tests, experiments and computer simulations to study environments weapons might face, such as vibration, radiation or

extreme cold or heat. Sandia must design and engineer systems to handle those conditions and do extensive testing to make sure designs meet requirements established by the departments of Defense and Energy, said Toby Townsend, stockpile systems engineering senior manager. Once refurbished weapons enter the stockpile, Sandia conducts tests to assure the systems continue to meet requirements as they age.

Gauging a weapon's lifespan is big part of stockpile work

"We're often asked, 'How much longer could the weapon potentially be good for?' That's a major part of the stewardship mission," Townsend said.

When nuclear weapons were first developed, they were expected to be useful for a so-called protected period, the lifespan of the design. To mimic that lifespan, engineers use environmental test chambers to speed up conditions the weapon could face over time, a process called accelerated aging. They also do a multitude of tests on refurbished weapons coming into the stockpile, such as the W76-1, to catch possible "birth defects" due to design or manufacturing problems.

However, the question for a weapon in the stockpile for decades is different: What happens as it ages?

"That's one thing we're trying to get to: What are the risks and knowledge gaps, and focus on those rather than continuing to do things that aren't returning a lot of differentiating information," Holswade said.

Life extension programs and alterations test everything from individual components to nearly complete systems without nuclear material.

"There will be temperature cycling, there'll be vibration, there'll be shock, there will be radiation, there might be voltage changes, all kinds of things that the system is subjected to, done in accordance with a plan that combines testing with simulation to make sure we're working through in a systematic way what's required to qualify the weapon for operation," Holswade said. "The goal is absolute certainty that the design as manufactured is good to perform."

Many areas test systems, components

Jay Vinson, senior manager for integrated stockpile evaluation, said assessing non-nuclear systems includes laboratory testing, system-level flight testing of gravity bombs, cruise missile flights, ballistic missile flights and submarine-launched missile flights, all with the nuclear explosive packages removed. In addition, numerous sites, including Sandia, the Kansas City National Security Campus and the Weapon Evaluation Test Laboratory (WETL), test non-nuclear components.

Once a weapon is in production, the program must assure it conforms to the design, an example of an early lifecycle concern. "You can have production errors, or you might have missed something in the design process that only reveals itself as you get to higher volumes," Holswade said.

As production ramps up, Sandia pulls units before they go into the stockpile to catch possible production errors or early-onset failures, Vinson said.

Weapons also are pulled from the field for tests later in their lifecycle, where they've been handled by military personnel and might have been on a submarine or a missile. Engineers want to study whether field conditions exposed a problem.

Some weapons from the field are built into joint test assemblies, mock weapons without nuclear materials but fitted with sensors and instrumentation to assess performance. Flight testing is part of the qualification process for refurbished weapons, and its main objective is to obtain reliability, accuracy and performance data under operational conditions. Scientists and engineers use the test data in computer simulations developed by Sandia to evaluate systems' reliability and to verify they functioned as designed.

W80-1 joint test assembly

Last June, the W80-1 Air Launched Cruise Missile Surveillance Flight Test Program conducted a long flight of a joint test assembly to a target and performed arming maneuvers.

"In this case, the nuclear explosive package is replaced by the testing assembly, so the system won't detonate, but it will function with all the Sandia componentry along that trajectory," Vinson said. "The various safety functions and other weapon functions will occur as if it were a wartime environment. We need to assess that all of that works properly because it indicates we have a safe and reliable weapon."

Weapons in some flight tests contain high explosives along with instruments that send out data during the flight until the explosives detonate. In other tests without explosives, additional sensors check that the detonation chain would have functioned. In all cases, the nuclear material is removed before the test.

Sensors in non-explosives tests send data during flight, but engineers also recover the system to gather more diagnostics. For B61-12 flight tests at Tonopah Test Range, telemetry data gathered during flight are verified at the range's test operations center and main telemetry ground station, and transmitted to Sandia in Albuquerque.

Engineers do additional tests on components and subsystems for so-called "corner cases" — like the hottest day with the biggest shock condition or the coldest day with more vibration.

"We can't fly every potential trajectory because you're limited by where you can launch from and where you can land. We can't fly every weather condition because you're stuck with the weather you have when the flight's scheduled," Holswade said.

One problem with testing a non-nuclear system as a whole is that the system works or it doesn't, and the test can't always pinpoint something specific that might have worked, but only marginally. Weapons programs supplement system testing with component testing, allowing engineers to understand whether there were changes in the components.

Sandia's large environmental test facilities can evaluate subsystems and components under all kinds of conditions. That doesn't mean testing is easy — combining environments is especially challenging. Engineers might test how well a component works in a radiation environment and separately in a shock environment, but it's difficult to combine radiation and shock testing, for example.

So researchers use simulation. First they perform experiments to gather information to anchor their models, then use those models to simulate thousands of different environments.

"It gives us a lot more confidence across the spectrum of environments," Townsend said. "We would never be able to run that many experiments. As long as we continue to anchor our models with experimental evidence it allows us to have an ability to really assess that component in an environment that it may never be realistic to test in."

Sandia National Laboratories is a multimission laboratory operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corp., for the U.S. Department of Energy's National Nuclear Security Administration. With main facilities in Albuquerque, N.M., and Livermore, Calif., Sandia has major R&D responsibilities in national security, energy and environmental technologies and economic competitiveness.

https://share-ng.sandia.gov/news/resources/news_releases/stockpile_stewardship/#.WLjl-C3ltTZ

Return to Top

Stars and Stripes Korea - Korea

'Iron Rangers' Hone Skills During Counter WMD Training

By Capt. Jonathan Camire

February 28, 2017

More than 400 Soldiers from Task Force Iron Rangers participated in exercise Warrior Strike 5 at the Rodriguez Live Fire Complex in Pocheon, South Korea Feb. 14 through 17.

The exercise was designed to train the Iron Rangers from 1st Battalion, 16th Infantry Regiment, 1st Armored Brigade Combat Team, 1st Infantry Division, in the identification and elimination of enemy weapon of mass destruction sites.

"This exercise is the culmination of ten months of training for the Iron Rangers. It's been a fantastic opportunity to combine with our Republic of Korea Army partners," said Lt. Col. Jon Meredith, the battalion's commander.

Task Force Iron Rangers consisted of Soldiers from 1st Bn., 16th Inf. Rgmt. along with 3rd General Support Aviation Bn., 2nd Infantry Division / ROK-US Combined Division; 23rd Chemical, Biological, Radiological, Nuclear, Explosives Bn.; and other units from across the 1st ABCT.

The exercise also included the largest number of Republic of Korea Army partners than any previous Warrior Strike exercise. Approximately 200 ROK Army solders participated in the exercise alongside their U.S. partners.

"Working with our ROKA partners is a key part of our mission here in the Republic of Korea," said Maj. Jared Nichols, the battalion's executive officer. "The working relationship with the ROK Army is like nothing else."

Task Force Iron Rangers conducted multiple events during the four-day exercise to include conducting an air assault into the Rodriguez Live Fire Complex, locating WMDs and seizing an objective.

"The terrain in the northern part of the Republic of Korea is especially challenging," Nichols said. "Compared to our past training in Kansas and at the National Training Center in the Mojave Desert of California, Korea is extremely different and presents new problem sets for all of us."

The battalion plans to use the lessons learned from Warrior Strike 5 to better refine their skills and increase readiness in preparation for future training.

"Our companies refined their standard operating procedures for air assault operations, urban operations and combined operations with our ROK Army counterparts," Nichols said. "The value of training like this is key to our mission to be ready to 'Fight Tonight' if called upon."

The Soldiers of 1st Bn., 16th Inf. Rgmt. are currently on a nine-month rotation to the Republic of Korea as part of the U.S. commitment to security on the Korean peninsula and to help deter North Korean aggression.

http://korea.stripes.com/news/'iron-rangers'-hone-skills-during-counter-wmd-training#sthash.7sFfVRMO.vdRqFNPQ.dpbs

Return to Top

Independent-Enterprise – Ontario, OR

Local Responders Train With WMD Team

By Rob Ruth

March 1, 2017

Captain Cody May-Miller of the Payette Fire Department knew his response to a mock emergency call the morning of Feb. 22 would turn into a daylong operation involving the state's specially trained team for dealing with possible weapons of mass destruction.

Beyond the mock incident's location and a few of the other agencies likely to be involved, however, few other details about the training exercise were known in advance by May-Miller or by other participants.

From May-Miller's perspective, it began around 8 a.m. with a report of one person falling quite suddenly ill during a public breakfast at the Payette Community Center. May-Miller and fellow PFD Captain Tony Long were dispatched to the scene on a medical page.

Minutes later, as they were rendering aid to the sickened individual, the situation became one of larger scale.

"As we were working on that guy, everybody else started to deteriorate," May-Miller said.

In all, seven people were displaying symptoms of poisoning.

"It was way over our capability," May-Miller said of the situation the local responders were confronting.

Even as the first responders were calling for more manpower from a fire department engine crew, and for the Payette Police Department to block off the street and secure the building, attendees of the breakfast were entering a state of panic.

Major Robert Grimes of the Idaho National Guard was a designated observer of the training exercise, a familiar role for him because he's deputy commander of the 101st Civil Support Team based out of Boise's Gowen Field. Grimes said Payette's firefighters and police, and the two Payette County ambulance crews that also responded to the incident all performed admirably.

Payette Police, who had to keep people from leaving the building, used the opportunity to begin questioning people, the start of an investigation that would soon involve multiple

agencies and careful documentation of the chain of custody for all physical evidence gathered at the scene.

A key moment occurred fairly early in the scenario, when May-Miller contacted "StateComm," the Idaho State Emergency Management Services Communications Center. Grimes said the system, operated by Idaho's Bureau of Emergency Management Services, can quickly put a local responder in touch with a number of agencies simultaneously in a "bridge call."

Brad Carico, a Caldwell Fire Department battalion chief who is a member of the Idaho Region 3 Hazmat team that was dispatched to the mock incident, said the bridge call included people from Emergency Management, the Department of Environmental Quality, the state laboratory, Southwest District Health, St. Luke's in Fruitland, and the 101st Civil Support Team, among others. A member of the Federal Bureau of Investigation was also meant to be included, but that person was indisposed at the time of the call.

The 101st Civil Support Team, a federal response unit for incidents in Idaho that could involve weapons of mass destruction, arranged the Feb. 22 training exercise. Grimes said the unit holds a dozen exercises each year at various locations, including several outside of Idaho because Civil Support Teams in different states support one another.

In the Feb. 22 mock scenario, participants were confronting the possibility that someone had released a biological, chemical, or radiological agent. Eighteen members of the Civil Support Team therefore rolled into Payette with the team's fleet of big blue trucks, each of which is specially equipped to serve a particular role. One, for example, supports multiple types of communication, including a highly secure link. Another truck holds a mobile lab, a must for a team that needs to quickly arrive at answers as to the actual nature of a threat as data comes in from the handheld detectors at the scene. If a threat is airborne, the team can use air current modeling to advise local authorities where the plume is likely to travel. Based on the information provided, the locals might then either instruct affected residents to remain indoors or order their evacuation.

Incident command is itself a local function. May-Miller held that role throughout the day. Taking advantage of the Civil Support Team's capabilities, a command post was set up across town inside the Payette Fire Station, where May-Miller and 101st CST Commander Major Tony Vincelli were in constant communication with a team member in an operations truck at the Community Center. A live video feed from hazmat-suited team members working inside the Community Center had also been planned, but a technical problem thwarted that.

At St. Luke's, meanwhile, medical professionals were part of a valuable training exercise in handling emergency cases involving patients with exposure to who-knows-what, calling for personnel to follow the meticulous protocols to keep any possible threat contained. Grimes said two members of Region 3 Hazmat went to the hospital to assist with decontamination procedures.

The training at the hospital end included only five patients, not seven as at the Community Center, but only three of them came by ambulance, while two others arrived unexpectedly in a private vehicle, Grimes said.

Grimes said responders first eliminated airborne agents as a likely poisoning source, but as they began focusing on the food and drink at the breakfast, an early working assumption was that an organic phosphate was involved, based in part on patient symptoms.

That assumption was soon debunked, underscoring the vital nature of the quick lab work available on-site. Grimes said medical effects from the poison actually present would only have gotten worse if the patients had been treated with atropine, which is often used for organic phosphate poisoning.

Grimes said perpetrators in the Feb. 22 mock scenario were two fictional Payette men who harbored longstanding personal grudges against the community. One man's wife was a caterer who was hired to put on the community breakfast, and the husband talked her into taking a break and letting him and his friend cook and serve the meal. They poisoned both the meal and a bottle of hand sanitizer placed near the serving area.

Payette Fire Chief Steve Castenada said he was pleased with the WMD-related training exercise.

"I thought it was great," Castenada said. "It gave us some insight to that kind of stuff and it gave my captains some great experience. It put them under the gun."

http://www.argusobserver.com/independent/news/local-responders-train-with-wmd-team/article_0477f314-fe18-11e6-ae77-eb9fb57d6337.html

Return to Top

Ars Technica – New York, NY

In southeastern Colorado, robots carefully disarm WWII-era chemical weapons

By Megan Geuss

February 26, 2017

Ars tours the training facility the military is using to teach humans how to help robots help us.

On the dry, windswept plains of southeastern Colorado, a military checkpoint protects a vast field of igloos built with corrugated steel, covered with a thick layer of Earth, and fitted with thick, blast-resistant doors. The walls of the igloos keep the interior a consistent 51 degrees Fahrenheit whether it's in the heat of summer or the depths of winter, and the high-altitude air has little enough water in it that corrosion-causing moisture is an afterthought.

These mounds are carefully spaced to prevent an explosion in one igloo from triggering explosions in neighboring igloos. That's because inside, the US military stores a stockpile of 780,000 unused WWII-era munitions, filled with dangerous and deadly viscous sulfur mustard agent. This stockpile of chemical weapons was shipped to these igloos in the 1950s. They have been carefully guarded since then.

