

Nuclear, Missile & Space Digest

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A. India

What's a hypersonic missile India is building and how it is different from other missiles

Amrita Nayak Dutta

The Print, September 8, 2020

The Defence Research and Development Organisation (DRDO) Monday successfully test-fired the Hypersonic Technology Demonstrator Vehicle (HSTDV), making India the fourth country in the world after the US, China and Russia to develop such technology. Monday's test, carried out from Abdul Kalam Island (formerly Wheeler Island) off the coast of Odisha, came a year after the DRDO had first tested the futuristic technology. But it had not met all the parameters then.

The HSTDV is an unmanned scramjet demonstration aircraft for hypersonic speed flight. Hypersonic flight means a speed greater than five times the speed of sound. Apart from being used as a vehicle for hypersonic and long-range cruise missiles, the HSTDV is a dual-use technology that will have multiple civilian applications, including the launch of small satellites at low cost.

<https://theprint.in/theprint-essential/whats-a-hypersonic-missile-india-is-building-and-how-it-is-different-from-other-missiles/497883/>

India, Russia Discuss Partnership In Nuclear And Space Sectors, Agree To UNSC Cooperation

Business Standard, September 10, 2020

External Affairs Minister S Jaishankar and his Russian counterpart Sergey Lavrov held discussions on India-Russia cooperation in nuclear and space sectors on Thursday, September 10. The two ministers held talks on the sidelines of the eight-member Shanghai Cooperation Organisation's foreign ministers meeting in Moscow. As per reports, Jaishankar said the talks represented the Special and Privileged Strategic Partnership between India and Russia.

India and Russia to enhance their partnership

During a virtual media briefing on Thursday, MEA spokesperson Anurag Srivastava said, "On the sidelines of Council of Foreign Ministers (CFM) meeting, EAM has had bilateral meetings with Foreign Ministers of member countries. He met the Russian FM on September 9 and as you know we have a special and privileged strategic partnership with Russia". He added, "This year marks the 20 years of our strategic partnership. This was the first physical meeting after the covid situation and there was excellent discussion on bilateral matters, regional developments and international issues of concern".

<https://www.defenceaviationpost.com/2020/09/india-russia-discuss-partnership-in-nuclear-and-space-sectors-agree-to-unsco-cooperation/>

B. China

China's first-generation guided-missile destroyers all retire from service

China Military Online, September 1, 2020

A naval flotilla under the PLA Southern Theater Command last Friday held a decommissioning ceremony for two destroyers, the Zhanjiang (Hull 165) and the Zhuhai (Hull 166), both of which had served in the PLA Navy (PLAN) for nearly 30 years. The ceremony marked the final retirement of all the Type-051 destroyers, as China's first-generation guided-missile destroyers independently developed and built by China, from active service. As the PLAN's first warships equipped with the modern ship-based command and control system, the Zhanjiang and the Zhuhai were the last two members and also the most modernized with fully enclosed bridge and hull in the Type-051 destroyer family. The former was commissioned to the Nanhai Fleet on December of 1989 and the latter in November of 1991.

http://english.chinamil.com.cn/view/2020-09/01/content_9894816.htm

Nuclear power generation accelerates as nation aims to cut emissions

Yin Yeping

Global Times, September 3, 2020

China's approval to resume new nuclear power station construction comes amid rising demand for the reduction of carbon emissions and the development of reliable energy that's needed as a growing economic powerhouse. Experts have predicted that China will surpass the US in installed nuclear power generating capacity within the next decade. A meeting of the State Council, China's Cabinet, on Wednesday approved the Hainan Changjiang Nuclear Power Phase II project, which has been included in the national plan and will adopt the Hualong One third-generation nuclear power technology, and the Zhejiang Sanao nuclear Power Phase I project, in which private capital is being invested for the first time, according to the report.

The approval of four nuclear power units, which adopt the Hualong One technology, shows that China's third-generation nuclear power technology, Hualong One, with its own intellectual property rights, has entered mass production, Yang Bo, spokesperson of the China Nuclear Energy Association (CNEA), told the Global Times. The Chinese mainland has 62 nuclear power units under construction – including those approved but not yet started – with a total planned installed capacity of 65.93 million kilowatts, according to a statement that the CNEA sent to the Global Times. China will maintain a safe, stable and sustainable pace of nuclear power development, and start construction of six to eight units every year to achieve safe, efficient and sustainable development of nuclear power in China, said Yang.

<http://www.globaltimes.cn/content/1199851.shtml>

China firmly opposes U.S. report on Chinese military

Xinhuanet, September 3, 2020

The Chinese military Wednesday firmly opposed an “extremely erroneous” report by the U.S. Department of Defense on China's military, saying it is fraught with a zero-sum game mindset and Cold-war mentality. The statement by the Information Office of China's Ministry of National Defense came in response to the U.S. report that hyped up the so-called “Chinese military threat” and misinterpreted China's national defense policy and military strategies. The office noted that the U.S. report had slandered China's military modernization, defense expenditure and nuclear policy, aggravated tensions across the Taiwan Strait and instigated cross-Strait confrontations. The office stressed that the Chinese side will make further response according to the development of the situation.

http://english.chinamil.com.cn/view/2020-09/03/content_9895656.htm

Reusable Spacecraft Lands After Two-Day Excursion

China Daily; Defence Aerospace, September 7, 2020

China's reusable experimental spacecraft landed at a preset site on Sunday morning after two days in orbit. Xinhua News Agency said its mission was a complete success and proved that the spacecraft is able to offer space round-trip services more conveniently and affordably than existing approaches. The agency did not give details of the two-day operation, the landing site or how the spacecraft landed. The reusable experimental vehicle, whose name has yet to be disclosed, was lifted into orbit atop a Long March 2F carrier rocket from the Jiuquan Satellite Launch Center in the Gobi Desert on Friday afternoon.

China Aerospace Science and Technology Corp, the leading State-owned space conglomerate, said after the launch that the robotic vehicle was tasked with verifying reusable technologies that will serve as technological foundations for the peaceful use of space. The company did not elaborate on details of the mission and the spacecraft, and did not publish pictures of the liftoff or scenes inside the command and control hall. One of the company's subsidiaries, Xi'an Aerospace Propulsion Institute in Shaanxi province, said on its WeChat account in March that "the next Long March 2F flight will be an important scientific experimental mission and will lay the foundation for future manned space programs". The mission "will be crucial to next-generation aerospace technologies", and the institute "must make sure it will succeed", it said. Experts said reusable spacecraft have a wide range of applications, such as carrying out space tours for civilians, transporting astronauts and placing satellites into orbit more cheaply.

<https://www.defense-aerospace.com/articles-view/release/3/213201/china%E2%80%99s-reusable-spacecraft-lands-after-two-day-mission.html>

China launches new optical remote-sensing satellite

Xinhua, September 7, 2020

A Gaofen-11 02 satellite is launched by a Long March-4B rocket from the Taiyuan Satellite Launch Center in north China's Shanxi Province, Sept. 7, 2020. China launched a new optical remote-sensing satellite from the Taiyuan Satellite Launch Center in northern Shanxi Province on Monday. The Gaofen-11 02 satellite was launched by a Long March-4B rocket at 1:57 p.m. (Beijing Time), according to the center. It was the 345th flight mission by a Long March carrier rocket.

http://www.xinhuanet.com/english/2020-09/07/c_139349027_2.htm

Strengthening of China-Russia technological cooperation is crucial: envoy

Yin Yeping

Global Times, September 8, 2020

China and Russia are accelerating joint research and development of technologies in the new-energy sector as part of a wider collaboration framework in the China-Russia Year of Scientific and Technological Innovation. Experts said that the cooperation in new energy is just one part of a bigger project for providing the world with more China-Russia solutions and industrializing new technology against the backdrop of the US' unilateral moves to decouple from China. "Strengthening of scientific and technological cooperation is a crucial part of taking the Russia-China comprehensive strategic partnership of coordination to a new stage," the press officer of the Russian Embassy in China Egorov Georgy told the Global Times on Tuesday.

News reports have suggested that Chinese and Russian researchers are developing new materials to make cheap hydrogen batteries, which unlike conventional batteries, are more efficient and environmentally friendly, discharging only water or water vapor into the environment during use, the Science and Technology Daily reported on Tuesday. The Chinese and Russian researchers involved in the development are from the Beijing University of Chemical Technology and Samara National Research University. The Chinese researchers are responsible for theoretical calculations, experiments and production of anion exchange membranes for fuel cells. The Russian researchers are focusing on developing high-performance non-platinum catalysts and testing their performance, the report said.

<http://www.globaltimes.cn/content/1200296.shtml>

PLA fighter jets 'approached Taiwan's southwest' after island test-fired missiles

South China Morning Post, September 9, 2020

Lawrence Chung

People's Liberation Army fighter jets approached the southwest of Taiwan on Wednesday, according to its defence ministry, soon after the self-ruled island began a series of missile tests.

Multiple Su-30 and J-10 fighter jets briefly entered Taiwan's southwest air defence identification zone (ADIZ) before they were chased off by Taiwanese warplanes, the island's defence ministry said in a statement. It said the PLA fighter jets had "entered the 'response area' of the southwest side of our ADIZ" in the morning, meaning the island's military was required to respond to the situation.

<https://www.scmp.com/news/china/military/article/3100879/pla-fighter-jets-approached-taiwans-southwest-after-island-test>

PLA Rocket Force holds AI challenge

China Military Online, September 11, 2020

To serve as a "touchstone" and a "training ground" for the transformation and application of innovative technological achievements, the PLA Rocket Force hosts the "Smart Rocket-Fire Eye" Artificial Intelligence Challenge from August to December, in order to promote the transformation of intelligent concepts, and help create an intelligent development ecology featuring the coordinated efforts of enterprises, universities, research institutions and consumers. The event is sponsored by the Equipment Department of the PLA Rocket Force.

Participants come from relevant military industry groups, universities and research institutes inside and outside the military, private enterprises with cutting-edge and related teams in related fields. The objective of the activity is set for intelligent image detection and recognition. Through the

scientific setting of competition subjects and reasonable construction of the test environment, the challenge uses multi-source data sets, carries out the performance comparison of artificial intelligence algorithms, discovers cutting-edge innovative technologies, selects innovative talents and teams, and improves image detection and recognition technology level in complex environments.

http://english.chinamil.com.cn/view/2020-09/11/content_9901344.htm

China tests drones, new rocket launcher near disputed India border area

William Zheng

South China Morning Post, September 11, 2020

Official media reports say new technology deployed to meet challenges of high-altitude warfare, China is deploying more advanced technology to overcome the challenges of high-altitude warfare and shorten supply lines for troops on the country's contested border with India. According to state media, the People's Liberation Army has been testing various new weapons, including a new infantry rocket launcher with upgraded anti-tank and anti-bunker capacity. The rocket launcher was tested at "an average altitude of more than 4,000 metres (13,100 feet)" in a live-fire drill by a unit from the 77th Group Army under the PLA's Western Theatre Command, according to a report on China Central Television on Sunday.

<https://www.scmp.com/news/china/military/article/3101193/china-tests-drones-new-rocket-launcher-near-disputed-india>

Xi urges optimizing scientific resources to advance progress

China Military Online, September 12, 2020

President Xi Jinping underlined the need to integrate and optimize the country's scientific and technological resources, and called for building up some national-level laboratories in order to make new progress

in core technologies in critical areas. He said scientific and technological development must target global science frontiers, serve the country's economic growth and other significant needs and benefit people's lives and health. Innovation, as the primary driving force for scientific and technological development, must be strengthened, he added. Promoting high-quality development, meeting people's aspirations for a better life, building the new development pattern in response to changes in the domestic and international situation and comprehensively modernizing the country – all call for speeding up scientific and technological innovation, Xi said.