Not all chemical weapons in the US were so carefully handled. Between 1967 and 1970, the US military disposed of "thousands of tons" of chemical weapons by simply dumping them in the ocean as part of Operation CHASE (Cut Holes And Sink 'Em), according to the Centers for Disease Control and Prevention. In fact, the military dumped 16,000 bombs, each containing 73 pounds of chemical agent, in the ocean at a site five miles south of Pearl Harbor after World War II. In 2010, research teams decided not to move the sunken munitions because moving the bombs would be more risky than leaving them where they are.

In 1972, Congress outlawed dumping chemical weapons in the ocean, and in 1997, the US became a signatory to the Chemical Weapons Convention, an international treaty to eliminate chemical weapons stockpiles. Without the option of simply dumping weaponized

chemicals into the sea, incineration or neutralization was the choice on the table. Destruction plants were built around the country to eliminate stockpiles. After years of planning, construction of the Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) began.

After numerous and extensive delays, the plant was finally finished in the summer of 2016. Since then, the plant has been slowly ramping up destruction of the chemical-containing munitions that had lain dormant for so long in Pueblo's prairie igloos, which are part of the Pueblo Chemical Depot.

Bechtel, the company contracted by the US military to oversee and develop the plant, recently offered Ars a tour of the training facility that the plant uses to get its employees up to speed on this destruction process. Going to the pilot plant itself, Bechtel said, would be too risky. Still, the training facility, which sits in a nondescript warehouse park east of Pueblo, houses much of the same equipment you'd find in the real plant. There's just a lesser risk of exposing an untrained journalist to mustard agent, of course.

A word about sulfur mustard

Coming in contact with mustard agent, otherwise known as sulfur mustard, is extremely bad, despite the fact that it's not immediately fatal in most cases. Although you might not experience symptoms for up to 24 hours, once you do, your skin will start itching and burning intensely until large blisters filled with yellow fluid start forming. If your eyes are exposed, they will become swollen and sore, and exposure could induce blindness for up to 10 days. If you breathe the sulfur mustard in, your lungs could blister and fill with fluid. While mild exposure can be treated, leading only to first and second degree burns, heavy exposure can cause disfiguring third degree burns. And mustard agent burns heal more slowly than other burns, leading to increased risk of sepsis.

If a large portion of your body surface area is exposed and you don't get adequate medical treatment, you could die... in a process that can take days or weeks. On top of all that: even if you only have mild exposure, sulfur mustard is carcinogenic and can lead to increased risk of cancer later in life. (Somehow it hasn't always been such a reviled substance: decades ago doctors prescribed sulfur mustard as a treatment for psoriasis.)

This chemical, sometimes deployed as a gas and other times deployed as a liquid, was initially used as a weapon by the Germans during WWI. British and Canadian soldiers fighting in Belgium were the first to experience the horrors associated with exposure, and the British government quickly went about developing its own chemicals. Use of chemical weapons in warfare was internationally outlawed in 1925 per the Geneva Protocol, but the US built its own stockpiles of mustard-agent-filled shells through WWII. Although by most accounts the US never deployed any of its own sulfur mustard against the axis powers, it did expose 60,000 of its own troops to chemical agents in secret experiments that singled out white, black, Japanese, and Puerto Rican soldiers. In the '90s, military documents were unearthed that the US had planned a poison gas attack against Japan that could have killed five million people.

Robots tread where man dare not

The training facility for the Pueblo Chemical Agent Destruction Pilot Plant is 17 miles west of the actual plant. It houses working machinery that prospective employees get to practice on, as well as classrooms where dozens upon dozens of classes are taught before employees come in contact with munitions or machinery. Employees tend to be people with chemical

industry experience, power plant and gas transmission station workers, veterans, or people who've worked on military bases before.

Plant support specialist Tom Bailey walked Ars through the process of destroying the chemical munitions. From the get-go, employees are largely remote to the disassembly process. While the projectiles are coming apart, these individuals direct robots, automatic forklifts, and other machinery from a separate building or while shielded by 24-inch-thick blast walls and guided by fiber-optically linked video cameras. In the training facility, instructors have set up a fence around the disassembly machinery to give employees a physical reminder of the boundaries they'll have to work around.

The employees run through the process using empty munitions casings, clean of any explosives or chemicals. At Pueblo, the plant is only concerned with destroying 155mm and 105mm projectiles filled with HD (a type of sulfur mustard) and some 4.2-inch mortar bombs. That lack of variety is helpful because it reduces how versatile the site needs to be. A weapons destruction plant in Kentucky, for example, destroys many different types of weapons, including weapons that contain sarin and other nerve agents. The Kentucky plant has fewer weapons to destroy, but the variety makes everything slower.

When you enter the warehouse, a fence separates you from the rest of the equipment. There are some basic safety aspects to this, but it's also about reminding trainees that they'll be separated from the machinery that deconstructs the munitions when they're on the job. Megan Geuss

This is a model cross-section of the inside of the 155mm munitions that are being destroyed. The thin tube in the middle is the burster well where the explosives are housed, and the fuse well cup and the lifting lug are at the top. Those are removed first in the process. Megan Geuss

Inga the picker robot comes from the Japanese automotive industry via an Alabama chemical weapons destruction plant. Megan Geuss

Tom Bailey in front of a weapons conveyor belt in the training center. Megan Geuss

Weapons are sent down the line bottom-first because their wide, flat bottoms trip airlock sensors more easily. Megan Geuss

To understand how the machinery at Pueblo destroys the chemical weapons, employees of the plant need to know how the munitions were constructed. Yes, essentially the destruction process is a finely tuned bit of reverse manufacturing. Although the Pueblo Chemical Depot has long had the ability to simply explode and incinerate these chemical weapons on site in what's called a "static detonation chamber," the incinerator can only destroy about six rounds a day. When you're up against a stockpile of 780,000, that just wouldn't do.

Instead, the incinerator is reserved for munitions that fail to meet the criteria for a more careful destruction at the Chemical Agent-Destruction Pilot Plant, like if a projectile looks like it won't hold up on the main machinery or if the machinery is having trouble removing some of the chemicals inside a projectile. By contrast, each of the three disassembly lines in the pilot plant can theoretically disassemble 60 rounds an hour, although that decreases to an average of about 42 to 46 rounds an hour in practice when the facility is entirely up and running.

Bringing out a cross-section model of a 155mm projectile, Bailey started methodically explaining the components. Munition this heavy would usually be fired out of a large

artillery piece, like a Howitzer gun. The shell of the munition would have been cold-cast in hopes that when it exploded over enemy lines, it would fracture and deploy the chemical agent. ("People like to call it mustard gas, but it's not a gas, it's a liquid," Bailey explained. "It's a heavy viscous liquid, and the object of this is for it to splash on you. It's not aerosolized.")

After casting the casing, manufacturers would fill it to a point with the heavy viscous chemical agent (a type of sulfur mustard classified as "HD" by the military) before hydraulically pressing a burster well into the shell. Then the explosive burster material would be fit into the burster well, and a fuse well cup would top it all off. The fuse well cup was molded such that you could screw a lifting lug into the top of the projectile for transportation purposes. "First thing the army does to get ready to use these is they remove the lifting lug and install a fuse in its place," Bailey said. "By that time they're finished handling it."

Today, many of the munitions are already stored in pallets (some of the smaller ones require special packing). To get to the pilot plant, they're loaded onto a special truck at the storage igloo, and a driver makes the barely one-mile drive from igloo to plant in what Bailey described as a "torturous" and slow fashion.

Article truncated for brevity. See link below for full text.

https://arstechnica.com/science/2017/02/in-southwestern-colorado-robots-carefully-disarm-wwii-era-chemical-weapons/

Return to Top

Global Biodefense – Seattle, WA

PHEMCE Review: Accomplishments and Future Areas of Opportunity

By Rebecca Fish

March 2, 2017

The United States continues to face national security risks from natural, accidental , and intentional health threats. Efforts to improve chemical, biological, radiological and nuclear threats (CBRN) and emerging infectious diseases (EID) preparedness are led by a variety of federal agencies referred to as the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE). This group was created in July 2006, and they are tasked with "coordinating the development, acquisition, stockpiling, and use of medical products" which will be used in response to these threats.

The Assistant Secretary of Preparedness and Response (ASPR) oversees PHEMCE efforts, and they work in close collaboration with other federal agencies to develop a comprehensive plan. An updated Strategic Implementation Plan was recently released. This document outlines progress since 2014-2015 and provides an update on priorities over the next five years.

There are 4 total goals in the PHEMCE plan with a series of sub objective beneath each item. Key goals include:

GOALS

Identify, create, develop, manufacture, and procure critical medical countermeasures.

Establish and communicate clear regulatory pathways to facilitate medical countermeasure development and use.

Develop logistics and operational plans for optimized use of medical countermeasures at all levels of response

Address medical countermeasure gaps for all sectors of the American civilian population

SAMPLE ACCOMPLISHMENTS

The number of activities undertaken by different PHEMCE partners since the last update is significant. Following is a small sampling of efforts:

Formalizing Requirements Setting

ASPR simplified the MCM requirements process to facilitate decision-making and prioritization for MCM research, development, acquisition, and utilization. ASPR uses integrated program teams (IPT) and an economic framework to complete their assessments.

Approving and Advancing New Products:

The Biomedical Advanced Development and Research Authority (BARDA) is supporting a pipeline of approximately 65 candidate products under Advanced Research and Development.

Meanwhile, multiple new MCMs were approved by FDA including:

An anthrax vaccine for post exposure prophylaxis

An anthrax Immune Globulin Intravenous (Human) to treat patients with inhalational anthrax in combination with appropriate antibacterial drugs

Two influenza multi plex assays

The first IV antiviral for influenza

A pneumonic plague treatment

Products to treat patients exposed to myelosuppressive doses of radiation

A variety of products that help patients after exposure to nerve agents.

Advancing MCM Regulatory Progress

FDA has been a consistent leader in MCM stakeholder engagement and has held a multitude of workshops to improve understanding and awareness of MCM regulatory guidance.

FDA developed public health and security action teams to address regulatory challenges that may arise during MCM development.

FDA issued shelf life extensions to 2000 lots of medical countermeasure products to improve access.

FDA issued nine Emergency Use Authorizations for diagnostic tests for Ebola, just in FY 2015.

Combating Antibiotic Resistance

Antibiotic resistance is a serious public health threat. BARDA used Other Transactional Authority (OTA) to advance development of novel antimicrobial drugs via partnerships with large pharmaceutical manufacturers.[2] OTA is a flexible contracting mechanism that allows BARDA and the developer to work on a portfolio of products without the complexity of standard Federal Acquisition Rules. These products may have both commercial and biothreat protective applications. NIAID is also working on multiple therapeutics against drug resistant bacteria.

NIH/NIAID

In 2015, NIAID made 14 awards for the discovery and early stage development of new antibacterial products. NIH is researching the use of adjuvants to improve vaccine efficacy (fewer doses/lower cost) and issues related to temperature stabilization to reduce cold chain storage requirements. They also awarded new contracts for antibacterial and antiviral therapeutics including products against Ebola, Marburg, and influenza.

Emerging Infectious Diseases (EID)

PHEMCE has established EID work groups which will implement a risk assessment framework to determine the extent to which EIDs present a high priority, public health threat and should be incorporated into PHEMCE efforts. Response to Ebola, Zika, and MERS-CoV demonstrate the extent to which these issues have been an area of focus for PHEMCE partners.

Ebola Response

PHEMCE partners supported a robust Ebola response.

BARDA, NIH, FDA, and DoD supported the development efforts for multiple potential Ebola MCMs including the therapeutic candidates and multiple vaccine candidates.

A NIAID funded facility sequenced over 580 genomes that provided important insight around the evolution of the Ebola virus outbreak strain.

CDC and partners vaccinated over 8000 health care workers and others as part of a campaign in Sierra Leone. CDC also worked to develop a real-time diagnostic.

NIAID vaccinated 1500 volunteers in Liberia (PREVAIL). 94% of the 500 people immunized with the Merck product had measurable antibodies.

Widespread monitoring of travelers returning from West Africa was also implemented.

This is just a small sampling of the efforts, but virtually every PHEMCE partner was heavily engaged in responding to the Ebola outbreak.

Zika

Similarly, PHEMCE partners were engaged across the spectrum on Zika response. They enabled the development of rapid diagnostics and advanced new MCM treatment options. A number of vaccine candidates are in development. In April 2016, CDC hosted a Zika Action Plan Summit to share best practices and communication strategies with state and local leaders. Registries were created to help understand the possible outcomes.

Future Areas of Opportunity

While PHEMCE partners have made critical progress in advancing access to medical countermeasures, there are areas of improvement for the future.

Expand Stakeholder Engagement

Many partners are missing from the formal PHEMCE enterprise planning efforts. This includes pharmaceutical manufacturers, supply chain experts, IT vendors, civilian coalitions, and non-governmental organizations (NGOs). These partners have important subject matter expertise to share, but there is no formal mechanism for their involvement. A stakeholder workshop, or webinar held once, or twice a year is insufficient. The PHEMCE plan indicates that "ASPR will create mechanisms to increase non-federal stakeholders' input during the requirement-setting process and increase visibility on the relevant outputs." One means to do that would be to follow the example set by the Advisory Committee on Immunization Practice (ACIP) which maintains non-voting, rotating committee roles to increase (vaccine) stakeholder engagement. A similar process could be incorporated into the PHEMCE governance structure.

"Promoting effective partnerships" isn't just about providing "access to manufacturing services." Partnership is about transparent communication and better visibility to key needs and future priorities. Non federal stakeholders want to see clear, accountable leadership of the PHEMCE enterprise, consistent funding, and a formal mechanism for their participation.

Incentivizing Innovation

While biotechnology is increasing at an exponential rate, and the opportunity for misuse (bioterrorism) is increasing, the number of companies interested in making significant investment in medical countermeasures development is decreasing. There are important MCM innovation gaps that need to be addressed.

MCMs have an exceptionally limited market, and the government purchasers exert monopsony purchase power meaning that they can drive aggressive price discounts. While this is attractive to taxpayers, it is not attractive to investors. It is much more commercially attractive to develop a traditional pharmaceutical product that can be given repeatedly and offers a recurring revenue stream. Donating MCMs in the United States stockpile to other countries (30 times) further reduces the size of the available market. These are admirable efforts from a public health and diplomatic perspective, but they have the unintended consequence of making the MCM "market" substantively more unattractive. Over reliance on a few companies to develop MCMs against Category A agents presents a national security risk and requires more attention.