He also stressed the need to strengthen international cooperation to allow the country to be involved in the global innovation network and improve its technological innovation capacity via opening-up. He called on scientific and technological workers to be bold in proposing new theories, exploring new areas and working out more high-level creative outcomes. Efforts also should be made to guide children in acquiring scientific knowledge and help them to become interested in science and technology.

http://english.chinamil.com.cn/view/2020-09/12/content_9901639.htm

Chinese military launches campaign on cybersecurity

Xinhua, September 14, 2020

The Chinese military on Monday kicked off its maiden campaign aimed at raising awareness on cybersecurity. The campaign, slated to last until Sunday, highlighted the need to gain cutting-edge knowledge of network technology development, as well as learn theories and basic skills related to network security. It also urged a profound understanding of risks and challenges in the field. Combining online and offline activities, the campaign aims at creating a favorable cyberspace environment for strengthening and revitalizing the armed forces, as well as advancing military preparedness.

http://www.xinhuanet.com/english/2020-09/14/c_139367488.htm

C. Pakistan

Fuel loading starts at first Hualong One reactor

World Nuclear News, September 4, 2020

The process of loading of the 177 fuel assemblies into the core of unit 5 at China's Fuqing nuclear power plant has begun, China National Nuclear Corporation (CNNC) announced. The unit - the first of two demonstration Hualong One reactors at the site in Fujian province - is scheduled to begin operating by the end of this year. The first fuel assembly was loaded into the reactor's core at 3.30pm today, just after the issuance of the unit's operating licence by the Ministry of Ecology and Environment.

CNNC said the Hualong One's core design reduces the core power density and improves the design safety level. "In order to ensure the smooth progress of the first nuclear fuel loading of the world's first Hualong One reactor, the construction team fully considered the difference in the layout and quantity of the core fuel components of the reactor, carried out the first batch of loading exercises, optimised the loading sequence, and ensured that the first reactor was installed," it said. With the successful installation of the first group of fuel assemblies, the unit has entered the nuclear commissioning stage of the main system and is ready for completion, it added.

<https://www.world-nuclear-news.org/Articles/Fuel-loading-starts-at-first-Hualong-One-reactor>

Hot tests completed at Pakistani Hualong One

World Nuclear News, September 7, 2020

Hot functional testing of the Karachi 2 reactor in Pakistan was completed on 4 September, China National Nuclear Corporation (CNNC) announced today. The Chinese-designed Hualong One reactor is scheduled for commercial operation next year. Karachi 2 and 3 are the first export of China's Hualong One

design, promoted on the international market as the HPR1000.

Hot tests involve increasing the temperature of the reactor coolant system and carrying out comprehensive tests to ensure that coolant circuits and safety systems are operating as they should. Carried out before the loading of nuclear fuel, such testing simulates the thermal working conditions of the power plant and verifies that nuclear island and conventional equipment and systems meet design requirements. Cold functional tests - which are carried out to confirm whether components and systems important to safety are properly installed and ready to operate in a cold condition - were completed at Karachi 2 in December. The main purpose of those tests was to verify the leak-tightness of the primary circuit.

<https://www.world-nuclear-news.org/Articles/Hot-tests-completed-at-Pakistani-Hualong-One>

D. USA

Unison is awarded a new task order by U.S. Nuclear Regulatory Commission

Crison PR News, September 1, 2020

Unison, the leading provider of acquisition management software and insight to government agencies, program offices, and contractors, today announced that the U.S. Nuclear Regulatory Commission (NRC) has competitively awarded a GSA Federal Supply Schedule task order to them for an acquisition management solution. The task order has a 3-month base period plus four 1-year option periods. The NRC licenses and regulates the nation's civilian use of radioactive materials including commercial nuclear power plants and other uses of nuclear materials, such as in nuclear medicine.

Under this task order, Unison will provide the NRC a full suite of Unison products including PRISM Acquisition for acquisition lifecycle management, PRISM Grants for financial assistance professionals, and the Unison Insight Platform which uses the latest

data-mining, AI, and Robotic Process Automation (RPA) technologies to give acquisition teams powerful reporting and analytical capabilities. In addition, Unison is providing two Bots from the stable of Unison's machine learning robotic apps: the Automated Closeout Bot which will allow NRC to reduce their backlog of contracts ready for closeout and the Data Validation Engine which will automate configurable rules for improved data quality and accuracy. "We are pleased to continue our 8-year relationship with NRC – supporting their mission of ensuring the safety of people and the environment during use of radioactive materials," said Reid H. Jackson, President and Chief Executive Officer, Unison. "We have worked closely with NRC in the past in developing applications for RPA. We look forward to a continued close relationship."

<https://www.prnewswire.com/news-releases/unison-is-awarded-a-new-task-order-by-us-nuclear-regulatory-commission-301122048.html>

America Recalls Pranab Mukherjee's Role in US-India Civil Nuclear Agreement as it Expresses Grief Over His Demise

News 18, September 1, 2020

"In a distinguished career spanning more than half a century, President Mukherjee worked tirelessly on behalf of the people of India as a parliamentarian, cabinet minister, and as President of the world's largest democracy. His visionary leadership helped drive India's rise as a global power and paved the way for a stronger US-India partnership," US Secretary of State Mike Pompeo said in a statement.

<https://www.news18.com/news/politics/america-recalls-pranab-mukherjees-role-in-us-india-civil-nuclear-agreement-as-it-expresses-grief-over-his-demise-2839793.html>

NuScale SMR receives US design certification approval

World Nuclear News, September 1, 2020

The US Nuclear Regulatory Commission (NRC) has issued a final safety evaluation report (FSER) for NuScale's small modular reactor. This is the first-ever FSER to be issued by the NRC for an SMR, and represents the completion of the technical review and approval of the design. "This is a significant milestone not only for NuScale, but also for the entire US nuclear sector and the other advanced nuclear technologies that will follow. This clearly establishes the leadership of NuScale and the US in the race to bring SMRs to market," said NuScale Chairman and CEO John Hopkins. He also credited strong bipartisan support from US Congress for the project, which received cost-shared federal funding as it advanced through the NRC Design Certification process. NuScale said it had spent over USD500 million, with the backing of its majority investor Fluor, and over 2 million labour hours to develop the information needed to prepare its design certification application. The company also submitted 14 separate Topical Reports in addition to the application - itself over 12,000 pages long - and provided more than 2 million pages of supporting information for NRC audits.

The NuScale design uses passive processes such as convection and gravity in its operating systems and safety features to produce about 600 MW of electricity. Twelve modules, each producing 50 MW, are submerged in a safety-related pool built below ground level. The NRC has concluded the design's passive features "will ensure the nuclear power plant would shut down safely and remain safe under emergency conditions, if necessary", it said. NuScale has also indicated to NRC it will apply for standard design approval of a version using 60 MW modules, the regulator said. This would require additional NRC review. Design certification means the NRC has, after thorough examination of compliance with safety requirements, approved a nuclear power plant design independent of an application to construct or operate a plant. Full certification allows a utility to

reference the design when applying for a combined licence to build and operate a nuclear power plant anywhere in the USA, although site-specific licensing procedures must still be completed and a combined construction and operating licence obtained before construction can begin. Design certification is valid for 15 years from the date of issuance, but can be renewed for an additional 10 to 15 years.

<https://www.world-nuclear-news.org/Articles/NuScale-SMR-receives-US-design-certification-appro>

TerraPower, GEH introduce Natrium

World Nuclear News, September 1, 2020

TerraPower and GE Hitachi Nuclear Energy (GEH) have announced the launch of the Natrium concept, which features a sodium fast reactor combined with a molten salt energy storage system that will allow over five hours of energy storage. The partners hope to commercialise the technology by the end of this decade. Natrium is part of the US Department of Energy's (DOE's) Advanced Reactor Demonstration Program, which aims to speed the demonstration of advanced reactors through cost-shared partnerships with US industry.

TerraPower says Natrium's novel architecture simplifies previous reactor types. Non-nuclear mechanical, electrical and other equipment will be housed in separate structures, reducing complexity and cost. The design is intended to permit significant cost savings by allowing major portions of the plant to be built to industrial standards. Improvements use fewer equipment interfaces and reduce the amount of nuclear-grade concrete by 80% compared to large reactors. Natrium reactors are designed to provide firm, flexible power that seamlessly integrates into power grids with high penetrations of renewables. The Natrium system features a 345 MWe sodium fast reactor and can be optimised for specific markets. For instance, TerraPower says its thermal

storage has the potential to boost the system's output to 500 MWe of power for more than five and a half hours when needed.

<https://www.world-nuclear-news.org/Articles/TerraPower,-GEH-introduce-Natrium>

US Administration reaches settlement with South Carolina over plutonium removal

World Nuclear News, September 2, 2020

A USD600 million settlement reached by the State of South Carolina and the US Administration has brought to an end six years of litigation concerning 9.5 tonnes of weapons-grade plutonium at the Savannah River Site. Under the terms of the settlement, the US Department of Energy (DOE) is now obligated to remove the material by 2037. The plutonium was shipped to Savannah River in the early 2000s for processing into mixed-oxide (MOX) fuel at a fabrication facility that was being built there. Construction of the facility was terminated in 2018 by the energy secretary at the time, Rick Perry, by which point the project was some USD13 billion over budget and 32 years behind schedule.

A 2002 statute stipulated that, in the event of the MOX facility not achieving its production goals, the DOE would be required to remove the plutonium from South Carolina and make payments to the state should deadlines for its removal be missed. The DOE is now pursuing the so-called dilute and dispose process for the disposition of the material, a method it says is proven safe and effective but is time-consuming. It will miss the 1 January, 2022 deadline for removal of the material: DOE's current timeline projects complete removal of the 9.5 tonnes of plutonium will be achieved by 2049. Without the settlement agreement, DOE would have been required to pay South Carolina USD1 million a day, up to a maximum USD100 million a year, from 1 January, 2022 until all the plutonium had been removed. In total, those payments would have exceeded USD2 billion.

<https://www.world-nuclear-news.org/Articles/US-Administration-reaches-settlement-with-South-Ca>

Agreement on ownership of Summer equipment

World Nuclear News, September 2, 2020

Santee Cooper and Westinghouse have finalised terms of a settlement over ownership of equipment associated with the VC Summer units 2 and 3 nuclear power plant project in South Carolina, abandoned in July 2017. The terms give Santee Cooper full ownership of and the ability to begin marketing all non-nuclear equipment immediately. Construction of units 2 and 3 at the Summer plant began in March and November 2013, respectively. However, the owners of the Summer project - Scana subsidiary South Carolina Electric & Gas Company (SCE&G) and Santee Cooper - decided in August 2017 to abandon construction of the two AP1000s, following reactor vendor Westinghouse's filing for bankruptcy in March that year.

According to Santee Cooper, which held a 45% share in the project, SCE&G ceded its ownership in the nuclear project equipment through a "forbearance agreement" to Santee Cooper on 13 December, 2018, which was approved by the South Carolina Public Service Commission. In May 2019, Santee Cooper asked a New York bankruptcy court to dismiss Westinghouse's claim of ownership of the same equipment. Santee Cooper and Westinghouse have now agreed to split the net sales proceeds of the nuclear-related equipment. For major non-installed nuclear equipment, the proceeds will be split 50-50, while for major installed nuclear equipment, Santee Cooper will receive 90% and Westinghouse 10%. For other equipment that could be used in nuclear projects, 67% of proceeds will go to Santee Cooper and 33% to Westinghouse. Santee Cooper has 100% ownership of the remaining project equipment. Westinghouse has responsibility for marketing the nuclear equipment. The marketing and sales effort will last for up to five years.

<https://www.world-nuclear-news.org/Articles/Agreement-on-ownership-of-Summer-equipment>

Ball's in Russia's court on New START extension, says DoD official

Joe Gould

Defense News, September 2, 2020

The United States and Russia have shown a willingness to extend the New START nuclear pact before it expires next year, but the ball is now in Russia's court, a Pentagon official said Wednesday. New START, which limits each country to no more than 1,550 deployed nuclear warheads and 700 deployed missiles and bombers, expires Feb. 5 unless the two sides agree to extend it for five years. The 2010 pact is the last remaining bilateral nuclear arms control agreement between the Cold War adversaries.

U.S. representatives, in recent talks with Russia in Vienna, said Washington would consider an extension if there were a new framework to include Russia's range of unconstrained nonstrategic nuclear weapons and the implementation of stronger verification measures, as well as the inclusion of China in future talks. The U.S. team offered Moscow proposals to that effect. "Now we're waiting to see if Russia has the political will now to come and talk to us about it," Robert Soofer, deputy assistant secretary of defense for policy for nuclear and missile defense, said during an Air Force Association event on Wednesday.

USNC opens SMR fuel development laboratory

World Nuclear News, September 2, 2020

Ultra Safe Nuclear Corporation (USNC) has established a new facility in Salt Lake City, Utah, to support the development of its proprietary Fully Ceramic Microencapsulated (FCM) fuel. Materials developed there will be used in USNC's Micro Modular Reactor (MMR) and other nuclear reactors, including gas-cooled reactors, light water reactors, CANDU reactors and molten salt cooled reactors. Seattle, Washington-based USNC said Salt Lake City was selected as its fuel-development site because of the region's well-established infrastructure, knowledgeable workforce and status as a

technology growth hub. The region is home to significant ceramics and materials expertise, central to the manufacturing of FCM fuel. The Salt Lake City laboratory augments USNC's materials development efforts at the University of Tennessee in Knoxville and collaborations with Canada's Chalk River Laboratories.

USNC describes FCM as a next-generation uranium oxycarbide tristructural isotropic (TRISO) particle fuel design, replacing the 50-year-old graphite matrix of traditional TRISO fuel with silicon carbide (SiC). It says the result is a safer nuclear fuel that can withstand higher temperatures and more radiation. The SiC matrix in FCM fuel provides a dense, gas-tight barrier preventing the escape of fission products, even if a TRISO particle should rupture during operation. The new matrix improves the structural and containment characteristics of TRISO particles, trapping and sealing radioactive fission products permanently, preventing contamination of the environment. The higher-thermal conductivity of FCM fuel allows the fuel pellet to have a flatter temperature profile, lowering peak temperatures in nuclear reactors. "Our accident-tolerant FCM fuel design will deliver built-in safety, especially when combined with the inherently safe design of our MMR reactor," said USNC CEO Francesco Venneri. "Establishing the new advanced materials facility in Salt Lake City will help expedite development and adoption of FCM fuel."

<https://www.world-nuclear-news.org/Articles/USNC-opens-SMR-fuel-development-laboratory>

Duke Energy's carbon reduction plans see 'valuable' role for nuclear

World Nuclear News, September 3, 2020

Integrated Resource Plans (IRPs) filed on 1 September by Duke Energy Carolinas and Duke Energy Progress demonstrate the valuable role nuclear and natural gas can play as part of a balanced portfolio, the two companies said. The plans outline a range of options to achieve varying levels of carbon reduction, including for the first

time potential pathways to achieve an emissions reduction of up to 70%. The IRPs are based in part on extensive input from more than 200 customer and stakeholder participants who provided recommendations in the areas of resource planning, carbon reduction, energy efficiency and demand response, the companies said.

The 2020 IRPs each present six potential pathways within the 15-year planning horizon that evaluate different possible resource portfolios. Each pathway keeps Duke Energy on a trajectory to meet its near-term carbon reduction goal of at least 50% by 2030 and long-term goal of net zero by 2050 in the Carolinas. Aggressive carbon reduction targets are achievable with investments in solar, wind and energy storage, while offshore wind, advanced nuclear and other technologies will play a role as they become available, the companies said. Nuclear and natural gas can play a “valuable” role as part of a balanced portfolio, sustaining carbon reductions by enabling early coal retirements. “This is a clear-eyed view of the real-world requirements to achieve a range of potential public policy goals in the Carolinas, consistent with Duke Energy’s mission to provide all customers with affordable, reliable and cleaner energy,” said Lynn Good, Duke Energy chair, president and CEO.

<https://www.world-nuclear-news.org/Articles/Duke-Energys-carbon-reduction-plans-see-valuable-r>

Work starts on WIPP’s biggest ventilation shaft

World Nuclear News, September 3, 2020

Excavation work has begun for a new ventilation shaft at the Waste Isolation Pilot Plant (WIPP) in New Mexico, USA. The start of work on the USD75 million shaft, which is integral to increasing ventilation to the WIPP underground, is a top priority project in the US Department of Energy Office of Environmental Management’s plans for this year. When completed, the new shaft will be the largest at the New

Mexico site, at 26 feet (nearly 8 metres) in diameter and reaching a depth of 2275 feet. Drifts, or passageways, will be excavated at the 2150-foot level to match the rest of the WIPP underground that will eventually connect to the shaft.

Shaft excavation has now reached 56 feet by using a mini excavator and crane-lifted buckets. It will be continued by a process of drilling small holes in one-half of the bottom of the shaft and setting off small emplaced explosive charges in a sequential pattern. The debris will be excavated, and the process repeated in an ongoing work pattern, 24 hours a day over five days a week plus one extra shift on Saturdays. When the excavation reaches 100 feet, a five-story multiplatform unit with a remote-controlled excavator underneath it will be lowered into the shaft to continue the work.

<https://www.world-nuclear-news.org/Articles/Excavation-of-new-ventilation-shaft-begins-at-US-r>

Some U.S. cities turn against first planned small-scale nuclear plant

Timothy Gardner, Nichola Groom

Reuters, September 3, 2020

The first U.S. small-scale nuclear power project, grappling with cost overruns and delays, faces another challenge: the defection of cities that had committed to buying its power. The more than 30 members of the public power consortium Utah Associated Municipal Power Systems (UAMPS) have until Sept. 30 to decide whether to stick with the project and devote more funds to NuScale Power LLC’s first-of-a-kind reactor.

But two cities, Logan and Lehi, Utah have walked away from the project, and a third is now considering dropping its support because of risks and a lack of backers, according to officials. Allen Johnson, the power department director for Bountiful, Utah, said chances are greater than 50-50 it will withdraw. “You’ve got to have enough people to support it and some of

the players I thought would be interested are not," he said.

<https://www.reuters.com/article/us-usa-nuclearpower-nuscale-idUSKBN25T30E>

Dominion Energy applies for North Anna licence extension

World Nuclear News, September 7, 2020

Virginia, USA-based Dominion Energy has filed an application with the Nuclear Regulatory Commission (NRC) to renew North Anna Power Station's operating licences for an additional 20-year term. Dominion says approval would mean its customers continue to receive safe, reliable, affordable and carbon-free electricity from the plant until 2060. Dominion Energy's filing for North Anna, located in Louisa County, makes it the second nuclear power plant in Virginia to seek a second renewal of its licences, beyond the original 40-year terms that were granted in 1978 and 1980, and the extension granted in 2003. Dominion Energy filed a similar application to renew the licences of the two Surry Power Station units in Surry County in 2018. The NRC is currently reviewing that application.

Dan Stoddard, Dominion Energy's chief nuclear officer, said: "Renewing the licences for both of our nuclear units in Virginia is critical to the company meeting the Virginia Clean Economy Act's requirements for zero-carbon electricity by 2045 as well as the company's net zero by 2050 commitment. It also positions Virginia for continued economic growth and will help Virginia remain a leader in the production of clean energy among other states in the mid-Atlantic and South. It supports more than 900 high-paying jobs at the station and produces additional economic and tax benefits." Like all US nuclear units, the North Anna units were originally licensed to operate for 40 years. The units' licences were renewed for 20 additional years of operation on 20 March 2003, following a stringent review process authorised under federal law. Under its current licences, North Anna units 1 and 2 can continue to operate through 2038 and 2040,

respectively, and with renewed licences to 2058 and 2060.

<https://www.world-nuclear-news.org/Articles/Dominion-Energy-applies-for-North-Anna-licence-ext>

U.S. utilities say Biden plan to cut CO2 hinges on breakthroughs

Nichola Groom, Valerie Volcovici

Reuters, September 8, 2020

The country's top power producers said rapid advances in nascent technologies - such as batteries to store power for lean times, carbon capture to trap waste from fossil fuels and advanced nuclear power - will be critical to reaching net-zero carbon dioxide emissions. But these technologies are currently either too costly for mass deployment or not yet commercially viable, the companies said. Historically, utilities have invested little in emerging technologies because they are required by regulators to keep costs low.

Reuters contacted the 10 largest U.S. publicly traded power producers and three others with ambitious greenhouse gas reduction goals to determine their outlook on reducing the carbon dioxide emissions that lead to global warming. All but four responded. The news organization also mined public statements, state regulatory filings and corporate documents to determine these utilities' views. Those views cast doubt over the feasibility of Biden's proposed mandate as he prepares to face off with President Donald Trump - a climate change skeptic and booster of fossil fuels - in the November election.

<https://www.reuters.com/article/us-usa-climatechange-utilities-insight-idUSKBN25Z1Q7>

Northrop Grumman wins \$13.3 bln missile replacement contract

Reuters, September 8, 2020

Defense contractor Northrop Grumman Corp said on Tuesday it was awarded a \$13.3 billion contract by the U.S. Air Force

to modernize the country's intercontinental ballistic missile system. The contract comes as the U.S. military embarks on a costly modernization of its aging atomic weapons. The contract will span eight and a half years and include weapon system design and nuclear certification. The company will deliver a fully-integrated weapon system by 2029.

"The increased accuracy, extended range and improved reliability will provide the United States a broader array of options to address unforeseen contingencies," said General Tim Ray, commander of Air Force Global Strike Command. Boeing Co in December decided not to compete as a prime contractor to replace the Pentagon's U.S.-based missile system, paving the way for Northrop Grumman to win the contract.

<https://in.reuters.com/article/idINL4N2G53VK>

U.S. power use to drop over 2% in 2020 due coronavirus -EIA

Reuters, September 9, 2020

U.S. electricity consumption will decline 2.4% in 2020 as coronavirus lockdowns cause businesses to close, the U.S. Energy Information Administration said on Wednesday in its Short Term Energy Outlook. EIA projected power demand will drop to 3,802 billion kilowatt hours (kWh) in 2020 from 3,896 billion kWh in 2019 before easing to 3,801 billion kWh in 2021. Those declines follow a 2.7% drop in usage in 2019 due to mild weather from 2018's record 4,003 billion kWh, according to data going back to 1949.

If power consumption falls as expected, 2020 would be the first time demand declined for two consecutive years since 2012 and 2021 would be the first time it declined for three years in a row ever. EIA said natural gas' share of generation will rise from 37% in 2019 to 39% in 2020 before dropping to 34% in 2021 as gas prices increase, while coal's share will slide from 24% in 2019 to 20% in 2020 before rising to 22% in 2021.

<https://www.reuters.com/article/usa-electricity-outlook-idUSL1N2G61J6>

Permit issued for commissioning Chernobyl ISF-2 used fuel storage

Nuclear Engineering, September 10, 2020

Ukraine's Chernobyl NPP on 7 September received a permit from the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) for commissioning the interim used fuel processing and storage facility (ISF-2). The permit allows the nuclear power plant to begin hot testing, which involves the transfer of 186 used fuel assemblies to the new storage facility, where, after processing, they will be located in concrete storage modules. The approval followed state examination of nuclear and radiation safety and an inspection survey of the SNRIU verifying the NPP's ability to carry out work on transportation, preparation and storage of used nuclear fuel.

"ISF-2 will make it possible not only to improve the safety level of spent nuclear fuel storage, but also to intensify the work on decommissioning the Chernobyl NPP," said the head of SNRIU, Grigory Plachkov. Nuclear power plant director Vladimir Peskov noted that this important milestone was achieved thanks to work of Chernobyl NPP, US-based Holtec International and its subcontractors. "Special thanks to the European Bank for Reconstruction and Development (EBRD) for supporting this project throughout the difficult path," he said.

<https://www.neimagazine.com/news/newspermit-issued-for-commissioning-chnobyl-isf-2-used-fuel-storage-8128504>

Factbox: On climate, it's Biden's green revolution versus Trump's war on red tape

Valerie Volcovici and Timothy Gardner

Reuters, September 11, 2020

The U.S. presidential election pits a politician who plans to tie the country's economic recovery to tackling climate change against another determined to remove as many regulatory hurdles to oil, gas and coal production as possible.

Power utilities have pointed out that his plan depends on rapid advances in nascent technologies. Biden supports research on high-tech nuclear energy that would be virtually emissions free but likely still have waste issues. Trump does not have a climate plan on his campaign website. Instead, the site highlights his administration's focus on unraveling Obama-era regulations. This includes the Clean Power Plan, which he replaced with a weaker standard called the Affordable Clean Energy rule to cut pollution without damaging the coal industry.

<https://www.reuters.com/article/us-usa-election-climate-change-factbox-idUSKBN2622NG>

US DOC, Rosatom initial uranium agreement extension

World Nuclear News, September 14, 2020

US Secretary of Commerce Wilbur Ross said, according to Russian news agency TASS, that the proposed amendment will "contribute to the restoration of America's nuclear energy advantage and protect the domestic industry from dumped Russian uranium". In May this year, a bipartisan group of US Senators called for the DOC to extend the Russian Suspension Agreement, as recommended by the Nuclear Fuel Working Group. In their letter, the senators called for DOC to reduce imports of Russian uranium to below existing limits, which they said will protect the USA's natural uranium fuel supply chain from "aggressive and illegal trade practices of nuclear state-owned enterprises of foreign adversaries".