Additional work groups should be formed as part of the PHEMCE SIP to explore mechanisms to ensure a sustainable MCM enterprise. These work groups should include industry representatives, so that diverse perspectives are considered. A "one size fits all" incentive approach will not work, and there are important limitations to existing options.

As one example, BARDA has promoted their use of OTA as a flexible, collaborative way to facilitate antibiotic development. While BARDA should be commended for their efforts to use creative approaches to attract industry, BARDA also should remain attuned to the potential for abuse. OTAs are generally not subject to government cost accounting principles, federal acquisition rules, the Contracts Disputes Act, Truth in Negotiations Act, or Competition in Contracting Act.

OTA agreements are creative and flexible, but they increase the risk of abuse to the federal government. BARDA may want to consider additional criteria when evaluating companies for OTA awards. This could include requirements that companies be in good standing with the U.S. government. This might help to mitigate risk. More research is needed to evaluate the risk of unintended consequences that arise from different incentive plans.

Summary

PHEMCE activity encompasses a wide range of federal agencies. Together, these agencies have taken important strides to safeguard the lives of Americans and people around the world, via improved access to medical countermeasures and diagnostic tools. It serves as an example to other countries regarding what can be accomplished through interagency collaboration and planning.

However, the PHEMCE effort still requires strong, centralized leadership and a comprehensive strategic plan with measurable outcomes against which progress can be reported. It's impressive that so many groups are working on these challenges, but who is determining the overall strategic plan? How does it come together? Which single individual has responsibility for the entire biodefense strategic effort? Who is managing the enterprise U.S. biodefense budget? No one.

No one has clear accountability for the U.S. biodefense strategy, and this puts our country at risk.

https://globalbiodefense.com/2017/03/02/rebecca-fish-phemce-review-accomplishments-opportunities/

Return to Top

RealClear Politicis – Washington, DC

Trump and the Nuclear Threat

By Brian Kennedy

March 1, 2017

In this month after becoming president, Donald Trump has conducted a series of phone calls to various heads of state. These calls are not ceremonial. In the case of Russia and the People's Republic of China, President Trump must be able to converse directly with President Putin and President Xi. Not just because they run large countries that we have deemed superpowers, but because they possess nuclear weapons aimed at the citizens of the United States and with the capability of destroying our republic. The subject of nuclear weapons does not even need to be raised. Nuclear weapons are a permanent subtext in all superpower conversations.

This is made even more so since the United States does not possess a strategic ballistic missile defense capable of stopping Russian, Chinese, or Iranian ballistic missiles or the nuclear blackmail such weapons afford. The recent test of the advanced Chinese DF-5C missile and the Iranian missile test was a stark reminder for President Trump that the potential for thermonuclear war still exists. That the United States is in this strategically inferior and unenviable position is entirely unacceptable.

Americans will be shocked to learn that should a madman in Russia, China, Iran or elsewhere seek the nuclear destruction of the United States there is little an American president can do today except launch a retaliatory nuclear strike guaranteeing the Cold War policy of mutually assured destruction. There can be little satisfaction, however, in the mass slaughter of Russian, Chinese or Iranian subjects while American citizens would have suffered their own nuclear attack. The morality of MAD was always questionable. In a world where Iranian mullahs preach hatred of the United States and Israel while they continue their nuclear ambitions, it is absurd.

President Trump has pledged to build a national missile defense. Its strategic necessity is greater, if less well-understood, than the wall he will be building on our southern border. When completed, Trump will have done what no president, including Ronald Reagan, has done: ensure that the American people are not vulnerable to the strategic designs of a foreign power. Our freedom and our constitutional order cannot be guaranteed so long as a single command by a Russian or Chinese president or an Iranian mullah could mean the end of American civilization. It would be fair for President Trump to ask his generals how we have arrived in this position.

We know that the end of the Cold War brought a regrettable lack of seriousness to our strategic thinking. Although advanced forms of missile defense were within our technological ability, the reorganization of the Soviet Union removed all urgency. Successive U.S. administrations starting with George H.W. Bush treated missile defense as desirable but not a priority. After an explicit nuclear threat by the PRC in 1995, billions were spent on a limited, land-based system in Alaska that can stop a handful of North Korean missiles. Its main purpose, it would appear, was to give the illusion that we were defended.

Equally vexing, our paralysis continued despite the fact that U.S. intelligence knew the Russians had developed a primitive but effective missile defense of their own during the Cold War and that the Chinese were developing their own missile defenses to complement their growing nuclear arsenal.

Although one could register this failure to build missile defenses as mere incompetence, September 11 should have sharpened our strategic outlook. The world of Islamic terrorism had put the United States in its cross hairs. The 9/11 hijackers had been aided and abetted by Iranian intelligence, itself an act of war. With certainty, we knew that Iran was also building a nuclear capacity to match their advanced ballistic missiles. In this enterprise, the Iranians had the assistance of Russia, North Korea, and, by extension, Communist China. As we were constructing a homeland security super state, it would not have been crazy to include the building of a national missile defense using land, sea and space-based interceptors on the off chance that a future attack on America would be with nuclear missiles.

Underscoring this is the fact that the Iranians have practiced the launching of ballistic missiles from ships in the Caspian Sea. In such testing the Iranians simulated an Electro Magnetic Pulse attack that could, with the right nuclear warhead, destroy the electric infrastructure of the U.S. and, at its most severe, cause the deaths of hundreds of millions of Americans. The Iranian test on January 29th was of the same kind. The use of an EMP weapon is at the heart of Iranian strategic nuclear doctrine. It does not require thousands of nuclear warheads and missiles. It requires one highly advanced or several less advanced missiles. This latest test was, moreover, a message to President Trump that the Iranians are perfecting the means, and being aided by the world's superpowers, to kill every last American man, woman and child. Subtle they are not.

For 15 years, our national security strategy has been consumed by war against Islamic terrorism including now ISIS. President Trump inherits a national security apparatus whose best minds have been preoccupied with irregular warfare, counterinsurgency strategy, democracy building and humanitarian exercises. Some of these were necessary for the task at hand. Others entirely misplaced. This has served, unfortunately, as a strategic distraction when it comes to the defense of our nation against nuclear ballistic missiles.

Leaving the United States vulnerable to the predations of our enemies, whoever that may be, is the height of immorality. We can defeat those enemies who mean us harm in the Islamic world whether it is ISIS or anyone else and build a national missile defense. President Trump is assembling the team now to fix this and make missile defense a reality. It can come none too soon.

http://www.realclearpolitics.com/articles/2017/03/01/trump_and_the_nuclear_threat_133224.html

Return to Top

Tass – Moscow, Russia

Russia Has No Plans to Change New START Treaty - Diplomat

Author Not Attributed

February 28, 2017

A diplomat says Donald Trump's statements on START arms treaty make no change in Russia's position

Russia considers the Russian-US Treaty on measures for the further reduction and limitation of strategic offensive arms (the new START Treaty) useful and does not plan to change it, Russian Deputy Foreign Minister Sergey Ryabkov said on Tuesday.

"We consider the START Treaty of 2010 a mutually useful instrument, a balanced document that does not contain any unilateral concessions to anyone whomsoever and that really strengthens security," Ryabkov said.

"We consider these statements [by Trump on the START arms treaty and the US nuclear potential] as an obvious occurrence. They have not become a surprise for us as they fit into the political line that has been shaped by representatives of the new US administration's leadership in this area," the Russian diplomat said.

"There is nothing special that would change our own conceptions of the possibilities and the instruments that can be applied in this sphere," he added.

"It is necessary in principle to use a very weighed and thought-out approach to what is related to arms control," Ryabkov said.

US President Donald Trump earlier criticized the new START Treaty of 2010, promising "to start making good deals" and expand the US nuclear arsenal.

"It's a one-sided deal like all other deals we make. It gave them [Russia] things that we should have never allowed," the US leader said in the Reuters interview.

The Strategic Arms Reduction Treaty (START-III) was signed by the presidents of Russia and the United States on April 8, 2010 in Prague and entered into force on February 5, 2011 after it was ratified by Russia's parliament and the US Congress.

The Treaty stipulates cutting deployed strategic carriers to 700 units and to 1,550 nuclear warheads on each side.

http://tass.com/politics/933246

Return to Top

38 North – Washington, DC

THAAD: A Critical Litmus Test for South Korea-China Relations

By Hee Ok Lee

March 2, 2017

On July 8, 2016, the Republic of Korea and the United States announced their decision to deploy the Terminal High-Altitude Area Defense (THAAD) system on South Korean territory. That intent was reiterated in phone conversations on March 1, 2017 between the two countries' national security advisors, Kim Kwan-jin and H.R. McMaster, following the approval of a land swap deal that will allow the system to be deployed on the military's preferred site. This decision has soured Sino-US relations, but it has damaged Sino-ROK relations to an even greater extent while shifting the security landscape in Northeast Asia. Nonetheless, Seoul and Beijing should be able to find a way to manage their differences over this issue to keep relations moving in a positive direction.

When the decision was originally made, the ROK government anticipated a negative Chinese reaction to THAAD deployment, but went ahead with it for several reasons. First, its anxiety about security and lack of missile defenses had increased significantly in response to the acceleration of North Korea's nuclear and ballistic missile development. Second, the ROK government needed to manage the risk of Washington abandoning the US-ROK alliance. In doing this, it considered THAAD to be one means of filling security gaps and securing conditions for the stable presence of US forces. Third, Seoul understood the system's effective radar detection range to be limited to the Korean peninsula and is oriented solely to detect North Korean ballistic missiles. Fourth, Seoul needed to demonstrate that it would not permit China to exercise a veto over its right to deploy a system to defend its national security. Fifth, the ROK government dismissed the fear that a THAAD battery in its territory would become integrated into the US ballistic missile defense system as groundless. In addition to these factors, opponents of President Park Geun-hye's conservative administration won a majority of National Assembly seats in the subsequent general election, raising the prospect that deploying THAAD would have become less politically feasible with further delay.

However, China holds a very different view of the South Korean decision. First, Beijing believes that one THAAD battery can neither deter North Korea militarily nor compel Pyongyang to change its behavior. Second, it thinks the system's detection range could later be changed to suit US needs, enabling THAAD to potentially target Chinese assets, including strategic missile systems and forcing Beijing to spend more on defenses for its coastal missile bases. Third, Beijing is aware that a long-term goal of the US rebalance to Asia is to check or block China through security cooperation with South Korea and Japan. Fourth, it expects an additional strategic burden from changes to the regional "power balance," such as new Russian defenses against THAAD that Beijing will also have to take into account.

The decision to deploy THAAD has, in fact, severely damaged relations between China and South Korea, countries that have generally seen eye to eye on the North Korean nuclear issue. When North Korea conducted its fourth nuclear test in January 2016, China issued a statement strongly condemning the North. Despite that, the ROK proceeded on February 7, 2016 to begin official consultations with the United States on THAAD deployment. China fought the proposal from the start, contending that the potential step would violate its security interests and disrupt the strategic balance. China regularly voiced its criticism of the prospective deployment in even stronger terms, expressing hope that it would be "relinquished," warning that it would "wreck" bilateral relations and linking it to a "sword dance by the US aiming at China." When the ROK ultimately decided to deploy the system, China immediately said it had "expressed its strong dissatisfaction with and resolute opposition to the decision." After the US-ROK announcement, China started to stress its own strategic security interests on the peninsula, calling for peace and stability, denuclearization and resolution of disputes through dialogue and negotiations.

Furthermore, China could impose non-tariff barriers to pressure the ROK. Bilateral exchanges, both public and private, are shrinking. Internet users in each country are fomenting sentiment against the other, and the ROK is developing measures to minimize any negative trade impact. South Korean companies have also found business and investment deals in China going sour, with numerous reports of increased inspections, stalled construction projects and difficulties clearing customs. Following the announcement of the recent land swap deal with Lotte International, exchanging Lotte's golf course in the southeast for military land near Seoul, Chinese Foreign Ministry spokesman Gen Shuang warned again, of "consequences" for the decision, stating that China "will definitely take measures to safeguard its security interests," with "all the consequences entailed will be borne by the US and the Republic of Korea."

Finding a practical middle ground will not be easy. South Korea is not likely to renege on its decision to deploy THAAD despite China's opposition and it will be difficult for Beijing to accept the US-ROK decision, given the domestic and international audiences it must consider. A game of chicken appears to be emerging on the issue, which will be played out whenever there is a new development on the issue, such as confirmation of a deployment date and the system's introduction, installation and operation. International cooperation on North Korea's nuclear and missile programs is already losing steam due to China's passive attitude, and the deployment of THAAD may open a Pandora's Box when it ultimately becomes reality.

Nevertheless, China, for several reasons, should consider limiting any direct "retaliation and sanctions" targeting the ROK. First, Korea still holds strategic value in the full-blown competition between China and the United States over norms and institutions, escalation in South China Sea and responses to Japanese revisionism. Second, if China interferes too much with South Korean security sovereignty, its international reputation will suffer and neighboring states may increasingly see China as a threat. Third, no Chinese retaliatory action is likely to alter South Korean behavior. Fourth, non-tariff barriers have limits as tools for retaliation. With these considerations in mind, China will respond to THAAD primarily by strengthening its military ties and cooperation with Russia, stably managing its relations with North Korea and attempting strategic negotiations with the United States. South Korea has its own reasons to limit its tensions with Beijing. Up to 25 percent of the

ROK's trade volume comes from China, and reunification of the Korean peninsula is not possible without Beijing's constructive role in the process. Therefore, "China bashing" is unrealistic and can return like a boomerang to haunt the ROK. In particular, South Korea stands to incur diplomatic costs if the region's security dynamic changes from "DPRK versus the international community" to "ROK-US-Japan versus China-Russia-DPRK."