In a letter dated 11 September, Joseph Laroski, deputy assistant secretary for Policy & Negotiations Enforcement & Compliance at the DOC, said interested parties, industrial users and the public are invited to comment on the draft amendment. Comments are due no later than the close of business on 28 September. The Department of Commerce is seeking to finalise the deal no later than 5 October.

<https://www.world-nuclear-news.org/Articles/US-DOC-Rosatom-initial-uranium-agreement-extension>

U.S. asks World Court to dismiss Iran sanctions case

Stephanie van den Berg

Reuters, September 14, 2020

Lawyers for the United States on Monday asked judges at the United Nations' highest court to dismiss a case brought by Iran seeking to lift sanctions. Lawyer Marik String said Iran had wrongly introduced a subject uncovered by a 1955 bilateral pact, the Treaty of Amity, which Tehran cites as the basis for going to the International Court of Justice (ICJ), also known as the World Court.

It was "an inescapable reality", he added, that the real aim of Iran's legal suit is to restore a 2015 nuclear pact opposed by the administration of President Donald Trump. "The measures Iran challenges remain critical to the United States' efforts to address national security threats posed by Iran including the current threat posed by its nuclear programme," String added.

<https://in.reuters.com/article/iran-usa-world-court/update-1-us-asks-world-court-to-dismiss-iran-sanctions-case-idINL8N2GB46M>

U.S. seeks to lower Russian uranium imports to boost U.S. nuclear industry

Valerie Volcovici

Reuters, September 14, 2020

The U.S. Commerce Department on Monday inked a draft agreement with Russia's state nuclear energy company to reduce imports of uranium from Russia over the next 20 years in a bid to boost domestic mining and nuclear energy.

The Commerce Department and Rosatom initialed the draft amendment to the 1992 Russian Suspension Agreement to prevent dumping, extending that deal to the year 2040 and gradually reduce the amount of uranium the U.S. imports from Russia for enrichment from 20% to 15% starting in 2028. "If finalized, it will contribute to the

restoration of America's nuclear energy advantage and protect the domestic industry from dumped Russian uranium," said Commerce Secretary Wilbur Ross.

<https://www.reuters.com/article/usa-nuclear-russia/update-1-us-seeks-to-lower-russian-uranium-imports-to-boost-us-nuclear-industry-idUSL1N2GB1HZ>

E. Europe

Belgium does not have to shut Engie nuclear reactor, court rules

Marine Strauss, Bart Biesemans

Reuters, September 3, 2020

A Brussels court ruled that Belgium does not have to shut down Engie's Tihange-2 nuclear reactor after a challenge from several Dutch, German and Luxembourg cities and states citing possible safety defects. Belgium's nuclear regulator AFCN allowed the 1,008 megawatt reactor to restart in 2015 after it was closed for an investigation into apparent cracks. The plaintiffs said this permission should not have been granted. "We are sure and we are convinced that the reactor vessel is safe," Ines Venneman, a spokeswoman for the AFCN, told Reuters in an interview.

A lawyer for neighbouring cities, including Aachen and Maastricht, told Reuters the outcome of the trial was disappointing as nothing would change for the plant, which is some 45 kilometres (28 miles) from the Dutch border and 70 km from Germany. "This is, of course, a disappointing ruling for us," Annemarie Penn-te Strake, the mayor of Dutch town Maastricht, said in a statement. "It will not remove many people's feelings of insecurity." The reactor, one of three at the Tihange plant operated by Engie's Belgian unit Electrabel, was closed in 2012 and again in 2014 after inspections revealed tiny cracks in its core tanks. In an unusual diplomatic move, Germany requested in 2016 that the nuclear plant be taken offline until safety concerns were addressed. But the Belgian regulator authorised a restart in November 2015 after finding the cracks were hydrogen flakes in

the walls of the reactor tank and did not compromise the plant's safety. The Belgian government decided in 2018 that the country's nuclear power plants, Tihange and Doel, would be closed in 2025. Tihange-2 is scheduled to close in February 2023.

<https://in.reuters.com/article/idINL8N2G04TG>

Low water flow may cut output at France's Saint-Alban nuclear plant

Reuters, September 8, 2020

A low flow rate on the Rhone River will likely restrict output from Thursday to Sunday at EDF's Saint-Alban nuclear plant in southeastern France, French grid operator RTE said. The two Saint-Alban reactors produce 1.3 gigawatts (GW) of power each and RTE said the reduction in output could be equivalent to the production of one unit. The Saint-Alban 2 reactor is scheduled to go offline for routine maintenance on Sept. 19. EDF's use of water is regulated by law to protect plant and animal life. The company is obliged to reduce output during hot weather when water temperatures rise, or when river levels and the flow rate are low.

Low flow rates have been a recurring concern at the Saint-Alban plant in the past month. RTE has posted similar warnings each week going back to Aug. 20 that the equivalent of one reactor could be taken offline for that reason. The lack of rainfall over the year has had a low impact on nuclear production, decreasing it by 0.35% at the end of August or 0.75 TWh out of 219 TWh produced, an EDF spokesperson said. French utility EDF said on Monday that nuclear power generation at its reactors in France dropped 17.6% to 22.9 terawatt hours (TWh) year-on-year in August due to the effects of the coronavirus pandemic and reactor outages. Nuclear availability is currently at 50.3%, with 31 GW offline.

<https://in.reuters.com/article/idINL8N2G522B>

European equities sapped by Brexit fears, energy and tech stocks slide

Shreyashi Sanyal

Reuters, September 8, 2020

European shares fell on Tuesday on fears that Britain was in danger of leaving the European Union without a trade agreement, with energy firms and technology stocks among the biggest decliners. The oil & gas sub-index .SXEP tumbled 3.7% marking its worst day in nearly 11 weeks, as oil prices plunged over 8% on demand worries. As tech firms on Wall Street deepened a selloff from last week, European tech stocks .SX8P slipped 2.1%, giving back a chunk of the previous session's gain. [N] "Stocks in Europe had free rein yesterday as the U.S. exchanges remained closed because it was Labour Day. The weakness that we saw in big U.S. tech names last week, is still in play, and that is driving sentiment over here," said David Madden, market analyst at CMC Markets UK.

<https://in.reuters.com/article/idINL4N2G51WS>

Poland to accelerate coal phase-out, spend billions on renewable and nuclear energy

Reuters, September 8, 2020

Poland wants to speed up phasing out coal and spend billions to build renewable and nuclear power infrastructure to address challenges related to climate change and ensure stable power supplies, the government said. In an update of its energy strategy by 2040, the climate ministry said Poland plans to invest 150 billion zlotys (\$40 billion) to build its first nuclear power plants, with 6-9 GW of capacity eventually. The first 1-1.6 GW facility would be up and running by 2033.

It also plans to build 8-11 gigawatts (GW) of offshore wind capacity by 2040 with investment estimated at 130 billion zlotys. The development of renewable and nuclear energy facilities will create 300,000 jobs, it said. Poland has been the only European Union state to refuse to pledge climate

neutrality by 2050, with the ruling Law and Justice party saying that it needs more time and money to shift its economy from coal to cleaner energy sources. But rising carbon emission costs, the European Union's ambitious climate policies and the coronavirus outbreak are forcing Warsaw to speed up its energy transformation.

<https://in.reuters.com/article/idINKBN25Z1G3>

EDF Energy says UK Hinkley Point B nuclear plant could close earlier than planned

Nina Chestney

Reuters, September 9, 2020

EDF's EDF Energy said on Wednesday that its Hinkley Point B nuclear plant could close earlier than planned, and that it will be able to confirm the closure date by the end of the year. The 1 gigawatt plant was due to be shut down permanently in early 2023. "It is possible we may need to move into defuelling within the next two years. We will review this decision in the same detailed way as we have with Hunterston B and expect to be able to confirm the outcome by the end of this year," an EDF Energy spokesman said. Last month the company said it would shut the Hunterston B plant down earlier than previously planned.

<https://in.reuters.com/article/idINL8N2G658S>

F. Russia

Waste storage facility to be built in Russia's Chelyabinsk region

Nuclear Engineering, September 1, 2020

Russia's national operator for waste management, NO RAO, has received a licence to build a final isolation point for radioactive waste in Ozersk. The Federal Service for Environmental, Technological and Nuclear Supervision (Rostekhnadzor) issued the licence for the placement and construction of a final isolation point for radioactive waste in the Chelyabinsk region near the closed city of Ozersk. The

capacity of the storage facility will be 225,000 cubic metres of solid radioactive waste of classes 3 and 4, mainly from the activities of the production association Mayak.

As part of the first stage of construction, a complex of buildings and structures for administrative and domestic purposes, transport infrastructure, an access road to the site, internal and external engineering networks will be erected. Construction work is scheduled to begin in 2021. Public consultations took place in Ozersk in July 2018, as a result of which, the project received a positive conclusion from the state environmental review.

<https://www.neimagazine.com/news/newswaste-storage-facility-to-be-built-in-russias-chelyabinsk-region-8109994>

Rosatom extends digital technology progress

World Nuclear News, September 1, 2020

The Russian government, Rosatom and Rostec have signed a statement of intent for the development of end-to-end digital technology. In a separate digital technology development, Rosatom has announced the creation of a digital configuration management system for the Hanhikivi-1 nuclear power plant project in Finland. Rostec is a Russian state-owned corporation that assists the high-tech and defence industries.

The agreement on new production technologies (NPT) is part of a national programme on the digital economy. It was signed during a meeting held in Sarov, in the Nizhny Novgorod region, and chaired by Russian Deputy Prime Minister Dmitry Chernyshenko. Attendees included Rosatom Director General Alexey Likhachov and Rosatom Digitalisation Director Ekaterina Solntseva.

According to a government statement, Chernyshenko drew the participants' attention to the need to approve the roadmap for the NPT by 30 November, and Rosatom's schedule for this was subsequently agreed. In addition, it was

decided to create an executive committee to coordinate the previously approved roadmap for the development of quantum computing.

<https://www.world-nuclear-news.org/Articles/Rosatom-extends-digital-technology-progress>

Leningrad II-2 reaches minimum controlled power

World Nuclear News, September 1, 2020

Unit 2 of the Leningrad II nuclear power plant in Western Russia has started the final stage of its physical launch by reaching the minimum controllable power level. This means that the neutron flux control equipment has recorded stable neutron capacity, and the first self-sustained controlled nuclear reaction has commenced in the reactor core.

Announcing the milestone yesterday, Rosenergoatom, the operator subsidiary of Russian state nuclear corporation Rosatom, said the commercial launch of the sixth VVER-1200 had started on 19 July when the first fresh fuel assembly was loaded into the reactor core, and that its commercial launch was scheduled for 2021. "Minimum controlled power is the lowest capacity level that enables us to conduct a number of tests and to verify the physical parameters of the reactor core to make sure it complies with the project requirements," Alexander Belyaev, the chief engineer at the Leningrad NPP-2, said. "Once these operations are completed and the associated calculations are submitted to [regulator] Rostekhnadzor, we will have to obtain a power start-up licence and to start gradual power ramp-up."

<https://www.world-nuclear-news.org/Articles/Leningrad-II-2-reaches-minimum-controlled-power>

Kursk II completes steam generator hydraulic tests

World Nuclear News, September 4, 2020

Atomenergoproekt has completed hydraulic tests on the first steam generator for the Kursk II nuclear power plant under construction

in Western Russia, which will be the first to use the VVER-TOI (typical optimised, with enhanced information) reactor design. Atommash is part of Atomenergomash, the engineering division of state nuclear corporation Rosatom. The equipment belongs to a new type of steam generators designed to operate as part of a reactor plant with VVER TOI reactors. The tests were carried out in a specially prepared area in accordance with the technology, which provides for the creation of pressure in the tube and annular space above the working pressure by 25%. At the same time, the water temperature inside the steam generator reached 100 degrees Celsius.

“Successful hydraulic tests reflect the high quality of the manufactured product,” Atommash said. “During the manufacturing process, the equipment undergoes several types of tests and controls. In addition to hydraulic ones, the steam generator also undergoes vacuum tests using helium, as well as ultrasonic, magnetic powder, eddy-current testing and X-ray gamma-ray imaging. By the end of the steam generator manufacturing cycle, quality specialists will carry out 415 control operations.” The steam generator has a diameter of more than 4 metres and a length of about 15 metres, and weighs 340 tonnes. First concrete for Kursk II unit 1 was poured in April 2018, and that for unit 2 in April last year.