Given these circumstances, the ROK and China are likely to pursue an exit strategy through open-ended communications and dialogue. Beijing has in the past suggested it wants to leave open the possibility of a future strategic dialogue when circumstances permit. However, several questions remain unanswered, which will affect the ability of the ROK and China to put the THAAD issues behind them. First, can Seoul actively create space for dialogue, given that the THAAD issue reflects a strategic competition between the United States and China? Second, can tensions over THAAD be reduced through improved South-North relations aimed at addressing the North Korean nuclear issue? Third, can the ROK persuade China that THAAD poses no threat to China's strategic nuclear deterrent and find other ways to lessen Chinese mistrust? Fourth, will South Korean activists be able to obstruct the deployment of THAAD on safety and environmental grounds?

In conclusion, the decision to deploy THAAD can act as a critical litmus test, enabling the ROK and China to either confirm conflicting strategic interests while remaining superficial friends, or to reach a strategic consensus and seek new, higher-level directions for the bilateral relationship. What is clear is that there is more than THAAD to Sino-ROK relations. Therefore, as long as the ROK and China avoid a blame game over who is responsible for the North Korean nuclear problem, they will be able to manage the status quo through an understanding of each other's positions, even if they are not necessarily in agreement. The status of the Sino-ROK relationship will come into fuller view after the upcoming ROK presidential election.

http://38north.org/2017/03/hlee030217/

Return to Top

United Press International – Washington, DC

Kim Jong Nam Slaying Shows Precision Strategy for Chemical Weapons

By Virginie Grzelczyk

March 2, 2017

Kim Jong Nam, half-brother of North Korean strongman Kim Jong Un, died under circumstances as bizarre as they were suspicious. As in a game of Clue, we now have just about all the pieces of the puzzle: The assassination was committed at Kuala Lumpur Airport, with VX nerve agent, allegedly by two unsuspecting young women who were apparently tricked into murder and offered a modicum of money for their services. The Conversation

That the North Korean regime might be behind the attack looks highly likely given the use of VX, an extremely lethal chemical classified as a weapon of mass destruction under United Nations Resolution 687 and banned by the Chemical Weapons Convention. This is not something that could be easily found on the streets of the Malaysian capital.

But while it's well known that North Korea has dabbled in chemical and biological weapons for years, most assumed they were for staging mass-casualty attacks, not precision weapons

for individual hits – even though the country has serious pedigree when it comes to assassinating civilians.

In 1968, A North Korean commando infiltrated South Korean President Park Chung Hee's residence, aiming to kill the president and his senior council; in 1981, North Korean agents hired two Canadians to attempt to assassinate South Korean President Chun Doo-hwan. In 1983, a North Korean bomb killed 17 South Korean officials on a diplomatic visit to Rangoon, and 115 people died in the bombing of a KAL flight in 1987.

That said, the murder of Kim Jong Nam was different: A targeted assassination with no collateral damage, it took the life not of a foreigner, but of one of North Korea's own. If it was indeed initiated by Kim Jong Un and his inner circle, it suggests that the North Korean leadership is once again trying to consolidate itself and eliminate any potential threats. A similar process probably spurred the infamous 2013 execution of the Kims' uncle, Jang Song Thaek, which was proof enough that Kim Jong Un felt some elements needed to be dealt with for his legitimacy to be stronger.

It also raises the question of why the Pyongyang leadership would need to remove someone who was hardly an existential risk. Kim Jong Nam stated several times he had neither much interest nor stake in ruling his country. That makes it all the harder to understand why Kim Jong Un may have personally ordered his death, as South Korea and the United States have officially claimed – and especially abroad, with all the media scrutiny and international law that predictably ensued.

But viewed another way, this surprising attack and the baroque way in which it was carried out make a sort of sense. The use of proxy agents carrying a lethal agent should remind us that Kim Jong Un's government is more self-aware than it's often credited for, and that it clearly feels under siege. And the use of a weapon of mass destruction speaks volumes about how the government approaches its problems.

Thinking differently

The plural, "weapons," is important. The international community understandably focuses on North Korea's nuclear weapons program, too often overlooking its potentially very dangerous chemical and biological ones. And whereas a nuclear deterrent only works if other countries know about it, chemical and biological weapons are a different species, developed and kept in the dark.

While North Korea has signed the 1972 Biological and Toxin Weapons Contention and the 1925 General Protocol that prohibits the use of chemical and biological weapons in wartime, it has not signed the 1997 Chemical Weapons Convention. That puts it on the margin of international law along with Egypt, South Sudan and Israel.

So are we on the brink of an international chemical or biological disaster?

The country's chemical and biological programs are as old as its nuclear one. A 2009 report by the International Crisis Group found that the North established a chemical department in 1954, and that it probably received Chinese and Soviet technical and training assistance in the 1960s. Then there's the 1997 testimony of refugee Kim Jung Chan, a former military attaché in North Korea's East German embassy, who conveyed that the country received vital chemical weapons know-how from the East German government.

Reports from the Nuclear Threat Initiative and the United States' Congressional Quarterly also state clearly that North Korea retains a robust chemical weapons stock (mustard gas,

sarin, VX) and a varied biological weapons portfolio (anthrax, plague, smallpox, yellow fever).

But whether these weapons are meant to ever be used in the most catastrophic ways imaginable is a very different matter. Deploying a dangerous agent in an isolated hit is very different from lashing out and dropping them on unsuspecting populations. In fact, Pyongyang's own propaganda and rhetoric has often condemned the use of chemical and biological weapons, and regularly refers to Japanese and American acts committed during the Korean War: a search on the Korean Central News Agency returns hundreds of examples.

The recent assassination should remind us that North Korea is much more than an unhinged, basket case "hermit kingdom." It is far more internationally connected and active than we tend, and want, to think; its elite has operatives and networks abroad and is committed to ensuring its political survival. It is also capable of handling extremely dangerous materials with precision.

Thinking clearly, this is nothing we didn't already know. If anything, the fact that the assassination happened abroad gives us more access to information and data about how North Korea operates – something we badly need in a world of suspicion and conjecture.

http://www.upi.com/Top_News/Voices/2017/03/02/Kim-Jong-Nam-slaying-shows-precision-strategy-for-chemical-weapons/8031488468320/

Return to Top

Astro Awani – Kuala Lumpur, Malaysia

M'sian Army Under UN Ready to Face Threat of Nuclear, Chemical, Biological Weapons

Author Not Attributed

March 2, 2017

The Malaysian Army currently has a team known as the Standby Army Battalion to be assigned under the United Nations (UN) mission against any threat of nuclear, biological and chemical weapons said Army chief General Datuk Seri Zulkiple Kassim.

He said the team possessed the skills and equipment to operate in an environment contaminated by radioactive and so on.

"Recently, we had prepared this team to serve under the UN mission. A group of the UN representatives came here to inspect our equipment and readiness to serve and they were satisfied, especially our vehicles and equipment that are able to operate in a highly contaminated atmosphere.

"We have the ability to face the threat of nuclear, biological, and chemical weapon and apart from the team being accepted by the UN it is also qualified to serve abroad," he told reporters after attending a parade and delivering his message in conjunction with the army's 83rd anniversary at the Army Basic Training Centre (Pusasda) here Wednesday.

Also present were Army Deputy Chief Lt Gen Datuk Seri Panglima Ahmad Hasbullah Mohd Nawawi and Army Second Lieutenant, the Raja Muda of Selangor, Tengku Amir Shah Ibni Sultan Sharafuddin Shah.

Meanwhile, after the parade, Zulkiple also launched MASt (Malaysian Army Standard) or army quality standard manual as a management tool to measure the capability of the management of army regiments and corps.

"First developed in June 2016, thus far we have developed 18 MASt and they are believed to be able to help enhance the quality in the army towards excellence in terms of better management, integrity, transparency and being innovative.

In his message, he also said that the army was in the process of establishing new army camps to create a more conducive working environment and to improve morale and productivity of army personnel when discharging their duties.

The parade yesterday involved 158 officers and 3,629 personnel of various ranks and led by Third Infantry Division Commander Mej Gen Datuk Hasagaya Abdullah.

http://english.astroawani.com/malaysia-news/msian-army-under-un-ready-face-threat-nuclear-chemical-biological-weapons-134120

Return to Top

Xinhua – Bejing, China

DPRK Diplomat Brushes Off Use of Chemical Weapons in DPRK Man's Death

By Chong Voon Chung

March 2, 2017

A DPRK diplomat on Thursday brushed off Malaysia's investigation result that shows the DPRK man died here was killed by chemical weapon, saying he likely died of heart attack.

Ri Tong Il, spokesman of a DPRK delegation to Malaysia, said the DPRK man had a history of heart decease, had received treatment from time to time and normally could not travel without medicine.

Ri claimed that medicine for heart disease, diabetes and high blood pressure were found in the man's belongings.

Malaysian police said the man was killed by VX nerve agent.

Describing the chemical as highly toxic, Ri raised the question that how the man died on the spot while the two suspects survived and police and medics who attended to the man were not contaminated.

He said samples should be sent to the Organization for the Prohibition of Chemical Weapons (OPCW) for verification.

Ri said his delegation had met with Malaysian officials to settle the issue and had made a request to have a look at the body for identification.

"The DPRK's request is simple, that is the return of the deceased body of the DPRK citizen as soon as possible," he said.

The two female suspects were charged with murder by a local court in Malaysia on Wednesday.

http://news.xinhuanet.com/english/2017-03/02/c_136097193.htm

Return to Top

Azlan Zamhari Malaysiakini – Malaysia

N Korea: How Did Duo Survive Contact With VX Nerve Agent?

Author Not Attributed

March 3, 2017

The North Korean high-level delegation to Malaysia wants to know how the two women who had purportedly killed Kim Jong-nam using the highly toxic substance VX nerve agent could survive.

Kim, who was travelling using a North Korean passport under the name "Kim Chol", died on Feb 13 at KLIA2 after a chemical substance was used on him.

Citing “international chemical experts”, Ri Ton-il, former North Korean deputy ambassador to the United Nations, who is part of the delegation, in a press conference today, pointed out how the two women had used their bare hands to contain the material before applying it on the victim’s face.

“The world’s greatest question is again, the question of the two ladies – they are the ones who directly contained the liquid on the palms of their hands to apply to the face.

“They are the first ones to have contact with this material while the victim died - how did they survive?”

Ri, who read out a statement during the press conference held outside the North Korean embassy in Kuala Lumpur today, also pointed out how no one except the victim was affected by the nerve agent despite the tens of thousands of people at the airport.

“And everybody knows and should know the nature of this toxic material – that it is extremely toxic - that’s why it was categorised as a chemical weapon by the Organisation of Prohibition Chemcical Weapon (OPCW).

“It (also) has great penetration power - instant death as soon as it comes to contact with the body and air and one that comes into contact with it is instantly doomed to die.”

Again citing international chemical experts, Ri argued that the samples should then be sent to the OPCW.

“And in case it is approved by two separate international laboratories with the same conclusion, then they should come to identify who was the one who made it, who was the one who brought it into Malaysia (and) who was the one who passed on the material to the two ladies.”

Meanwhile, Ri also questioned South Korea whom he said had insisted that North Korea had sent the two women to Malaysia with the toxic material to be used against the victim.

“And one comes to ask this question - how did South Korean authorities come to know from the beginning of this incident, alleging about the use of chemical weapon from the beginning?

"Even North Korea had no idea on the first day of the announcement of the report but South Korean authorities announced on the very same day when this occurred.

"It means they knew this incident from the beginning and from a long time ago, they already knew this incident will occur," added Ri.

Ri, earlier on during the press conference, had also confirmed that the delegation has had meetings with related cabinet members to "settle the humanitarian issue".

Among them is in relation to the return of the deceased's body to North Korea, the release of a North Korean suspect who was arrested and discussions on friendly relations between North Korea and Malaysia.

The delegation, added Ri, had also requested to view the body of the deceased as well as to have a meeting with the North Korean man arrested and the two female assailants as well.

"We are waiting for these meetings to be realised," he said.

Meanwhile, US former assistant secretary of state was quoted by US news portal Politico that North Korea's use of VX nerve agent raises concern that the substance may also fall into the hands of terrorists.

"The spectre of chemical weapons proliferation, of VX in the hands of terrorists, now looms ever larger," he was quoted as saying.

Both the US and South Korea have accused North Korea of orchestrating Jong-nam's murder with the chemical weapon.

Indonesian Siti Aisyah, 25, and Vietnamese Doan Thi Huong, 28, were yesterday charged with Kim's murder under Section 302 of the Penal Code and if found guilty, they will face the death penalty.

Police said that the North Korean suspect in custody would be deported. They have described four North Korean men as the "main suspects" but they have reportedly since fled the country.

http://www.malaysiakini.com/news/374318

Return to Top

The Economist – London, UK

Germans are Debating Getting Their Own Nuclear Weapon

Author Not Attributed

March 2, 2017

Donald Trump's questioning of NATO's credibility has Berlin thinking the unthinkable

It began in November, soon after the election of Donald Trump as America's president. The publisher of the *Frankfurther Allgemeine Zeitung*, a conservative newspaper, opined in an editorial that it was time to contemplate "the altogether unthinkable for a German brain, the question of a nuclear deterrence capability, which could make up for doubts about America guarantees". Roderich Kiesewetter, a foreign-policy expert in the Christian Democratic Union, the party of Chancellor Angela Merkel, chimed in that there should be no "thought taboos". He and other politicians then went silent, apparently after a signal that the

chancellor did not need this distraction in an election year. But in Germany's think-tanks, the debate kept raging.

Since 1945 West Germany and then the reunited country have relied on the American nuclear shield to deter aggression from Russia. A prominent thesis, outlined in 1984 by Josef Joffe, a journalist, holds that European integration was only possible because this external American power had "pacified" the age-old Frango-German conflicts. So West Germany, on its best behavior after the war, signed the non-proliferation treaty in the 1960s; it reaffirmed the pledge in the treaty that led to reunification in 1990.

Suddenly, however, there is an American president who, though he said last week that he would "strongly support NATO", has also called the alliance "obsolete" and suggested that his support might be conditional on allies meeting their commitments to spend more on defense. By the ghastly logic of mutual assured destruction (MAD), deterrence must be unconditional to be credible. Countries in eastern and central Europe are beginning to fret about their vulnerability to nuclear blackmail by Russia under Vladimir Putin.