<https://www.world-nuclear-news.org/Articles/Kursk-II-completes-steam-generator-hydraulic-tests>

Chernobyl used fuel store gains permit for commissioning

World Nuclear News, September 9, 2020

The State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) has issued a permit to SSE Chernobyl Nuclear Power Plant (ChNPP) to start commissioning work at the Chernobyl Interim Spent Nuclear Fuel Storage Facility (ISF-2), which upon loading will be the world’s largest dry storage installation. Announcing the milestone in separate statements yesterday, ChNPP and Holtec International of the USA said the

permit initiates the campaign to disassemble each of Chernobyl’s more than 21,000 fuel assemblies into three parts - two fuel bundles and an activated connecting rod - in a purpose-built ‘hot cell’, packaging them in double-walled transportable canisters and placing them into dry storage.

Holtec had handed over the complex to the owner, ChNPP, in December 2019. The permit was issued once the owner had completed the last round of confirmatory component and integral effects tests. Presenting the permit took place in a small ceremony on 7 September led by the SNRIU Chairman Grigoriy Plachkov and attended by Bogdan Borukhovskiy, deputy minister of the Ministry of Ecology and Natural Resources of Ukraine, Sergiy Kalashnik, head of the State Agency of Ukraine on Exclusion Zone Management, as well as representatives of the European Bank for Reconstruction and Development (EBRD), ChNPP and Holtec.

<https://www.world-nuclear-news.org/Articles/Chernobyl-used-fuel-store-gains-permit-for-commiss>

The second reactor at Russia’s Leningrad II nuclear plan reaches controlled minimum power

Charles Digges

Bellona, September 10, 2020

Reactor No 2 at the Leningrad Nuclear Power Plant II has achieved criticality and was brought to the minimum controlled power level late last month, officials with Rosenergoatom, Russia’s nuclear utility, have said. The commissioning of the reactor - a VVER-1200 - is being carried out in stages, which began on July 19 when its first nuclear fuel assembly was loaded into the vessel, the company said. Commercial operation of the reactor will begin in 2021.

“The minimum power level will allow us to safely conduct a series of tests and verify the physical characteristics of the reactor core for compliance with the design

requirements, Alexander Belayev, Leningrad II's chief engineer said in a statement. "After these operations are completed and the calculations are received by Rostekhnadzor (Russia's environmental agency), it remains for us to obtain a permit for power start-up and to begin a phased increase in capacity. During the first week of August, engineers conducted more than 50 tests in accord with the physical launch schedule, World Nuclear News reported. Those reviews will help to specify the neutron-physical parameters of the nuclear reactor's first fuel loading and confirm that all the nuclear safety systems are working in a reliable manner.

<https://bellona.org/news/nuclear-issues/2020-09-the-second-reactor-at-russias-leningrad-ii-nuclear-plan-reaches-controlled-minimum-power>

Rosatom sees wider financing options for new build

World Nuclear News, September 11, 2020

Driving investment towards nuclear projects, the topic of World Nuclear Association's Strategic eForum 2020 yesterday, has become "the top priority" for the industry, Ilya Rebrov, the chief financial officer of Rosatom, said in his opening remarks as part of the high-level panel. The opportunities to attract private financing to new-build projects are growing, and the Russian state nuclear corporation hopes to draw on its recent experience in wind energy, he said. Financing is one of the main questions Rosatom's new-build customers have, but the sources and mechanisms of financing vary, he said. A decade ago, Rosatom would offer the traditional industry option of an engineering, procurement and construction contract with, in addition, the "essential regulatory framework services", he said, but in time its "integrated offer" also included the build-own-operate model.

"Nuclear construction projects were typically implemented under state protection and, in rarer cases, private investors could be invited to participate in such projects. Nevertheless the situation is changing now and at present we could really acknowledge that the market for new build will be much broader and, in the case

of the integrated offer of Rosatom, would be supplemented with the financing or co-financing of the project," Rebrov said. "I believe that most new projects in nuclear and other segments of power generation could be implemented with full project financing. It requires quite extensive leverage, the loan could be up to 70% of the total package or even more, the project's operational cashflow is the main source of investment repayment, all project risks have mitigation measures, and investment is secured by the project company's pledged assets," he said.

<https://www.world-nuclear-news.org/Articles/Rosatom-sees-wider-financing-options-for-new-build>

Russian Northern Fleet submarine fires anti-sub missile in Barents Sea

TASS News Agency, September 11, 2020

A Russian Northern Fleet multipurpose submarine fired an anti-submarine missile in the Barents Sea, the fleet's press service told journalists Friday. "The crew of a multipurpose nuclear submarine from one of the Northern Fleet's underwater divisions in the Barents Sea fired an anti-submarine missile at an underwater target as part of practicing anti-submarine tasks," the press service said. According to the press service, the practice missile that was fired carried no actual warhead. "The submarine was confronted by another nuclear submarine from another division, that also mock fired an anti-submarine missile," it added.

<https://tass.com/defense/1199685>

US Department of Commerce, Rosatom poised to extend uranium agreement

TASS News Agency, September 13, 2020

The US Department of Commerce and Russia's nuclear state corporation Rosatom initialed a draft amendment to extend the Agreement Suspending the Antidumping Investigation on Uranium

from the Russian Federation, which expires this year. The amendment, if finalized, will extend the deal to 2040 and “reduce US reliance on uranium from Russia” for the next 20 years.

According to US Secretary of Commerce Wilbur Ross, the proposed amendment “will contribute to the restoration of America’s nuclear energy advantage and protect the domestic industry from dumped Russian uranium.” The Department of Commerce is seeking to finalize the deal no later than October 5, 2020. The Agreement Suspending the Antidumping Investigation on Uranium from the Russian Federation was signed in 1992, with a series of amendments added in 1994, 1996, 1997 and 2008. Under the agreement, the amount of Russian uranium products entering the US market is restricted by special quotas regulating the commercial export of Russian uranium. These quotas were set in 2008 for the last time and are valid through 2020.

<https://tass.com/economy/1200203>

Nuclear arms agreements impossible without factoring in US missile defense – security head

TASS News Agency, September 15, 2020

Multilateral agreements on nuclear weapons are impossible without factoring in the US missile defense system’s potential, Russian Security Council Secretary Nikolai Patrushev said during a video conference with his colleagues from other Shanghai Cooperation Organization (SCO) countries Tuesday.

He named “deterioration of the situation in strategic stability, including the US consistent actions on complete dismantling of its legal basis.” “The global missile defense system, under construction by the US, is a prime example of Washington trying to obtain strategic advantage at the cost of other countries’ security. Meanwhile, we are adamant that achieving viable agreements on nuclear missile issues without factoring in the US missile defense is impossible,” Patrushev said.

<https://tass.com/defense/1201045>

West Asia

G. Iran

IAEA inspects one of two sites in Iran after long stand-off

Reuters, September 4, 2020

Iran has let the U.N. nuclear watchdog inspect one of the two sites it agreed to grant access to after a protracted standoff, while Tehran’s stockpile of enriched uranium has risen further, quarterly reports by the agency said. The International Atomic Energy Agency inspected one of the sites and took environmental samples there, one of the two reports obtained by Reuters said, referring to samples aimed at detecting traces of nuclear material that may have been present. The agency’s inspectors will visit the other site “later in September 2020 on a date already agreed with Iran, to take environmental samples”, the report said. The other report said that Iran’s stock of low-enriched uranium (LEU) rose by 534 kg in the most recent quarter, roughly the same amount as in the previous three months, to 2,105.4 kg.

That is more than 10 times the 202.8 kg limit set by Iran’s 2015 nuclear accord with big powers, which Iran has been breaching in response to Washington’s withdrawal from the deal in 2018 and reimposition of sanctions against Tehran. The stockpile, however, remains far below the many tonnes of enriched uranium Iran had accumulated before the 2015 deal. Tehran is enriching up to a fissile purity of 4.5%, which while above the deal’s 3.67% limit is still far short of the 20% level it achieved before the deal. Roughly 90% purity is considered weapons-grade, suitable for an atomic bomb. Iran agreed on Aug. 26, during the first visit to Tehran by IAEA Director General Rafael Grossi, to allow access for U.N. inspectors to two sites suspected of once hosting covert uranium conversion and nuclear testing activities. While the IAEA says it has the right to examine such sites without permission, Iran objected because at least some of the information about them came

from a trove of documents on its past activities that Tehran's main Middle East adversary, Israel, says it seized inside Iran.

<https://in.reuters.com/article/idINKBN25V273>

Iran capable of producing over 38,000 military parts: Hatami

Tehran Times, September 4, 2020

Defense Minister Brigadier General Amir Hatami has said that despite the sanctions Iran is capable of producing more than 38,000 military equipment and hardware parts. Iran's enemies have made every effort over the past years to stop Iranian factories from operating, Hatami said on Thursday during the opening ceremony of a military exhibit in Tehran. The Defense Ministry, despite all sanctions and pressure, has so far succeeded in making great progress in producing different equipment, he said, Tasnim reported. Hatami said the Islamic Republic is self-reliant and currently is capable of manufacturing over 38,000 military gear parts and equipment without the help of other countries. Ever since the victory of Iran's Islamic Revolution in 1979, the United States and its allies have been taking the country under indiscriminate economic and trade sanctions.

<https://www.tehrantimes.com/news/452033/Iran-capable-of-producing-over-38-000-military-parts-Hatami>

Iran's friends should have defied U.S. sanctions during pandemic - President Rouhani

Reuters, September 5, 2020

Iranian President Hassan Rouhani castigated Iran's friends on Saturday for not standing up to the United States and ignoring U.S. sanctions during the coronavirus pandemic. Iran, with over 380,000 registered cases and over 22,000 deaths from coronavirus, is one of the countries worst hit by the pandemic in the Middle East. "Over the past months since the coronavirus arrived in our country... no one came to our help," Rouhani said in remarks broadcast live on state television. If the United States "had a bit of humanity and

brain", he said, it would have offered to "lift the sanctions for a year because of the coronavirus". But the United States "is far more heartless and evil than those things," he added. Instead, it "imposed new sanctions and pressures on us over these past seven months of coronavirus".

At the same time, "Not a single friendly country told us that in this time of coronavirus and hardship and for the sake of humanity 'we will stand up to America'" and do business with Iran despite threats of U.S. retaliation, Rouhani said. In March, Iranian Supreme Leader Ayatollah Ali Khamenei rejected a U.S. offer to help Iran in its fight against the pandemic, and denounced U.S. leaders as "charlatans and liars".

<https://in.reuters.com/article/idINKBN25W0FL>

Russian diplomat says spirit of cooperation between IAEA and Tehran has prevailed

Tehran Times, September 5, 2020

Mikhail Ulyanov, Russia's permanent representative to the Vienna-based international organizations, has said that the spirit of cooperation between the International Atomic Energy Agency and Tehran prevailed. "It's clear from leaked #IAEA reports that #Iran has started to provide access to locations specified by the Agency. Those who hoped to arrange a crisis around this issue must feel very disappointed. The spirit of cooperation between the IAEA and Tehran prevailed," Ulyanov tweeted.

According to an IAEA report seen by AFP on Friday, Iran has granted the agency's inspectors access to one of the two sites it agreed last week for verification purposes. "Iran provided Agency inspectors access to the location to take environmental samples. The samples will be analyzed by laboratories that are part of the Agency's network," said the report. An inspection at the second site will take place "later in September 2020," the report said. The 35-member IAEA board passed a resolution

in June, demanding access to two old places they claim nuclear work may have been done there.

<https://www.tehrantimes.com/news/452061/Russian-diplomat-says-spirit-of-cooperation-between-IAEA-and>

Iran, Russia underscore nuclear co-op amid U.S. pressure

Tehran Times, September 6, 2020

Iranian Ambassador to Moscow Kazem Jalali and Deputy Head of Russia's Rosatom Company for International Affairs Nikolai Spassky have met to discuss Iran-Russia nuclear cooperation in the face of U.S. pressure. During the meeting, the two sides discussed the developments in bilateral cooperation in the field of peaceful nuclear activities and the obstacles faced by Iran and Russia, Mehr reported.

Jalali and Spassky emphasized the need to continue bilateral collaboration in the face of U.S. attempts to destroy the Iran nuclear agreement, officially called the Joint Comprehensive Plan of Action (JCPOA). The JCPOA was struck between Iran and six world powers, including the U.S., China, Russia, France, Britain and Germany in 2015. After the deal was signed, Iran and Russia started to build the second and third blocks of the Bushehr nuclear power plant.

<https://www.tehrantimes.com/news/452097/Iran-Russia-underscore-nuclear-co-op-amid-U-S-pressure>

Iran, New Zealand hold cooperation commission meeting

September 7, 2020

Iran and New Zealand held their 7th cooperation commission meeting. Iranian Deputy Foreign Minister Abbas Araghchi and his New Zealand counterpart chaired the meeting held through video conference. Various topics, including bilateral political and economic issues, sanctions, latest developments around the 2015 nuclear deal, exchange of experiences in fighting the coronavirus pandemic, and the two countries' position on regional and

international issues were discussed during the meeting.

Araghchi thanked the New Zealand government for supporting the nuclear deal and welcomed its membership in the International Atomic Energy Agency's Board of Governors. He also expressed Iran's readiness to maintain and boost the trade ties with New Zealand with new mechanisms under the pressure of sanctions and the coronavirus outbreak.

<https://www.tehrantimes.com/news/452180/Iran-New-Zealand-hold-cooperation-commission-meeting>

Iran building new production hall for centrifuges in mountains near Natanz

Reuters, September 8, 2020

Iran has begun to build a hall in "the heart of the mountains" near its Natanz nuclear site for making advanced centrifuges, Iran's nuclear chief said on Tuesday, aiming to replace a production hall at the facility hit by fire in July. Iran said at the time that the fire was the result of sabotage and had caused significant damage that could slow the development of advanced uranium enrichment centrifuges. "Due to the sabotage, it was decided to build a more modern, larger and more comprehensive hall in all dimensions in the heart of the mountain near Natanz. Of course, the work has begun," said Ali Akbar Salehi, according to state TV. Natanz is the centrepiece of Iran's enrichment programme, which Tehran says is for peaceful purposes. Western intelligence agencies and the U.N.'s nuclear watchdog (IAEA) believe Iran had a coordinated, clandestine nuclear arms programme that it halted in 2003. Tehran denies ever seeking nuclear weapons.

The Natanz uranium-enrichment site, much of which is underground, is one of several Iranian facilities monitored by inspectors of the International Atomic Energy Agency (IAEA), the U.N. nuclear watchdog. A confrontation between arch foes Tehran and Washington has

worsened since 2018, when U.S. President Donald Trump withdrew from Iran's 2015 nuclear deal with major powers and reimposed sanctions that have crippled Iran's economy.

<https://in.reuters.com/article/idINKBN25Z24K>

Commenting on Natanz explosion is up to SNSC, says nuclear chief

Tehran Times, September 8, 2020

Ali Akbar Salehi, the director of the Atomic Energy Organization of Iran (AEOI), said on Tuesday that he was not authorized to speak about a July explosion at the Natanz nuclear facility and that it was up to a top security body to comment on the explosion. "The Supreme National Security Council should comment on those behind the sabotage incident at the Natanz nuclear plant," Salehi told the Islamic Consultative Assembly News Agency (ICANA) at the sidelines of a security meeting held in the Iranian Parliament.

"The Emirates has launched its first nuclear reactor and is expected to have four nuclear reactors. Saudi Arabia has also made a serious decision to enter this field. Extensive activities have been launched in Turkey in connection with the construction of power plants," Salehi said, adding the parliamentary committee is seeking consultations with the AEOI to assess the security implications of these activities for Iran. He also said the Natanz explosion has been discussed at the committee's past meetings and that the details of the explosion have been clarified. According to the director, the AEOI has taken measures to obtain equipment and to make preparations for producing advanced centrifuges immediately after the explosion occurred at the nuclear facility.

<https://www.tehrantimes.com/news/452231/Commenting-on-Natanz-explosion-is-up-to-SNSC-says-nuclear-chief>

Swiss FM lauds talks with Rouhani on future of nuclear deal

September 8, 2020

Swiss Foreign Minister Ignazio Cassis has said that he had good conversations with President Hassan Rouhani on the future of the 2015 nuclear deal and the region. Rouhani met with Cassis on Monday afternoon. During the meeting, Rouhani said that history has shown that the Iranians do not give in to bullying of a power.

"It has been for many years that the United States has been seeking to eliminate the Islamic Republic system and interfere in Iran's internal affairs. In a miscalculation, Mr. Trump imagined he could bring the Islamic Republic's system to knees in three months through imposing pressure and economic war on Iran," Rouhani stated. Rouhani added that Washington has realized that it will achieve nothing by its sanctions on Iran. However, Rouhani said, "The path is open for the United States whenever it decides to stop making mistakes and make up for its illegal actions and return to the 2231 resolution and the JCPOA."

<https://www.tehrantimes.com/news/452221/Swiss-FM-lauds-talks-with-Rouhani-on-future-of-nuclear-deal>

Iran's military holds annual drill near Strait of Hormuz - state TV

Reuters, September 10, 2020

Iran's military launched an annual drill in the Gulf near the strategic Strait of Hormuz waterway, Iranian state TV reported on Thursday, at a time of high tension between Tehran and Washington. The three-day exercise in the eastern side of the strait in the Gulf of Oman is aimed at improving Tehran's military might to confront "foreign threats and any possible invasion", the commander of the manoeuvre, Admiral Habibollah Sardari, told TV.

Naval, air and ground forces, including submarines and drones, were participating in the drill, called Zolfaghar-99, the report said. There have been periodic confrontations between Iran's elite Revolutionary Guards and the U.S. military in the Gulf in recent years. Washington has accused the Guards' navy of sending fast-attack boats to harass U.S. warships in the strait. The spokesman for the drill, Admiral Shahram Irani, told state TV that the United States had withdrawn drones from the area of the exercise after a warning from Iran. Tehran, which opposes the presence of U.S. and Western navies in the area, holds annual war games in the strait, the conduit for some 30% of all crude traded by sea.

<https://in.reuters.com/article/idINKBN2611AL>

Iran flexes military muscles as tensions simmer in region

Tehran Times, September 12, 2020

As Iran's army holds large-scale military exercises in the country's southern waters, a defense expert tells the Tehran Times that the exercises are meant to send many messages to countries in the region and beyond. The Iranian army began a three-day military exercise in the Sea of Oman and parts of the Indian Ocean. The exercises, codenamed "Zolfaqar-99", are taking place in areas spanning 2 million square kilometers. Units from the Ground Force, Navy, Air Force, and Air Defense participated in the exercises, which is being held under the command of the Army's Zolfaqar base.

New weapons and equipment such as cruise missiles and combat drones have been unveiled or tested during the war games. The new, domestically-manufactured Simorgh drone has hit targets in faraway waters using smart and precision-guided bombs for the first time during an exercise. Simorgh is a long-range operational drone, which can conduct various missions around the clock. Kaman-12 is another Iranian-made drone that was operationalized during the drills. The drone successfully conducted surveillance missions during the exercises.

The army also fired surface-to-surface and coast-to-sea missiles. Deputy Chief of the Army for Coordination Affairs Rear Admiral Habibollah Sayyari has said that the exercises were aimed to "boost preparedness and operational power of the Navy, Air Defense and Ground Force."

<https://www.tehrantimes.com/news/452333/Iran-flexes-military-muscles-as-tensions-simmer-in-region>

Saeed Jalili says Iran-China partnership will neutralize U.S. maximum pressure

Tehran Times, September 13, 2020

Saeed Jalili, a member of Iran's Supreme National Security Council, has said that the Iran-China 25-year comprehensive partnership will make the United States "maximum pressure" campaign against Iran ineffective. During a meeting with heads of Basiji Students at the University of Tehran on Sunday, Jalili said that such partnership must be protected. "However due to certain delays and lack of attention to priorities this plan, after some years, is still at a draft stage," said Jalili who served as Iran's chief nuclear negotiator with the West during the Ahmadinejad presidency.

Jalili, who was secretary of Supreme National Security Council during the Ahmadinejad administration, also noted that interaction with other countries is Iran's principled policy. Government spokesman Ali Rabiei said on June 23 that Iran and China have drafted a 25-year plan for comprehensive cooperation which proves failure of the plots to isolate the Islamic Republic. "This plan proves failure of the United States' policies to isolate Iran, sever Iran's relations with the international community and also to harm Iran's will to expand relations with other countries," Rabiei said during a press conference. He said that the 25-year plan is based on a win-win approach which "heralds long term cooperation". "Recognizing cultural commonalities, encouraging multilateralism, supporting equal rights of the nations and insisting

on domestic development are parts of this plan," the government spokesman explained.

<https://www.tehrantimes.com/news/452423/Saeed-Jalili-says-Iran-China-partnership-will-neutralize-U-S>

Iran spins 1,044 centrifuges at Fordow plant: nuclear chief

Tehran Times, September 13, 2020

Ali Akbar Salehi, the director of the Atomic Energy Organization of Iran (AEOI), announced on Sunday that Iran is currently spinning more centrifuges at the Fordow nuclear facility than the number permitted under a 2015 nuclear deal between Iran and world powers. Under the nuclear deal, officially known as the Joint Comprehensive Plan of Action (JCPOA), Iran is unauthorized to enrich uranium at Fordow. However, Iran resumed enriching uranium there in response to U.S. withdrawal from the JCPOA under a policy of gradually reducing its commitments under the deal in five phases. "We have committed in the JCPOA not to spin these 1,044 centrifuges [at the Fordow plant]. But according to [the policy of] reducing JCPOA commitments we enrich [uranium] as needed and we will stockpile the enriched materials," Salehi, a nuclear physicist, told the Islamic Consultative Assembly News Agency (ICANA).

He said, "The fourth phase of the policy of reducing JCPOA commitments by the Islamic Republic of Iran has been fully implemented. Accordingly, we have activated a wing at Fordow." Salehi was responding to remarks by lawmakers criticizing the AEOI over not implementing the fourth phase of reducing Iran's nuclear commitments. "1,044 centrifuges are enriching uranium at Fordow in accordance with the policies of reducing the JCPOA commitments. So we have done our part completely," the AEOI director pointed out.

<https://www.tehrantimes.com/news/452425/Iran-spins-1-044-centrifuges-at-Fordow-plant-nuclear-chief>

Nuclear chief: Iran able to produce stable isotopes

Tehran Times, September 14, 2020

Director of the Atomic Energy Organization of Iran (AEOI) has said that despite acts of sabotage by the arrogant powers, Iran is currently among the countries that have acquired the technology to produce stable isotopes. Ali Akbar Salehi broke the story as he was speaking at a ceremony in the Shahid Ali Mohammadi nuclear site in Fordow to launch the second phase of the project in producing stable isotopes via gas centrifuge. "In addition to uranium, there are some other elements in the Mendeleev table that they have about 256 stable isotopes," said Salehi, a nuclear physicist.

"In accordance with uranium enrichment project we can enrich those elements," Salehi stated, adding that the stable isotopes of the mentioned elements have a wide range of applications in the fields of industry, health, agriculture, cultural heritage, and archaeology.

<https://www.tehrantimes.com/news/452460/Nuclear-chief-Iran-able-to-produce-stable-isotopes>

Grossi welcomes Iran-IAEA agreement

Tehran Times, September 14, 2020

Rafael Grossi, the director general of the International Atomic Energy Agency, has said that he welcomes an agreement between the Agency and Iran which he hopes "will reinforce cooperation and enhance mutual trust". "We reached agreement on the resolution of the safeguards implementation issues raised by the Agency. The Agency subsequently conducted a complementary access, under the Additional Protocol, at one of the two locations specified by us. Our inspectors took environmental samples which will be analysed. A complementary access at the second specified location will take place later this month," the IAEA's official

website quoted Grossi as saying in an introductory statement to the Board of Governors.

He also said, "My report on Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 covers our activities in the last few months in verifying and monitoring Iran's implementation of its nuclear-related commitments under the Joint Comprehensive Plan of Action." "The Agency continues to verify the non-diversion of nuclear material declared by Iran under its Safeguards Agreement. Evaluations regarding the absence of undeclared nuclear material and activities for Iran continue." Grossi said, "You have also received my report entitled NPT Safeguards Agreement with the Islamic Republic of Iran, which describes the Agency's efforts to clarify questions relating to the correctness and completeness of Iran's declarations under its Safeguards Agreement and Additional Protocol."