Germany's most obvious response would be to approach France and Britain, NATO's other two nuclear powers, for a shared deterrent. But their arsenals are small. France, moreover, has so far been unwilling to cede any sovereignty over its nuclear arms and has always been skeptical about shared deterrence. Britain, as its prime minister, Theresa May, has already hinted, might make its nuclear shield a subject of negotiation during the upcoming Brexit talks.

To Maximilian Terhalle, a German professor currently teaching in Britain, this means that Germany, Poland or the Baltic countries could never fully rely on France or Britain retaliating against Russia for a strike against them. He concludes that Germany must think about getting its own nukes, perhaps in collaboration with neighbours. Even the leader of Poland's governing party, Jaroslaw Kaczynski, a habitual Germanophobe, called in February for a European nuclear deterrent, presumably financed largely by Germany.

The different dangers posed by Mr Putin and Mr Trump have raised the question of "how to deter whom with what", even though German nukes are no the best answer, says Karl-Heinz Kamp of the Federal Academy for Security Policy, a government think-tank. Mr Terhalle, for his part, thinks that even a debate about a German nuclear weapon could help – if it convinced Mr Trump to stop undermining the existing international order.

http://www.economist.com/news/europe/21717981-donald-trumps-questioning-natos-credibility-has-berlin-thinking-unthinkable-germans-are

Return to Top

Financial Times – London, UK

The Nuclear Fallout From Brexit

By Andrew Ward and Alex Barker

March 3, 2017

When Britons voted to leave the EU few realised the implications for its nuclear industry

Perched on a remote stretch of coastline in north-west England is Europe's most dangerous building. Inside the innocuous-sounding Product Finishing and Storage Facility at the Sellafield nuclear plant is enough plutonium for about 20,000 nuclear bombs.

It is the world's largest stockpile of civilian plutonium — one of the most toxic substances on the planet — accumulated from decades of reprocessing nuclear fuel from power stations not only in the UK but also Germany, France, Sweden and other countries.

When Britain voted to leave the EU last June few voters contemplated what the decision would mean for this deadly stash of radioactive material. Yet, as officials in Whitehall and Brussels prepare to negotiate Brexit, regulation of nuclear energy is emerging as one of the most difficult and pressing issues to resolve. One senior negotiator simply called it "a nightmare".

Britain's plutonium stockpile is overseen by inspectors from Euratom, the pan-European body that regulates the use of nuclear energy. The organisation has a permanent presence at Sellafield and owns the cameras, seals and testing laboratory used to monitor Europe's largest nuclear facility.

Brexit threatens to upend this decades-old arrangement because the UK's departure from the EU will require withdrawal from Euratom, a separate legal entity but one governed by EU institutions. At stake is not just the safeguarding of Sellafield but also critical pillars of UK energy security, scientific research and even medicine.

Four areas in jeopardy: 1. Research

All trading and transportation of nuclear materials by EU countries, from fuel for reactors to isotopes used in cancer treatments, is governed by Euratom. The UK now faces a scramble to assemble a new regulatory regime to uphold safety standards, while negotiating dozens of international agreements needed to maintain access to nuclear technology.

Rupert Cowen, a nuclear specialist at Prospect Law, a London law firm, told a parliamentary hearing this week that the UK was "sleepwalking" to disaster. "If we do not get this right, business stops," he said. "If we cannot arrive at safeguards and other principles which allow compliance [with international standards] no nuclear trade will be able to continue."

The potential consequences of failure — from the shutdown of nuclear power stations to the loss of radiotherapy for cancer patients — seem implausible, but coming up with a fix will not be easy.

British ministers must renegotiate a relationship with Euratom where no template for close co-operation with outsiders exists. They must pass legislation to set up a new safeguarding system, then find, hire and train the personnel needed to do the job in an industry known for its chronic skills shortage. And Britain must strike up to 20 deals to re-establish the basis on which it engages with other countries, such as the US and Japan, outside of Euratom.

"There is a plethora of nuclear agreements that would have to be struck… before we could begin to move not only materials but also intellectual property, services, anything in the nuclear sector," Dame Sue Ion told MPs. She is chair of the Nuclear Innovation and Research Advisory Board, which advises the UK government. "We would be crippled without [these deals] in place," she added.

All this potentially must be done by 2019, when the UK is due to leave the EU. There is a safety valve — remaining part of Euratom for a transition period — but the EU will demand that European courts oversee the arrangement, which crosses one of the red lines in the UK's negotiating strategy.

Little wonder industry is rattled. The UK generates about 20 per cent of its electricity from eight nuclear plants. It is planning to expand its fleet of reactors at a time when countries such as Germany are retreating from the technology. The £18bn Hinkley Point C plant approved last September by Theresa May, prime minister, is due to be Britain's first new nuclear power station for 30 years when it opens in 2025. Five further plants are at varying stages of planning as the UK looks to nuclear as a reliable, low-carbon replacement for dirty coal-fired power.

Four areas in jeopardy: 2. Materials

All these projects involve foreign technology from companies such as EDF of France and Hitachi of Japan and Mr Cowen said the UK's withdrawal from Euratom would plunge them into doubt. "Those that are building new nuclear reactors want to be sure they can get their fuel, their components and their people. When you come out of Euratom, if you have not put transitional arrangements in place, we will not be able to do any of those things."

New trading arrangements will also be essential for the existing fleet of power stations, which use imported fuel and components. Asked by MPs whether reactors might have to shut down in the absence of international agreements, Mr Cowen said: "Ultimately, when the fuel runs out, yes."

Launched in 1957 as part of the Treaty of Rome, Euratom is an enduring political curiosity. The European project's six founding members embarked on nuclear co-operation filled with optimism about the potential for a prestigious new technology. The UK joined in 1973 as part of its accession to the EU and soon became an important constituent, with two decades of expertise behind it since the opening of the world's first civil nuclear plant at Calder Hall, now part of the Sellafield site. Today, Euratom's 160-strong nuclear inspectorate spend about a quarter of their time focused on British facilities.

Critical to replacing the Euratom regime will be a bilateral deal with the International Atomic Energy Agency, which oversees global nuclear safety and security. Euratom reports into the IAEA on behalf of its members and the UK would need to replicate this relationship. One option would be for IAEA inspectors to replace those of Euratom in the UK, although industry leaders questioned whether the global body would want its resources diverted from its non-proliferation monitoring in places such as Iran.

Four areas in jeopardy: 3. Power

Yukiya Amano, the IAEA director-general, told the Financial Times that a rapid deal with the UK was possible. But he added a catch. "It depends very much on the progress on the UK-Euratom, UK-EU side. UK-IAEA negotiations [do not] go ahead of the UK-Euratom negotiations, we always follow," he said. "If negotiations with UK-Euratom go fast, we can fix this issue fast."

However, if Britain sticks to an expected exit date of 2019, at best the UK may have 18 months or a year to re-secure its place in the international nuclear market. "There is a chicken and egg situation," says one official involved in Brexit preparations. "You have to move seamlessly from one regime to another. But you can't do that without a new safeguarding regime that [other countries] are satisfied with."

Britain has little experience of negotiating nuclear agreements. It took four years of "lengthy and difficult" negotiations in the 1990s to agree an upgrade to the Euratom-US co-operation agreement, which was due to lapse. And even then the deal could not be ratified on time by

the US Senate. The wait caused a three-month hiatus when all transatlantic nuclear trade stopped dead.

That is something the UK would not want to risk today. Britain's ageing power stations rely on supplies from the US. Yet a new co-operation deal will be required with the US — and it must be approved not only by US president Donald Trump but also Congress, creating opportunities for delay. "It's one of those things that looks simple when you start out but when you get into the detail — and this is probably true in many other areas of Brexit — you find a lot of hidden complexity," says Francis Livens, director of the Dalton Nuclear Institute at Manchester University. "There's decades of entanglement to be untangled."

Asked by MPs whether new arrangements could be put in place within two years, Dame Sue said: "I do not think it is possible."

One option to buy time would be to carry on paying Euratom to provide safeguarding services. But it is run by the European Commission, the EU's executive, rather than as an independent agency which would have given Britain political cover.

Perhaps more importantly, it relies on the European Court of Justice to give teeth to its intrusive inspection powers. Britain is determined to leave ECJ jurisdiction. But the nuclear area is where the EU will be most reluctant to split legal authority; the powers are too important, and the potential consequences and liabilities too big.

"The only framework we are comfortable with is the existing framework," says one EU official preparing for talks. "It works rather well."

A second problem is that there is no template for these arrangements. There is no equivalent of the European Economic Area — for non-EU members to take part in the single market. The only deals done with countries like Switzerland are based around research.

David Lowry, a nuclear policy consultant, says hyperbolic warnings about withdrawing from Euratom are overblown. "The UK is more important in the sector than Switzerland so it has more leverage to get a better deal."

Four areas in jeopardy: 4. Medicine

France, for example, has a deep interest in maintaining co-operation with the UK via its state-controlled utility, EDF, which is the sole operator of existing nuclear plants in Britain as well as developer of Hinkley Point C. EU leaders would not want to be accused of undermining UK nuclear safety or preventing cancer care.

"Our aim is not to disrupt the UK nuclear industry," says one person involved on the EU-27 side.

Yet if Britain walks away without a formal Brexit deal — as Mrs May has threatened — they may have no choice. "There will be nothing we can do," says another senior EU-27 diplomat who will play a key role in talks. "If they walk away, forget about nuclear medicine . . . we have no legal framework. Who is going to take the risk of sending material to a non-authorised entity?"

The consequences of failure make the negotiation both easier and harder — the absence of a deal is almost impossible to imagine, yet at the same time the nuclear sector is not an area where corners can be cut to secure a political deal.

Jesse Norman, energy minister, this week described Euratom withdrawal as a "regrettable necessity" but insisted there were "clear routes" to a new regulatory regime. "We take this issue seriously and are devoting serious resources [to it]," he added.

Some in the industry are looking for positives. Dame Sue acknowledged that Euratom can be a constraint on the UK nuclear sector because of the influence of anti-nuclear EU states such as Austria. She said the UK would in future have more freedom to work with countries such as China and South Korea that have expanding nuclear industries. But such benefits would only accrue once a new regulatory regime was in place.

"How will it be done? I don't know. But it has to be," says one senior nuclear sector figure working closely with government. "We have to find a way to put in place new arrangements. The consequences of failing are unthinkable."

https://www.ft.com/content/9b99159e-ff2a-11e6-96f8-3700c5664d30

Return to Top

Russia Beyond the Headlines – Moscow, Russia

Radioactive Isotope Over Europe: Western Media Blame 'Bogeyman' Russia

By Alexey Timofeychev

March 1, 2017

Western media are speculating about the origins of mysterious radioactive fallout detected in the atmosphere over Europe, and they're pointing a finger at Moscow. The discovery of traces of the isotope, Iodine-131, is linked to the belief that Russia secretly carried out a nuclear test, or that an accident occurred at a Russian nuclear power plant. Scientists, however, believe the isotope's origin has other causes.

The radioactivity was first detected in Norway in early January, along the border with Russia's Kola Peninsula. In subsequent weeks, traces of the radioactive iodine were detected in Eastern and Western European countries.

Although the media reported a sizable list of European countries, from Poland to Spain, which were affected by the radioactivity in fact the levels were tiny. Oddly enough, news of the isotope's appearance in the atmosphere was made public not by the Scandinavians, but by the French Institute for Radiological Protection and Nuclear Safety [IRSN].

Astrid Liland, head of emergency preparedness at the Norwegian Radiation Protection Authority, told the Barents Observer that, "the levels raise no concern for humans or the environment. Therefore, we believe this had no news value."

Not everyone, however, shares this view, and British media were especially eager to blame Moscow without any evidence. The Independent published a report linking the discovery of the isotope to the possibility of "a secret Russian nuclear missile launch." An article in the Sun mentioned the possibility of nuclear tests at Russia's Novaya Zemlya range in the Arctic.

1,000 times smaller than Fukushima

Alexander Uvarov, a Russian expert on atomic issues and chief editor of the Atominfo portal, confirmed that, "the radioactivity involves trace amounts at the level of instrument sensitivity and presents no danger [to human health]". It has already been reported that the

radioactive iodine levels are 1,000 times lower the accident at Japan's Fukushima nuclear power station.

Iodine has a short half-life, just a few days, and this makes it almost impossible to determine the source of the leak. Also, the fallout could not have come from nuclear tests. "When a nuclear test is carried out, it produces not only iodine but a whole range of other isotopes," Uvarov said, adding that the same applies to accidents on nuclear submarines.

In general, it's impossible in present-day conditions to conduct nuclear tests unnoticed. "Nuclear tests could not be resumed without colossal technological preparations. [...] Given the transparency thanks to satellites, equipment and personnel could not even be sent to Novaya Zemlya without being noticed, and preparations for tests would be noticed months before they even began," said Dmitry Yevstafyev, a professor at the Higher School of Economics in Moscow, and an expert on nuclear non-proliferation.

Last test was in 1990

Russia's last underground nuclear test was carried out in 1990, more than a quarter of a century ago. In 1996, Moscow signed and ratified the Comprehensive Nuclear Test Ban Treaty, and so far there has been no official information that Moscow is revising its stance on underground nuclear weapon tests.

Also, experts point out that numerous seismic monitoring stations can easily register underground tests because tremors are noticeable. As `evidence' in support of the Russian nuclear test theory, British media reported that an American WC-135 plane, usually used for monitoring atmospheric radiation, suddenly appeared in the U.K. However, the plane is stationed on British territory rather than near the Russian border.

In addition, flights by such planes over Europe are routine. Judging by what a U.S. Air Force representative said, the plane was deployed in Europe according to plans made long before the news about the Iodine-131 radiation.

Radio-pharmaceutical leak?

The release of radiation is apparently not connected with the Russian nuclear power plant in Murmansk Region that borders Norway, or with Russian nuclear icebreakers in the area.

Bellona, the international ecological NGO, said that nuclear engineers in Murmansk insist there have been no radiation leaks, and Bellona said that, "there's little reason not to believe them."

The Hungarian Academy of Sciences which houses Izotop Intezet, a Hungarian isotope maker, in Budapest. / Photo: Reuters

The Hungarian Academy of Sciences which houses Izotop Intezet, a Hungarian isotope maker, in Budapest. / Photo: Reuters

Russian experts think the release of a single specific isotope points to an industrial accident, and Uvarov said it might come from a radio-pharmaceutical plant.