<https://www.tehrantimes.com/news/452463/Grossi-welcomes-Iran-IAEA-agreement>

Tehran, Washington to fight at ICJ over sanctions

Tehran Times, September 15, 2020

Tehran and Washington are slated to face off the latest round of their battle over the U.S. sanctions, which were imposed by the administration of Donald Trump, at the United Nations' top court. Back in 2018, Tehran dragged Washington to the International Court of Justice (ICJ) after Trump unilaterally pulled the U.S. out of the historic 2015 nuclear deal that was signed under his predecessor Barack Obama. Following the withdrawal, Washington imposed what it called "the harshest ever sanctions" on Tehran under the banner of a "maximum pressure" policy intended to pressure Iran into negotiating a new deal.

Iran argues that the sanctions brought back by the Trump administration breach the 1955 "Treaty of Amity" between the two countries, signed before the 1979 Islamic Revolution. In October 2018, Iran won an

early victory when the ICJ ordered sanctions on humanitarian goods to be eased until the overall lawsuit is dealt with. At the time, President Hassan Rouhani termed the ICJ's ruling as "unique". "Our nation has the upper hand politically and legally. The public opinion considers Iran a country which abides by its commitments and the U.S. a country which is not loyal to its promises and violates the international regulations," Rouhani said. According to the Associated Press, the U.S. is scheduled to first address the court on Monday about whether judges have jurisdiction in the case, while Iran will speak on Wednesday. The two sides are also clashing over a separate case over the Islamic Republic's bid to unfreeze \$2 billion in assets frozen in the U.S.

<https://www.tehrantimes.com/news/452440/Tehran-Washington-to-fight-at-ICJ-over-sanctions>

H. Turkey

Turkey's foreign policy prompting U.S. to weigh nuclear bomb relocation to Greece

Ahval, September 12, 2020

There is mounting speculation that the United States may be preparing to move to Greece the 50 nuclear warheads it stores in Turkey's southern Ýncirlik base, the Greek City Times said on Saturday. The article pointed to remarks by Turkish President Recep Tayyip Erdoğan that he could kick out the Americans from the air base and efforts by officials in Washington to withdraw from Ýncirlik over Ankara's increasingly "disturbing" foreign policy.

Questions have been looming over the future of the Ýncirlik base, which hosts U.S. nuclear warheads about 100 miles from Turkey's border with Syria, particularly following a period of soaring tensions between Washington and Ankara last year.

https://ahvalnews.com/turkey-us/turkeys-foreign-policy-prompting-us-weigh-nuclear-bomb-relocation-greece-greek-reporter?language_content_entity=en

I. Saudi Arabia

IAEA providing support for Saudi Arabia as it plans to adopt nuclear energy: Saudi TV

Reuters, September 7, 2020

The International Atomic Energy Agency (IAEA) director general Rafael Grossi was quoted on Monday as saying that Saudi Arabia was preparing to adopt nuclear energy and the agency was providing support, Saudi state TV Al-Ekhbariya reported. "Saudi Arabia is interested in nuclear energy and we are working on providing it with the necessary support," Al-Ekhbariya quoted Grossi as saying. The kingdom has said it wants to tap nuclear technology for peaceful purposes and use nuclear power to diversify its energy mix.

<https://in.reuters.com/article/idINKBN25Y1SX>

IAEA in wide-ranging talks with Saudi Arabia on tougher nuclear checks

Reuters, September 14, 2020

The U.N. nuclear watchdog is in wide-ranging talks with Saudi Arabia about tougher supervision of the kingdom's nuclear activities, the agency said on Monday, part of a wider effort to eliminate a "weakness" in the global inspections regime. Saudi Arabia has a nascent nuclear programme that it wants to expand to eventually include proliferation-sensitive uranium enrichment. It is unclear where its ambitions end, since Crown Prince Mohammed bin Salman said in 2018 it would develop nuclear weapons if regional rival Iran did. Riyadh has yet to fire up its first nuclear reactor, allowing its programme to still be monitored under the Small Quantities Protocol (SQP), an agreement with the International Atomic Energy Agency that exempts less advanced states from many reporting obligations and inspections. "We are in conversation with them.

They are interested in developing nuclear energy, for peaceful purposes of course," IAEA chief Rafael Grossi said when asked

about verification in Saudi Arabia. "So it is obvious that when they upgrade their activities including by the introduction of nuclear material in the kingdom, then we will have to have a stronger safeguards system. And nothing makes me think that this is not going to be the case." If Saudi Arabia were to introduce nuclear material into the research reactor in Riyadh that is near completion, it would void the SQP and its exemptions from regular safeguards. The sides are also discussing an extra agreement known as the Additional Protocol that provides for tougher checks including snap inspections at undeclared locations, Grossi said. Asked whether Riyadh should sign up to the Additional Protocol, he said: "We are discussing everything." The talks are part of a push to get 31 states with early versions of the SQP to rescind them or switch to upgraded texts. "This is essential to address a weakness in the IAEA safeguards system," Grossi said in a statement to the IAEA Board of Governors.

<https://in.reuters.com/article/idINL8N2GB4TG>

J. UAE

UAE's Barakah Nuclear Energy Plant connects to national grid & accelerates power plans

Daleen Hassan, Rebecca McLaughlin-Eastham & Salim Essaid

Euro News, September 4, 2020

The UAE is changing the way it powers its future growth. After more than a decade of development & collaboration, the UAE's peaceful nuclear power ambitions are set to be realized, in the form of the Arab world's first dedicated plant. The UAE's Peaceful Nuclear Energy Program was launched in 2008 and coupled with the country's transition to a clean energy era, this has resulted in it becoming the first nuclear operating nation in the Arab Peninsula and the 33rd worldwide.

The heart of operations is the Barakah

plant, located in the Al Dhafra region of Abu Dhabi. Where, following tens of reviews by global bodies like the IAEA (The International Atomic Energy Agency) and hundreds of inspections by the UAE's independent regulator, construction of the final two of the facility's four units is being completed. Barakah is one of the largest and most technologically advanced nuclear energy build projects in the world, developed by the Emirates Nuclear Energy Corporation (ENEC) and its key strategic partners including Korea Electric Power Corporation.

<https://www.euronews.com/2020/09/04/uae-s-barakah-nuclear-energy-plant-connects-to-national-grid-accelerates-power-plans>

East Asia

K. North Korea

No sign North Korea reprocessed plutonium in past year, still enriching uranium, IAEA says

Reuters, September 2, 2020

There is no sign North Korea reprocessed spent fuel from its main nuclear reactor into plutonium in the past year, but it seems to have continued to enrich uranium, the other potential fuel for atom bombs, the U.N. atomic watchdog said. The International Atomic Energy Agency has not had access to North Korea since the secretive communist state expelled its inspectors in 2009. Pyongyang pressed ahead with its nuclear weapons programme and soon resumed nuclear testing. Its last detonation of a nuclear weapon was in 2017. Since its expulsion the agency has been monitoring North Korea's activities from afar, including with satellite imagery.

It is "almost certain" the experimental 5-megawatt reactor at the Yongbyon nuclear complex, which is widely believed to have produced plutonium for weapons, has been shut down since early December 2018, the IAEA said in an annual report here dated Sept. 1 and posted online. There has, however, been no telltale steam at the plutonium reprocessing lab there, suggesting the last batch of spent fuel stayed in the

reactor building. "It is almost certain that no reprocessing activity took place and that the plutonium produced in the 5MW(e) reactor during the most recent operational cycle has not been separated," the IAEA report said, adding that construction appeared to continue on a light-water reactor at Yongbyon. By contrast, vehicle movements and the operation of cooling units at a fuel-rod fabrication plant at Yongbyon suggests North Korea has been producing enriched uranium with centrifuges there, it said. North Korea could also be enriching uranium at a facility just outside Pyongyang known as Kangson that has only attracted attention as a potential enrichment site in recent years here. "The construction of this complex at Kangson took place before the construction of the reported centrifuge enrichment facility at Yongbyon, with which it shares some characteristics," the IAEA said. "If the Kangson complex is a centrifuge enrichment facility this would be consistent with the Agency's assessed chronology of the development of the DPRK's reported uranium enrichment programme," it said, using North Korea's official name, the Democratic People's Republic of Korea.

<https://in.reuters.com/article/idINKBN25T1K6>

US officials, experts raise concern on NK's ramping up in ICBMs

Ahn Sung-mi

Korea Herald, September 3, 2020

Senior US officials and experts on North Korea are increasingly concerned that Pyongyang is ramping up its long-range missile capabilities, with the possibility of introducing a new solid-fueled intercontinental ballistic missile at the upcoming military parade in October. "We know that North Korea is trying to increase the size of its ICBM capabilities, maybe even move to a submarine launched ballistic missile, but we don't know the extent of that," said Rob Soofer, deputy assistant secretary of defense for nuclear and missile defense policy, during a

webinar hosted by the US-based Mitchell Institute for Aerospace Studies on Wednesday (local time).

The introduction of solid-fuel missiles, which are more easily transportable and can be launched with less preparation, would represent a “generation shift” in Pyongyang’s missile technology, from its current liquid fuel-based long-range missiles, the Hwasong 14 and Hwasong 15, he said. “Solid-fueled missiles carry the advantage of being able to stay in a fueled and ready-to-strike state. As a result, they are much more reliable and can be launched faster,” he said, contrasting them with liquid-fueled missiles. “This would allow Pyongyang’s ICBMs to truly be completely mobile, making them harder to detect and destroy in a military conflict.”

http://www.koreaherald.com/view.php?ud=20200903000816&ACE_SEARCH=1

Images suggest North Korea may be preparing launch of submarine missile - think tank

David Brunnstrom

Reuters, September 5, 2020

Satellite imagery of a North Korean shipyard on Friday shows activity suggestive of preparations for a test of a medium-range submarine-launched ballistic missile, a U.S. think tank reported. The Center for Strategic and International Studies said the images it published on its website of North Korea’s Sinpo shipyard showed several vessels within a secure boat basin, one of which resembled vessels previously used to tow a submersible test stand barge out to sea. It said the activity was “suggestive, but not conclusive, of preparations for an upcoming test of a Pukguksong-3 submarine launched ballistic missile from the submersible test stand barge.”

<https://in.reuters.com/article/idINKBN25W02H>

N. Korea shows activity suggesting preparations for SLBM launch: CSIS

Yonhap

Korea Herald, September 6, 2020

Satellite imagery has shown activity at North Korea’s main submarine shipyard in a possible sign that the communist nation could be preparing to test-fire a submarine-launched ballistic missile (SLBM), a US think tank reported. The primary indicator suggesting preparations for an SLBM launch is the presence of vessels at the North’s Sinpo shipyard on the east coast, including one that resembles vessels previously used to tow the test stand barge out to sea, according to the Center for Strategic and International Studies (CSIS).

Another indicator may be the presence of not one but two ROME0-class submarines anchored within the bay of the submarine base on Mayang Island off the coast of Sinpo, the CSIS said in a report on its Beyond Parallel website, citing satellite imagery of the shipyard taken. “These apparent launch preparations might indicate the highly speculated ‘October surprise,’ which would be consistent with Beyond Parallel historical data that shows heightened provocations around US presidential election years,” the report said. An SLBM test has been considered one of the provocative acts that the North could undertake, along with an intercontinental ballistic missile launch. Some experts have warned that Pyongyang could carry out such provocations as an “October surprise” ahead of November’s US presidential election.

http://www.koreaherald.com/view.php?ud=20200906000033&ACE_SEARCH=1

Resumption of N. Korean weapons testing only matter of time: US expert

Yonhap

Korea Herald, September 10, 2020

North Korea appears to be ready to resume its nuclear and weapons testing in the near future, a former US intelligence official said Wednesday, stressing the need for “stronger” incentives or punishment for the communist state. “Another big element we need to think about is that additional weapons testing is probably just a matter of time,” said Markus Garlauskas, a former intelligence officer for North Korea at the Office of the Director of National Intelligence. During a virtual seminar, titled “A New Direction for US Policy on North Korea,” he said that North Korean Kim Jong-un has personally stated that the North is no longer bound by its earlier pledges not to test nuclear and intercontinental ballistic missiles (ICBMs).