"Europe has advanced nuclear medicine and has many such facilities," Uvarov said, adding that in 2011 there was a release of Iodine-131 in Hungary, at an institute involved in the production of isotopes for medical purposes.

http://rbth.com/science_and_tech/2017/03/01/radioactive-isotope-over-europe-western-media-blame-bogeyman-russia_711386

Return to Top

Bulletin of the Atomic Scientists – Chicago, IL

A Visit to Russia's Secret Nuclear Labs

By Siegfried S. Hecker

March 1, 2017

On February 23, 1992, less than two months after the dissolution of the Soviet Union, I landed on the tarmac in Sarov, a city the government had removed from maps to keep secret its status as a nuclear weapons center. I was then director of the Los Alamos National Laboratory and-- accompanied by two senior scientists from my own lab plus three colleagues from the Lawrence Livermore National Laboratory. The six of us were about to walk through the birthplace of the Soviet nuclear bomb, the technological and intellectual powerhouse behind the sophisticated arsenal that had been pointed at our country for the previous 40 years.

Shockingly, after an hour-long flight from Moscow, we stepped out of the Aeroflot turboprop into the open arms of our Russian hosts: Yuli Borisovich Khariton, the scientific leader of the Soviet nuclear program, and other senior lab staff who had waited in the chilly wind to welcome us. Just as remarkable was the fact that this wasn't the first time we met our Russian counterparts. Two weeks earlier, directors of the Russian nuclear weapons labs, VNIIEF in Sarov and VNIITF in Snezhinsk, had for the first time in history set foot in our labs in Livermore and Los Alamos. This exchange of visits a quarter century ago marked a new turn in relations between the world's two nuclear weapons superpowers.

The road to Sarov.

Our first meeting on Russian soil would have been deemed improbable just a few months earlier. The encounter on the Sarov tarmac grew out of both persistence by determined individuals and larger historical forces. As the Soviet Union scrambled to adjust domestic and international policy in the face of mounting economic and social challenges in the late 1980s, Soviet leader Mikhail Gorbachev reached across the political divide to US President Ronald Reagan to take steps toward nuclear disarmament. One such step was the Joint Verification Experiment of 1988, in which the Soviet Union and the United States asked their nuclear weapons scientists to conduct parallel nuclear-explosion yield measurements at testing grounds in Nevada and Semipalatinsk, located in what is now Kazakhstan. The experiment helped overcome a stumbling block related to verification procedures needed to ratify the 1974 Threshold Test Ban Treaty (TTBT). The 1988 nuclear tests enabled the two sides to sign a new ratification protocol in Geneva in June 1990, and the TTBT entered into force in December 1990.

As history would have it, an unintended outcome of the TTBT ratification effort proved to be the most momentous. Viktor Mikhailov, head of the Soviet team that took part in the Joint Verification Experiment and later Russian minister of atomic energy, was right when he said

that "the main result of the Joint Verification Experiment was not the development of procedures and extent of nuclear test monitoring of the joint development of technical verification means, but the chance for interpersonal communications with the American nuclear physicists."

Indeed, it was working side by side at each other's test sites that gave rise to deep-rooted affinity and built trust. Over the years, we had only caught glimpses of our Soviet nuclear scientist counterparts at a few international conferences where they disguised their institutional affiliations, saying they were part of the Soviet Academy of Sciences. It was through months of collaboration at our test sites that the contours of their true home institutions—the nuclear weapons labs VNIIEF and VNIITF—began to emerge. As we would discover eventually, these Soviet labs were remarkably similar to our own. We realized that in addition to nuclear weapons work, they were conducting outstanding fundamental science. We became consumed with curiosity to learn more about it first-hand. The Russians were curious about our work as well.

We were all interested in cooperation, but the Russians even more so because they sensed before we did just how dramatically the Soviet Union was changing. Lev D. Ryabev, who headed the atomic ministry at the time, told me years later that Russian nuclear weapons scientists were so eager to work with their American counterparts because "we arrived in the nuclear century all in one boat—movement by any one will affect everyone. We were doomed to work together."

It was during a 1990 trip to Moscow by Los Alamos and Lawrence Livermore lab scientists for technical discussions supporting the Geneva test ban talks that Mikhailov extended an impromptu invitation to visit the USSR's secret nuclear city Sarov (then called Arzamas-16) for the first time.

The American scientists returned with specific proposals from the VNIIEF director and his senior scientists for collaboration with the US labs, along with an invitation to Lawrence Livermore Director John Nuckolls and me to visit the secret Russian cities.

Convinced by my Los Alamos colleagues that this was a great opportunity to collaborate scientifically in important areas of research, I tried a number of avenues in Washington to get approval for exploring potential cooperation. I got little traction until the second half of 1991, after the Soviet Union had begun to disintegrate. As it did so, President George H.W. Bush became concerned that brain drain from the Soviet nuclear complex could lead to the spread of knowledge about how to build these weapons of mass destruction.

Driven by that concern, US Energy Secretary James D. Watkins approved my request for the laboratory directors' exchange visits, and two months after Gorbachev's formal dissolution of the Soviet Union on December 25, 1991, we entered the surreal world of the Soviet Los Alamos.

A tradition worth sustaining.

Our visits to Sarov and Snezhinsk shattered our Cold War preconceptions of the Soviet nuclear program. We were particularly impressed by the depth of scientific talent. Although they lacked modern computers and electronics, their computational achievements were remarkable, and their experimental facilities were innovative and functional. We found the scientists' dedication to their mission deeply patriotic, and their attention to nuclear weapons safety reassuring. During our briefings and tours, Russian scientists described leading-edge research in the fundamental science that underpinned their nuclear weapons

program. The visits convinced me that our US nuclear labs should collaborate with their Russian counterparts, not only to help solve immediate problems like proliferation and loose nukes, but also because in doing so we would benefit scientifically.

Our Russian colleagues were prepared with proposals for cooperation in a surprisingly broad range of areas. During a daylong session in Chief Weapon Designer Boris Litvinov's office in Snezhinsk, watched by portraits of Lenin and Igor Kurchatov, one of the fathers of the Soviet Bomb, we hammered out a protocol for cooperation that we would take back to our governments. We came up with a long list problems we wanted to work on together. It included enhancing the security and safety of nuclear weapons during reduction and dismantlement; preventing the proliferation of nuclear weapons knowledge; promoting the conversion and diversification of nuclear facilities; preventing non-nuclear states and terrorists from obtaining nuclear weapons; developing joint mechanisms for emergency response; enhancing the safety of nuclear arsenals; preventing unauthorized use of remaining weapons; and promoting protection and cleanup of the environment at nuclear weapons facilities.

It turned out that we scientists were far ahead of what the US government was prepared to authorize at the time. We heard that when members of the National Security Council staff, which coordinated interagency government issues with Russia, received a copy of the protocol, they declared it did not exist and threw it in the waste paper basket. However, Nuckolls and I presented the protocol to Watkins and received approval to proceed, though only in fundamental science cooperation.

By May 1992, even though the US Energy and State Departments had only agreed to general principles, the former had provided us with the necessary financial support and the latter with the required permissions for travel to Russia. Just as importantly, we had defined what we wanted to do first in the collaboration we called lab-to-lab. We planned for joint experiments in high-energy-density physics and conferences on computer modeling and simulation.

In spite of the initial US government concerns, we would eventually end up cooperating in almost all the areas outlined in the initial protocol. A spirit of collaboration prevailed for nearly a quarter century, and was essential to successfully mitigating the dangers resulting from the dissolution of the Soviet Union. Unfortunately, that cooperation has all but come to an end during the past few years as relations between Moscow and Washington have soured. But the benefits of future cooperation are potentially enormous, as a new report from the Nuclear Threat Initiative makes clear. The US and Russian governments, as well as the two countries' scientists, should seize any opportunities that arise to rekindle nuclear cooperation.

http://thebulletin.org/visit-russias-secret-nuclear-labs10577

Return to Top

The Independent – London, UK

Russia and China Veto UN Sanctions on Syria for Chemical Weapons Attacks

By Samuel Osborne

February 28, 2017

It is the seventh time Russia has used its veto to protect the Syrian regime from United Nations Security Council action

Russia and China have backed a UN resolution that would have imposed sanctions on Syrian individuals, organisations and companies allegedly involved in chemical weapons attacks during the country's six-year civil war.

It is the seventh time Russia has used its veto to protect the Syrian regime from United Nations Security Council action.

Russia had said the vote on the resolution, drafted by France, Britain and the United States, would harm UN-led peace talks between the warring Syrian parties in Geneva, which began last week.

Russian President Vladimir Putin described the draft resolution as "totally inappropriate."

"For my friends in Russia, this resolution is very appropriate," US Ambassador to the UN Nikki Haley told the council after the vote.

"It is a sad day on the Security Council when members start making excuses for other member states killing their own people. The world is definitely a more dangerous place," she said.

The Western-backed resolution followed a joint investigation by the UN and the international chemical weapons watchdog that concluded the Syrian government was behind at least three attacks involving chlorine gas and Isis was responsible for at least one involving mustard gas.

British U.N. Ambassador Matthew Rycroft told the council before the vote: "This is about taking a stand when children are poisoned. It's that simple. It's about taking a stand when civilians are maimed and murdered with toxic weapons."

The use of chlorine gas as a weapon is banned under the Chemical Weapons Convention, which Syria joined in 2013. If inhaled, chlorine gas turns to hydrochloric acid in the lungs and can kill as it burns the lungs and victims drown in their own body fluids.

Syrian President Bashar al-Assad's government has denied its forces have used chemical weapons.

French UN Ambassador Francois Delattre said the failure by the council to act would "send a message of impunity."

China's UN Ambassador Liu Jieyi said it was too early to act because the international investigation was still ongoing.

"We oppose the use of chemical weapons," he added.

The defeated resolution would also have banned all countries from supplying Syria's government with helicopters, which investigators have determined were used in chemical attacks.

It also proposed targeted sanctions of a travel ban and asset freeze on 11 Syrian military commanders and officials, as well as 10 government and related entities.

The resolution got the minimum nine votes in favour. In addition to China and Russia, Bolivia voted No. Three countries abstained: Egypt, Ethiopia and Kazakhstan.

A resolution needs nine votes in favour and no vetoes by the United States, France, Russia, Britain or China to be adopted.

Sherine Tadros, head of the UN office in New York for Amnesty International, said: "By vetoing this resolution Russia and China have displayed a callous disregard for the lives of millions of Syrians.

"Both states are parties to the Chemical Weapons Convention — there is simply no excuse for their vetoes today.

"For six years Russia, with the support of China, has blocked Security Council decisions that would have punitive consequences for the Syrian government.

"This behaviour prevents justice and emboldens all parties to the conflict in Syria to act with indifference to international law. The message coming from the international community is that when it comes to Syria, there are no red lines."

http://www.independent.co.uk/news/world/middle-east/syria-sanctions-russia-china-veto-assad-chemical-attacks-vladimir-putin-a7604621.html

Return to Top

Reuters – New York, NY

U.N. Nuclear Watchdog Chief to Discuss Iran Deal with Trump Officials

By Francois Murphy

March 1, 2017

The chief of the U.N. atomic watchdog will hold talks on Iran's nuclear deal on Thursday for the first time with senior officials from the administration of U.S. President Donald Trump, who has branded it "the worst deal ever negotiated".

The 2015 deal between Tehran and major powers places restrictions on Iran's nuclear activities in exchange for the lifting of economic sanctions against the Islamic Republic.

The accord will be the main topic of Yukiya Amano's talks in Washington, officials involved in the dealings of the International Atomic Energy Agency (IAEA) said on Wednesday.

Trump's Secretary of State Rex Tillerson, who has called for a "full review" of the accord, is among the senior U.S. officials Amano will meet, they said.

Amano, whose agency is in charge of policing those nuclear restrictions under the deal, has publicly argued in favor of the agreement, describing it as a "net gain".

But Trump, who took office on Jan. 20, has said he wants to "police that contract so tough they (the Iranians) don't have a chance".

"IAEA Director General Amano will meet with US Secretary of State Rex Tillerson and other senior U.S. officials in Washington on Thursday, March 2," an IAEA spokesman said on Wednesday, declining to elaborate.

Amano has previously said he hopes to hold an initial discussion with Trump administration officials "as soon as possible".

The IAEA produced a quarterly report on Iran last week that said Iran's stock of enriched uranium had roughly halved after coming close to the limit of what it is allowed under the deal with major powers.

The IAEA's 35-nation Board of Governors is expected to discuss Amano's bid for re-election as director general at its quarterly meeting next week.

Amano, who is Japanese, is the only candidate and diplomats say he is all but certain of winning, though the United States is one of few countries that have yet to back him.

http://www.reuters.com/article/us-un-nuclear-usa-idUSKBN168468

Return to Top

Al Ahram – Cairo, Egypt

Egypt Abstained in UNSC Vote on Syria Sanctions to Await Conclusion of Probe: Ministry

Author Not Attributed

March 2, 2017

Cairo said it abstained from voting on a United Nations Security Council draft resolution that would have imposed sanctions on the Syrian government over the alleged use of chemical weapons in attacks during the country's six-year conflict, to wait for the outcome of investigations.

The country's foreign ministry said late on Wednesday that the resolution "jumped to conclusions" and that certain mechanisms governing the council's work should be abided by, so as "not to politicise the issue or level accusations without hard evidence."

Russia and China vetoed the resolution Tuesday, which was drafted by Britain, France and the United States.

The measure won nine votes in favour, while three countries - China, Russia and Bolivia - opposed it. Kazakhstan, Ethiopia and Egypt abstained.

The ministry said that Egypt abstained to "wait for the outcomes of the probe" by the Security Council's Joint Investigative Mechanism, whose inquiry was extended for one year in November.

"It was normal for Egypt to abstain from voting…given its previous vote to extend the term of the international investigative mechanism for one year as the probe was not yet completed."

The ministry added that the draft resolution "jumped to conclusions that accuse Syrian regime figures and entities of involvement in using chemical weapons without providing evidence."

It underlined, however, that Egypt was among the first countries to call for de-arming the Middle East of nuclear and all other weapons of mass destruction, saying the country "maintains the same stance" on this issue.

The international inquiry has already determined that Syrian government forces were responsible for three chlorine gas attacks and that Islamic State militants were behind at least one using mustard gas. Chlorine's use as a weapon is banned under the Chemical Weapons Convention, which Syria joined in 2013.

The six-year civil war has killed more than 300,000 people and displaced more than 11 million.

http://english.ahram.org.eg/NewsContent/1/64/259144/Egypt/Politics-/Egypt-says-abstained-in-UNSC-vote-on-Syria-sanctio.aspx

Return to Top

The Economic Times – New Delhi, India

India Must be Prepared for Biological Warfare: Manohar Parrikar

Author Not Attributed

March 2, 2017

Defence Minister Manohar Parrikar today said India must be well-prepared to deal with chemical and biological warfare in the wake of changing threat perception and security concerns.

Referring to reports of use of chemical weapons in recent terror attacks in Afghanistan, he said India should have an effective system in place to prevent potential consequences against use of chemical or biological weapons.

"The reports which are coming from the southern and northern and northern parts of Afghanistan... I have seen photographs of local population suffering from blisters. At this moment, I don't have confirmation on this, but the photos were quite disturbing.

"We should be prepared for any kind of warfare," he said during an event organised by the DRDO.

Echoing Parrikar's concerns, Army Chief General Bipin Rawat said the Armed Forces must be prepared for all kinds of threat.

"Although chemical weapons have been banned by the United Nations, it could be used by an adversary," he said.

Parrikar and Rawat were speaking at an event where the DRDO handed over Nuclear, Biological, Chemical(NBC) Reconnaissance Vehicle and NBC drugs to the Army.

There were reports which suggested use chemical weapons in certain areas in Northern and Southern Afghanistan as people there had blisters and wounds.

More than a dozen people were killed in near-simultaneous attacks in Kabul yesterday. In the first attack, a suicide car bomber targeted a police station in western Kabul. The explosion was followed by a gun fight between the police and several attackers.

A bomber detonated explosives outside offices of the intelligence service in eastern Kabul in the second attack.

http://economictimes.indiatimes.com/news/defence/india-must-be-prepared-for-biological-warfare-manohar-parrikar/articleshow/57435338.cms

Return to Top

The National Interest – Washington, DC

Pakistan Is Literally Sitting on a (Nuclear) Powder Keg

By Mohammed Ayoob

March 2, 2017

On February 16 a suicide bomber blew himself up in the main hall of the shrine of Pakistan's most popular sufi saint, Lal Shahbaz Qalandar, killing at least 88 people, including 21 children. The shrine is located in Sehwan in Pakistan's Sindh province, which has a strong tradition of sufism going back several centuries.It was obvious that the bombing was the work of one or more salafi (puritanical) groups that have been regularly targeting sufi shrines in Pakistan for the past couple of years. For what it's worth, ISIS—itself a product of salafi ideology—has claimed responsibility for the deadly attack. It's more likely, however, that it was the handiwork of one of the many salafi terrorist groups active in Pakistan, like Jamaat-ul-Ahrar, which also claimed responsibility.

The attack has once again exposed two major tensions in Pakistan's polity. The first tension is the struggle in Pakistan between an inclusive version of Islam, a product of the syncretic culture of the Indian subcontinent, and the rigid salafi interpretation of the religion that has become increasingly popular in South Asia thanks to the funding of madrasas (religious schools) and mosques by Wahabbi-ruled Saudi Arabia. To the salafis—literally those who follow the path of the "righteous ancestors"—the sufi tradition, with its syncretic features, is anathema as they consider it a major deviation from the pristine form of Islam and its followers heretics if not unbelievers. Unfortunately, inclusive Islam, represented by the Sufi shrine in Sehwan, is on the defensive in Pakistan and has been so for the past three decades since the rule of General Zia-ul-Haq who had allied himself with Saudi Arabia in the context of the anti-Soviet insurgency in Afghanistan which both supported.

The second and equally important tension exposed by the attack in Sehwan is the inability of the Pakistan Army and government to keep in check ultra-fundamentalist terrorist groups operating in the country. The Pakistan army, especially its intelligence arm, initially sponsored these groups as surrogates in its struggle both to wrest Kashmir from India and to protect Pakistan's strategic interests in neighboring Afghanistan torn by civil strife. However, several of them now operate largely outside the control of the armed forces and have become major agents for chaos and anarchy in the country as demonstrated by the Sehwan massacre.

Additionally, Islamabad has been able to amass a respectable nuclear arsenal and delivery systems, both missile and aircraft, that can cause havoc if they fall into the hands of terrorist elements that seem to be running wild in the country. Moreover, even in "responsible"

hands—namely, those of the military high command—these nuclear weapons are a major cause for concern.

One can't rule out the possibility that escalating tensions with India over Kashmir (and they seem to be escalating by the day) and Pakistan-based terrorist attacks that are becoming increasingly frequent, especially against Indian military targets, can lead to a full-fledged shooting war across the LOC in Kashmir and the international border.

The Modi government has become increasingly bellicose in its statements following recent attacks by Paksitani terrorists on Indian military targets. Those attacks have caused sizable Indian casualties and led to several pinpoint strikes by Indian forces against "terrorist targets" in Pakistan and Pakistan-occupied Kashmir. India's Hindu nationalist government is under considerable pressure from its hardline domestic constituency to escalate counter-attacks. Afraid of losing its credibility with its political base, New Delhi may not be able to resist such pressure for too long and a major retaliatory attack could lead to all-out war between the two neighbors. The Pakistani military could be tempted to use tactical nuclear weapons against Indian military targets in such a contingency, which could quickly turn into a fully-fledged nuclear exchange devastating the subcontinent and contaminating much of Asia for decades.

Even a sub-nuclear confrontation between India and Pakistan is likely to throw the region into turmoil with major consequences particularly for the US and its allies engaged in containing the Taliban threat in Afghanistan. The Taliban, although some of its factions may have turned against Pakistan lately, were Pakistani creations and even now the Pakistani military is in a position to use them for its strategic purposes in Afghanistan. Since Pakistan's goals in Afghanistan—containing Indian influence in the country, keeping its surrogate forces functioning, and keeping the Afghan government off-balance—diverge from those of the US and its allies, it mightn't be averse to stoking the fires of civil war in that country at the expense of American and allied interests.

Pakistan is literally sitting on a powder keg. The increasing ascendancy of militant salafi Islam, the military's patronage of terrorist groups that it's now unable to fully control, plus its nuclear arsenal and continuing confrontation with India over Kashmir, have created an explosive mixture that make it a classic case of impending state failure. If that happens it could mark the beginning of major chaos and mayhem in South Asia thus making the region increasingly resemble the Middle East next door.

http://nationalinterest.org/blog/the-buzz/pakistan-literally-sitting-nuclear-powder-keg-19655

Return to Top

The Hindu – New Delhi, India

A Weapon-Locating Radar for the Army

By Dinakar Peri

March 3, 2017

The DRDO on Thursday formally handed over an indigenously developed Weapon Locating Radar (WLR) system called 'Swati' to the Army. It has been extensively tested along the Line of Control.

The organisation also handed over a Nuclear, Biological and Chemical (NBC) recce vehicle and NBC treatment drugs to the Army.

Speaking at an event, Defence Minister Manohar Parrikar said it was an indigenous effort with an export potential. However, exports would take place after the Army's requirements were fulfilled.

DRDO officials said Swati provides quick, automatic and accurate location of all enemy weapons like mortars, shells and rockets firing within its effective zone of coverage and simultaneously handles multiple projectiles fired from different weapons at different locations. Swati can also direct artillery response based on the incoming enemy fire.

Army Chief General Bipin Rawat called the system a success.

The WLR has been a critical requirement of the Army, and in the aftermath of the Kargil conflict, it had to be imported from the U.S. in 2002 to fill critical needs.

Swati has a range of 50 km which brings all artillery guns presently in service worldwide under its coverage. Four systems are currently in operation and another 30 are on order for the Army.

Talking about the capability of the WLR, a senior defence official said it was pressed into service on the LoC last year during the flare-up in hostilities after the surgical strikes. It played a major role in suppressing the heavy artillery fire from Pakistan.

The NBC Recce Vehicle Mk-I is intended for carrying out post event recce of nuclear, biological and chemical contamination. The Army had placed an order for 16 of these vehicles in 2010.

http://www.thehindu.com/news/national/a-weaponlocating-radar-for-the-army/article17396689.ece

Return to Top

The New York Times – New York, NY

Russia Sides With Chemical Weapons

By The Editorial Board

March 1, 2017

Russia proved again on Tuesday that there is no crime heinous enough to make it turn against Syria's president, Bashar al-Assad. It vetoed a resolution before the United Nations Security Council that would have punished Syria for using chemical weapons.

The Kremlin's decision was in keeping with President Vladimir Putin's vigorous support of the Syrian military in a six-year-long war that has killed half a million people.

The vote marked the seventh time since 2011 that Mr. Putin protected Mr. Assad from international condemnation or sanctions and, as often is the case, China followed Russia's example. Although Moscow had made clear in advance that it would veto the resolution, Britain and France were right to insist on a vote and to expose Russia's moral bankruptcy.

The resolution, supported by Britain, France and the United States, would have imposed sanctions on some Syrian military officials and entities for dropping chlorine-filled barrel

bombs on rebel-held areas in 2014 and 2015, according to a United Nations panel. The use of chlorine as a weapon is banned under an international treaty that the Assad government signed in 2013, as part of the deal struck by the United States and Russia to force Mr. Assad to dismantle his stockpile of the chemical munitions.

Although much of the stockpile was destroyed, the United Nations panel subsequently determined that the Syrian government had violated the deal. In addition, a recent report by Human Rights Watch concluded that the Syrian military had systematically dropped chlorine bombs in the final weeks of the battle last fall to take Aleppo from opposition forces.

Although Russia was deeply involved in the Security Council's deliberations on Syria, it rejected the resolution as "politically biased" and complained that its concerns about the draft language had not been addressed. If such complaints were legitimate, other Council members would undoubtedly have made adjustments to secure Russia's vote. Mr. Putin's argument that the resolution interfered with cease-fire negotiations between the Syrian government and the rebels was also not credible.

Given President Trump's affinity for Mr. Putin, his administration's decision to vote for the resolution was unexpected and encouraging.

The American ambassador, Nikki Haley, took a hard stance, calling chemical weapons attacks in Syria "barbaric" and accusing Russia and China of putting "their friends in the Assad regime ahead of our global security." That's been true for years, with the catastrophe in Syria showing no sign of ending.

https://www.nytimes.com/2017/03/01/opinion/russia-sides-with-chemical-weapons.html

Return to Top

The National Interest – Washington, DC

America Needs Its Underwater Nukes. Delaying New Subs Would Be a Disaster.

By Will Wiley

March 2, 2017

Basic nuclear triad math: twelve Columbia-class SSBNs must replace fourteen Ohio-class SSBNs.

The Trump administration directed the secretary of defense to conduct a thirty-day Readiness Review of the military in a January 27 presidential memorandum on rebuilding the U.S. armed forces. One of the items this review will find is the vital need to build the replacement to the Ohio-class ballistic-missile submarine (SSBN). The Ohio-class SSBN is the only platform in the sea-based leg of the nuclear triad and has been conducting strategic deterrent patrols since 1980. Under the New Strategic Arms Reduction Treaty (New START) this leg of the triad will have 70 percent of the nation's deployed nuclear warheads. Therefore, this review and the defense budgets it informs must make replacing this SSBN a national priority.

The Navy maintains fourteen nuclear-powered Ohio-class SSBNs built to carry a submarine-launched ballistic missile (SLBM) and operates them out of bases at Kings Bay, Georgia and Bangor, Washington. These ships and their missiles make up the sea-based leg of the

nation's nuclear triad. The sea-based leg of the triad along with the Air Force's land-based strategic bombers and land-based intercontinental ballistic missiles (ICBM) deters the nation's adversaries from starting a nuclear war. The Ohio class has conducted strategic-deterrent patrols since October 1980 and will continue to do so until the late 2030s when the final Ohio-class is decommissioned. Getting almost sixty years of service out of a nuclear-powered warship class made the Ohio class an excellent investment when Congress and the military conceived it in the 1970s, and now is the time to make a similarly wise investment.

The Navy determined twelve Columbia-class SSBNs can replace the fourteen Ohio-class SSBNs. The Congressional Budget Office projected the cost of this program in 2016 dollars to be $100–104 billion, with the first ship in the class costing $13.3 billion and the subsequent ships costing $6.7 billion each. The cost of the first ship in a class is more expensive because it includes the nonrecurring research and development costs. The Navy plans to leverage technology used in Virginia-class fast-attack submarines (SSN) to maintain the cost of each ship near or below the $6.7 billion figure.

Additionally, the Navy continues working with Congress to pay for Columbia-class out of the National Sea-Based Deterrence Fund (NSBDF) rather than using money from the Navy's annual shipbuilding budget. This fund, created in 2015, was designed to show the priority of this shipbuilding program to not just the Navy, but the entire nation and give funding flexibility outside of the military's normal acquisition processes. To date, the required amount to fund the Columbia class each year has not been placed into the NSBDF as it was designed, but Congress can correct this in the future. Fully funding the NSBDF is a wise move for two reasons. First, utilizing the NSBDF does not force the Navy and lawmakers to choose funding this vital strategic deterrent asset over other priority conventional shipbuilding programs, like Ford-class aircraft carriers, Virginia-class SSNs, or the littoral combat ships. Second, it allows the Navy to receive 10 percent savings by purchasing several of the SSBNs at once over several years. This allows shipbuilders to take advantage of economies of scale through buying and building critical components in bulk. The Navy has been able to achieve similar cost savings with multiyear block buys in the normal shipbuilding budgetary process, but utilizing the NSBDF as it was designed streamlines the process.

What does the nation receive for the $100 billion price tag? First, and most importantly, the SSBN offers the most survivable portion of the triad due to the submarine's stealth and ability to operate for long periods of time in the wide expanses of the ocean. The world's oceans are not transparent, and a competitor must search large portions of both the Atlantic and Pacific Oceans trying to find the SSBN and then eliminate the ship. Therefore, even if every ICBM and strategic bomber were destroyed, the nation would still have nuclear weapons available to the president. Would-be adversaries of the United States understand this truth and therefore take pause when contemplating nuclear action against the nation.

The survivability of the SSBN alone should silence any critic of building the Columbia class, but there are several other attributes worth noting. The SSBN's missiles are able to strike targets anywhere on the globe. Because the SSBN is mobile, it can avoid launching a missile that would overfly a country the United States does not want to provoke. This ability to avoid poor launch trajectories eliminates confusion in a nuclear exchange, while the ground-based ICBMs of the triad do not offer this advantage. Additionally, the SSBNs have two identical crews, which alternate manning the ship for operations at sea, but both work

to maintain and repair the ship while it is in port. This dual crewing of the SSBNs enables the submarines to stay at sea more days out of the year than if they were manned and maintained by only one crew. It also requires an overall fewer number of submarines to execute the desired strategic tasking. Finally, several SSBNs are underway at all times in both the Atlantic and Pacific Oceans, offering the president a constant means to retaliate to a nuclear strike. This eliminates the need for the Air Force to maintain strategic bombers airborne at all times.

To accomplish the attributes listed above and execute current strategic deterrence tasking the Navy needs a minimum of ten SSBNs. These ten SSBNs cannot be in any major overhaul and must be either underway or in a short maintenance period, preparing to return to sea. Because the Ohio class required a long (three to four years) midlife maintenance period where the nuclear reactor was refueled, three to four SSBNs were not available to fulfill the strategic deterrence mission. Therefore, fourteen Ohio-class SSBNs were maintained to ensure ten were always available. The Columbia class does not require a midlife refueling overhaul, and only needs a shorter (two years) midlife maintenance period. Thus, only twelve SSBNs need to be built, because only two will be unavailable for a long period of time during the life of this ship's class.

These ten SSBNs are utilized by the Navy in the following ways. Six SSBNs are homeported and operate in the Pacific Ocean, while four call the Atlantic Ocean home. This decision was based simply on geography. Because the Pacific Ocean is bigger, two additional SSBNs were needed to cover the ocean and the strategic targets in the region. Additionally, the ten SSBNs allow several of the ships to be in short maintenance periods, preparing for an upcoming strategic-deterrent patrol while having enough SSBNs operating at sea undetected, with the ability of the president to communicate with them in a time of crisis. Finally, reducing the SSBN force to twelve is almost a 70 percent reduction from the forty-one SSBNs utilized in the 1960s and 1970s to accomplish the same mission set. This reduction is possible due to the extended range of the SLBM in use and improved quieting technology. The improvements in technology allows the nation to maintain a lean SSBN force still capable of executing all strategic deterrent tasking.

But there are risks as the SSBN force transitions from an Ohio-class force to a Columbia-class force, even if Congress funds the current program of record. First, the oldest remaining Ohio-class SSBN is removed from the fleet in 2027, whereas the first Columbia-class does not conduct its first deterrent patrol until 2030. Based on the current shipbuilding plan, the number of active SSBNs in the fleet available for operations lowers to ten between fiscal years 2032–40. No major SSBN maintenance periods will occur during these years, so the Navy should meet all strategic obligations, but Table 1 here illustrates the SSBN force will be at its minimum number for almost an entire decade. Second, there is no additional ability to extend the life of the Ohio class to create more operating SSBNs while building the Columbia class. Each ship in the class has already received a 40 percent life extension from a planned thirty-year ship life to a forty-two-year ship life. Therefore, if a Columbia-class is not purchased and delivered as scheduled, or the aging Ohio-class submarines are not able to be maintained and operated as planned, the Navy will be challenged to meet its tasking.

The final area of risk concerns the number of missile tubes. The Columbia class only has sixteen missile tubes compared to the Ohio class twenty-four. The Navy is in the process of permanently deactivating four of the Ohio's twenty-four missile tubes to comply with New START obligations, so the reduction of eight missiles tubes per SSBN will actually only be a reduction of four missile tubes. The FY2010 decision to further reduce the missile tube numbers from twenty to sixteen was done as a cost savings measure to get the total ship

cost to $4.9 billion per SSBN in 2010 dollars. General Kehler, commander of U.S. Strategic Command at the time, was one of the military leaders who testified to Congress in 2011 when the debate was occurring over twenty or sixteen tubes. He was more concerned with the overall number of tubes available after the Columbia class was built, rather than how many were on one ship, and felt twelve SSBNs with sixteen tubes gave the right balance of performance and flexibility to an SSBN force he knew would still be in operation well into the future. These leaders seemed concerned that if they pushed for more tubes, then the cost per SSBN would rise to a level where Congress would refuse to approve twelve SSBNs. As outlined in previous paragraphs, a twelve-SSBN force is a "red line" to ensure ten SSBNs are always available.

Nuclear powers like Russia and China are not reducing their nuclear weapons capability. Countries like North Korea, and arguably Iran, seem focused on becoming nuclear states capable of delivering a nuclear weapon. Therefore, the United States must maintain a strategic nuclear-deterrent capability against these known threats and future unknown threats. The SSBN of the sea-based portion of the nuclear triad will carry 70 percent of the nation's deployed warheads. It operates undetected and is capable of delivering a second strike to an enemy. This capability must be maintained. However, the margin for error to replace the aging Ohio-class SSBN seems to have evaporated, and any further delay in funding and building the Columbia-class SSBN will lead to difficulty in the Navy's ability to meet its strategic nuclear deterrence requirements. Major cost savings of the program, like building fewer ships or a ship with fewer missile tubes, were explored and the Navy is building a cost efficient replacement SSBN. Therefore, the new administration and Congress should not delay its support for the Navy's effort to build up the Columbia class.

http://nationalinterest.org/feature/america-needs-its-underwater-nukes-delaying-the-process-19651

Return to Top

The Hill – Washington, DC

The Terrorist North Korea Regime Must be Changed

By Lee Min-Yong

March 2, 2017

A shocking act of terrorism occurred in Malaysia on Feb. 13. Kim Jong Nam, the oldest son of late North Korean leader Kim Jong Il and once considered a future leader, was killed with poison at Kuala Lumpur airport, which has led to an international investigation into who is behind the killing. The Malaysian police have revealed the names of several suspects, including a senior staff member at the North Korean Embassy in Kuala Lumpur. Foreign reports suggest that Kim Jong Un appears to be behind the killing of his half-brother in his pursuit of consolidating his power at home.

With North Korea engaging in repeated acts of terrorism, there is an increasing call in Washington for reinstating Pyongyang on the list of state sponsors of terrorism. In 2016, the House of Representatives introduced a bill calling for the return of North Korea to the list, which was blocked due to former Obama administration's policy of "strategic patience". The new Trump administration, however, vowed to take a tougher line with North Korea,

and the Feb. 13 terror attack on Kim Jong Nam has fanned the flames of the U.S. government's push to put the North back on the list.

It is now more likely that North Korea will become one of the targets President Trump wants to 'exterminate'. Mr. Trump has stressed that he will use America's military power as means of compellence which is more proactive than deterrence. If North Korea is reinstated on the state sponsors of terrorism list, the reclusive country would become a target of U.S. military action along with terrorist groups in the Middle East.

The U.S. designated North Korea as a state sponsor of terrorism in 1988 over its bombing of a South Korean passenger jet. The U.S. started negotiations with the North when the country conducted a nuclear test in 2006, and removed it from the list in 2008 as the result. North Korea, however, has carried out four nuclear tests since then.

Its terrorism not just involves a nuclear threat. It has committed repeated, varied acts of terrorism, including the sinking of South Korean warship Cheonan in 2010, the bombardment of South Korea's Yeonpyeong island the same year, and the cyberattacks on South Korean television stations and banks in 2013. Rep. Ted Poe (R-Texas) introduced another bill last month that would put North Korea back on the list, in which he stated about 20 acts of terrorism perpetrated by the North, which includes hacking attacks, cyberattacks, abductions, assassination attempts, arms trade, and nuclear and missile threats. The bill provides clear grounds for relisting North Korea as a state sponsor of terrorism, and the country has declared itself as a terrorist state by killing Kim Jong Nam.

The U.S. re-designation of North Korea as a state sponsor of terrorism would bring enormous effects. Once listed, the country would face harsh regulations on its external affairs. Its economic activities, including international trade and financial transactions, would be blocked, while the country would be treated as one of the worst rogue states in the world. This is why the North regime persistently demanded that the country be taken off the list as a prerequisite to the 2008 nuclear negotiations. The then-Bush administration had labelled North Korea, along with Iraq and Iran, as an 'axis of evil' subject to preemptive strike, which obviously made the North regime feel threatened. If the Trump administration takes a similar approach, it would put effective pressure on the Kim regime. China has made a timely announcement that it will ban coal imports from North Korea, starting to put its share of pressure on the regime.

It will take quite some time for the current economic pressure on North Korea by UN sanctions to demonstrate its effects. It is thus necessary to enhance pressure at the political level. Specifically, there are two options available: reinstating North Korea on the list of state sponsors of terrorism and sending Kim Jong Un to the International Criminal Court. Although military pressure would be the surest way to address North Korean issues, political pressure is a viable option at present that could bring positive effects. The U.S. and China should join forces to see the Kim regime fall and the North Korean nuclear crisis resolved naturally.

North Korea is a terrorist state that is more violent and devious than terrorist groups in the Middle East. It has never admitted accusations of terrorism and has instead accused South Korea of fabricating evidence. South Korea has experienced tremendous sufferings caused by the North's brutal acts of terrorism, such as deaths of civilians. Now is the time for the international community to jointly respond to the terror threat posed by North Korea.

In this regard, the U.S. government must put North Korea back on the list of state sponsors of terrorism to bring about practical changes in the country, such as a change of the Kim regime that has been committing nuclear provocations and various acts of terrorism.

http://thehill.com/blogs/congress-blog/foreign-policy/322048-the-terrorist-north-korean-regime-must-be-changed

Return to Top

The Courier Mail – Brisbane, Australia

Australia Can Not Ignore Threat of Biological Terrorism

By Des Houghton

February 24, 2017

The outbreak of white spot disease that has wiped out prawn farms shows how vulnerable Queensland is to biological threats.

The state is in the firing line of exotic pests and diseases from avian flu and rabies to foot-and-mouth disease and anthrax.

And if that is not horrifying enough, the world was warned this week to be on guard against biological terrorism.

An outbreak of foot-and-mouth in Australia could potentially cost the nation $52 billion in lost revenue, says Jim Thompson, the chief biosecurity officer for Queensland.

As well as the fire ant and the fruit fly causing tens of millions in damage there are 40 "significant" plant pests threatening Australian agriculture.

Thompson spoke as the world's richest man Bill Gates said in Germany that terrorists using biological weapons could one day kill hundreds of millions of people in attacks more deadly than nuclear war.

Rapid advances in genetic engineering have opened the door for small terrorism groups to genetically engineer contagious viral diseases such as smallpox, he said.

Gates said a criminally inflicted pandemic was currently one of the most deadly threats facing humankind. Yet governments are complacent about the scale of the risk, he said.

Gates told a security conference in Munich that while governments were concerned with the proliferation of nuclear and chemical weapons, they overlooked the threat of -biological warfare.

He is funding research into more quickly identifying -outbreaks and speeding up vaccine production.

Gates said the global defence and security establishment "have not been following biology and I'm here to bring them a little bit of bad news".

"Natural epidemics can be extremely large," he told the Telegraph in London.

"Intentionally caused -epidemics, bioterrorism, would be the largest of all.

"With nuclear weapons, you'd think you would probably stop after killing 100 million. Smallpox won't stop."

Gates said genetic engineering was proceeding at a "mind-blowing rate". And gene editing technology would make it difficult to spot a -potential terrorist conspiracy. Technologies which have made it easy to read DNA -sequences and tinker with them to rewrite or tweak genes have many legitimate uses.

Gates said the potential death toll from a man-made disease outbreak could be higher than other threats such as climate change or nuclear war.

Gates told his stunned audience it would be relatively easy to engineer a deadly new flu strain that would "spread like wildfire".

The last time that happened naturally was the 1918 Spanish Influenza pandemic, which went on to kill more than 50 million people. That was nearly three times the death toll from World War I.

Thompson said increasing global trade, e-commerce and movement of people increases the potential for pests and -diseases to be introduced to Queensland

He referred to a briefing document by Animal Health Australia that lists 60 biosecurity threats from equine virus to swine fever – and anthrax.

"Anthrax continues to be uncommon in Australia, and clinical cases of the disease are seen only sporadically," it noted.

"Most cases occur in sheep, with some in cattle and a few in pigs," it says. "Two properties in southern Queensland linked by cattle movements suffered cases in 2002."

Mercifully it adds: "The remainder of Queensland is still considered to be free from -anthrax."

Thompson said one of the biggest battles now being waged in Queensland was the eradication of fire ants.

"If left unchecked, we could face similar impacts as the US, which spends an estimated $US7 billion annually in damage repair and medical," he said.

This content requires the Adobe Flash plugin

Live Anthrax Samples Mistakenly Shipped to Nine States

And the humble fruit fly posed a major threat to Queensland prosperity.

He said: "It is estimated that the potential cost of an incursion of exotic fruit flies from the Torres Strait would be between $442.9 million to $3.3 billion, with producer losses estimated to range from $269 million to $2.1 billion."

A four-year eradication program began in 1995 after an infestation cost more than $134 million in crop damage, lost trade and disinfestation.

A costly surveillance program continues.

Meanwhile, state and federal teams are alert to the possibility of rabies entering Australia.

The disease is rampant on the Indonesian island of Flores, 300km from the Australian mainland. It is linked by a chain of islands to West Papua and ultimately Australia.

The rabies virus travels straight to the brain and is -almost invariably fatal.

Said Thompson: "We have a long and often remote coastline that is difficult to monitor. Many exotic pests and diseases are present in countries to our north."

http://www.couriermail.com.au/news/opinion/opinion-australia-can-not-ignore-threat-of-biological-terrorism/news-story/f4322e92f78c2edb79f8d398dfeb324a

Return to Top

ABOUT THE USAF CUWS

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

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

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

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