“North Korean state media has been very clear that Kim has threatened that there’s going to be a new strategic weapon reveal, and that he no longer feels bound by his previous pledges not to test ICBMs and nuclear weapons,” Garlauskas told the webinar hosted by the Washington-based US Institute for Peace. “And so if you take all those assessments, it paints a pretty, pretty unpleasant picture,” he added. North Korea has maintained its moratorium on nuclear and ICBM testing since late 2017, when it staged its sixth and last nuclear test.

http://www.koreaherald.com/view.php?ud=20200910000136&ACE_SEARCH=1

North Korea ready to produce newest weapons: report

Choi Si-young

Korea Herald, September 11, 2020

Kim Jina, a research fellow at the Korea Institute of Defense Analyses, a Defense Ministry-affiliated think tank, made the claim after analyzing the communist regime’s import items. Despite the sweeping

sanctions imposed by the United Nations, loopholes remain, she stressed. “North Korea imported in 2018 bulks of pumps and aluminum that go with liquid or hybrid rocket engines, among other components,” she said, adding that such items continued to be shipped there despite a reduction in total imports.

The isolated country has also been buying dual-use items that could be used for weapons production and are not subject to the United Nations ban. North Korea tested new rockets and missiles in March and leader Kim Jong-un, in a New Year’s address, vowed to introduce “new strategic weapons” this year. While the import data suggested preparations for the production stage, it was unclear how far Pyongyang had advanced in terms of weapons technology, the report said.

http://www.koreaherald.com/view.php?ud=20200908000978&ACE_SEARCH=1

Kim put ‘conditions’ on denuclearization three months after first summit: Woodward

Yonhap

Korea Herald, September 14, 2020

North Korean leader Kim Jong-un began putting conditions on denuclearization three months after his first-ever summit with US President Donald Trump in 2018, a soon-to-be-published book showed. In his upcoming book, “Rage,” Washington Post journalist Bob Woodward also noted that correspondence between Kim and Trump “increased in both frequency and affection” following their first summit held in June 2018. “I just have arrived back in America, and the media for North Korea and you has been fantastic,” Trump wrote to Kim on June 15, three days after the two met in Singapore in one of 27 letters exchanged between the two leaders disclosed in the Woodward book.

In response, Kim wrote back on July 6, saying, “The significant first meeting with Your Excellency and the joint statement that we signed together in Singapore 24

days ago was indeed the start of a meaningful journey,” according to excerpts of the book obtained by Yonhap News Agency. Kim began putting conditions on denuclearization about three months later. “We are willing to take further meaningful steps one at a time in a phased manner, such as the complete shutdown of the Nuclear Weapons Institute or the Satellite Launch District and the irreversible closure of the nuclear materials production facility,” Kim said in his Sept. 6 letter. It was not clear whether Kim had also listed his demands in return, based on what appears to be parts, not the entirety of his letter included in the book set to be published Tuesday. Still, Woodward pointed out, “Historically the US had rejected conditions outright.”

http://www.koreaherald.com/view.php?ud=20200914000171&ACE_SEARCH=1

NK unlikely to test submarine missile to mark anniversary: defense minister nominee

Choi Si-young

Korea Herald, September 14, 2020

South Korea’s nominee for defense minister, Gen. Suh Wook said Monday that North Korea is unlikely to test a submarine-launched ballistic missile around Oct. 10, given the short preparation time between now and then, when it celebrates the anniversary of the foundation of its ruling party. “No activity involving an imminent SLBM launch is seen,” the sitting Army chief said in a written answer submitted to the parliamentary defense committee set to open a hearing Wednesday to look into Suh, who has been appointed as the new defense chief. When asked about reports that discussed a potential SLBM launch, Suh attributed the activity in question to Pyongyang’s flood recovery effort. The North has recently seen facilities flooded nationwide by typhoons. The Center for Strategic and International Studies said Wednesday that satellite images suggested Pyongyang may be preparing to launch a SLBM at its Sinpo South Shipyard along the east coast, though the US think tank described the evidence as inconclusive.

The North has yet to make the SLBM combat-ready. And it continues to beef up submarine capabilities, though it was hard to ascertain whether the North was able to muster technologies to come up with an advanced submarine, Suh said. Suh added he was expecting neither a ballistic missile launch nor a nuclear test from Pyongyang in the near future. Meanwhile, the defense chief nominee expounded on what he described as two-sided approaches in engaging the North. “North Korea is a military threat, and at the same time, an entity with which to seek exchanges for peace and unification,” Suh said.

http://www.koreaherald.com/view.php?ud=20200914001002&ACE_SEARCH=1

N. Korea seen enriching uranium at nuclear facility: IAEA chief

Choi Si-young

Korea Herald, September 15, 2020

North Korea’s nuclear activity is still a serious concern and its pursuit of nuclear weapons is a clear violation of the UN Security Council resolutions, Rafael Mariano Grossi, director general of the International Atomic Energy Agency, told the IAEA board members. Noting monitoring is limited because UN nuclear inspectors are not allowed in North Korea, the IAEA chief said Pyongyang appeared to have continued to operate nuclear facilities. UN inspectors were expelled from the North in April 2009. “There were indications consistent with the production of enriched uranium at the reported centrifuge enrichment facility at Yongbyon,” he said. It was likely that the North has continued activity at the experimental light-water reactor, though the 5-megawatt reactor and the Radiochemical Laboratory showed no signs of operation, he added.

http://www.koreaherald.com/view.php?ud=20200915000810&ACE_SEARCH=1

L. South Korea

Top S. Korean, US nuclear envoys stress need to resume dialogue with NK

Ahn Sung-mi

Korea Times, September 4, 2020

Seoul and Washington's top nuclear envoys spoke on the phone Wednesday, reiterating the need to resume the stalled dialogue with Pyongyang as soon as possible. Lee Do-hoon, special representative for Korean Peninsula peace and security affairs, and his US counterpart – Deputy Secretary of State Stephen Biegun, who doubles as Washington's chief nuclear envoy – shared their assessment of the situation on the Korean Peninsula and reaffirmed the need for an early resumption of talks with Pyongyang to make progress in achieving complete denuclearization and lasting peace on the Korean Peninsula, the Foreign Ministry said.

"The two sides consulted on ways to create conditions to push for negotiations," the ministry said in a statement. "Korea and the US agreed to closely communicate and cooperate on North Korea's nuclear (programs) and other issues bilaterally and multilaterally by actively utilizing planned international diplomatic events."

http://www.koreaherald.com/view.php?ud=20200902000811&ACE_SEARCH=1

Moon's adviser calls for 'six-party security summit' to discuss N.K. nuclear issue

Yonhap

Korea Times, September 4, 2020

A special security adviser to President Moon Jae-in on Friday suggested reviving the six-party talks on North Korea's nuclear program in the form of a six-way summit, saying the issue is not a matter only between Washington and Pyongyang. Moon Chung-in, special adviser for diplomatic and security affairs, made the remark during a security forum hosted by the Korea Institute for National Unification, stressing the

importance of a "top-down approach" in efforts to resolve the issue.

"We need to revise the six-party talks that we failed in the past and we need to hold a 'six-party security summit' so that the leaders can discuss the issue of security and come up with an agreement on common security," he said. "This way, we can solve the North Korean nuclear issue and materialize cooperative security," he added. Moon pointed said "the North Korean nuclear issue cannot be simply solved by improving the U.S.-North Korea relations as asserted by Pyongyang" and called for a meeting of leaders from six countries – the two Koreas, U.S., China, Japan and Russia.

http://www.koreaherald.com/view.php?ud=20200904000802&ACE_SEARCH=1

Typhoon Haishen interrupts operations of nuclear reactors on southeast coast

Yonhap

Korea Herald, September 7, 2020

South Korea's state-run nuclear plant operator said Monday that the operations of two of its reactors on the country's southeastern coast were interrupted due to Typhoon Haishen, which is currently passing the country. "The turbines were automatically stopped due to a malfunction in the reactors' cable facilities due to the typhoon," the Korea Hydro & Nuclear Power Co., which operates Wolsong Nuclear Power Plant, said in a statement.

There has been no radiation exposure or other safety issues despite the disruptions at the No. 2 and No. 3 reactors, it added. "We plan to carry out more investigation and take necessary measures," the company said. Typhoon Haishen, the season's 10th typhoon, has brought the country under its influence with heavy rains and strong winds, the weather agency said.

http://www.koreaherald.com/view.php?ud=20200907000785&ACE_SEARCH=1

Doosan Heavy signs deal to provide artificial sun project with pressurizers

Yonhap

Korean Herald, September 9, 2020

South Korea's power plant builder Doosan Heavy Industries & Construction Co. said Wednesday that it has signed a deal to provide pressurizers to the global artificial sun project consortium. Under the deal signed with the International Thermonuclear Experimental Reactor (ITER) consortium launched in late 2006, Doosan Heavy Industries along with its British subsidiary Doosan Babcock will provide pressurizers by 2022, the company said in an emailed statement.

The pressurizers will be used to retain pressure and protect from overpressure of the heat exchange system to be mounted on the reactor that started to be put together last month, the company said, without giving details on the amount of the deal. South Korea joined in the ITER consortium in 2003, which also includes the European Union, the United States, Japan, Russia, China and India.

http://www.koreaherald.com/view.php?ud=20200909000557&ACE_SEARCH=1

Trump, Kim both promise lasting friendship, but only time will tell: Woodward

Yonhap

Korea Herald, September 15, 2020

US President Donald Trump and North Korean leader Kim Jong-un both claim to have formed a special and close friendship, but only time will tell if their friendship is genuine, famed Washington Post journalist Bob Woodward writes in his soon-to-be released book, "Rage." "Trump has personally said they are 'love letters,' Woodward writes in his upcoming book, referring to 27 letters exchanged between Trump and Kim that he has obtained. "They are more than that — they reveal a decision by both to become friends. Whether genuine

or not, probably only history will tell," he says, according to excerpts of his new book obtained by Yonhap News Agency.

Woodward notes the North Korean leader, more frequently than Trump, used what he calls "verbose flattery" while he says both Trump and Kim used language that might be "uttered by the Knights of the Round Table or perhaps suitors." Trump still promises permanent friendship outright.

http://www.koreaherald.com/view.php?ud=20200915000221&ACE_SEARCH=1

South Korea says no use of nuclear weapons in joint operational plans with U.S.

Hyonhee Shin

Reuters, September 15, 2020

South Korea said on Tuesday none of its joint military action plans with the United States include any use of nuclear weapons, after a book by a U.S. journalist sparked debate over whether scenarios of a full-blown war with North Korea would entail a nuclear attack from either side. In his new book, titled "Rage," Washington Post associate editor Bob Woodward wrote that the United States had devised plans for a possible armed clash with North Korea, such as "the U.S. response to an attack that could include the use of 80 nuclear weapons." The book was based on multiple interviews with U.S. President Donald Trump. The passage fuelled debate in South Korea over whether it meant Washington or Pyongyang would detonate 80 bombs against each other.

Seoul's defence ministry said its joint operational plans (OPLAN) with the United States did not include any use of nuclear weapons, reiterating the view of the presidential office. A presidential official said on Monday there must not be another war on the peninsula and any use of force cannot be implemented without South Korea's consent. "I can say clearly that the use of a nuclear weapon does not exist in our OPLANs, and it is impossible to use military force without our

agreement," the official told reporters. Seoul officials say there appears to be confusion in the book because the OPLAN 5027 it referred to was not designed for nuclear war but to map out troop deployment plans and key targets. "It might indicate the maximum levels of the bombs the North could resort to in an all-out war, but the number itself is too high and hardly comprehensible in any case without clear contexts," said Kim Hong-kyun, a former South Korea nuclear envoy.

<https://in.reuters.com/article/idINKBN2661PS>

M. Japan

Safety measures OK'd for facility to store spent nuclear fuel

The Asahi Shimbun, September 3, 2020

The Nuclear Regulation Authority on Sept. 2 approved the basic safety policy of Japan's planned first storage facility for spent nuclear fuel outside of a nuclear power plant. Recyclable-Fuel Storage Co. (RFS) plans to start operations at its storage center in Mutsu, Aomori Prefecture, from fiscal 2021. The government describes the storage center as an intermediate facility, but local government officials fear the site will end up being a permanent home for spent nuclear fuel.

The government desperately needed the site because storage facilities on the grounds of nuclear power plants were filling up with spent fuel. Capacity had reached 75 percent at those plants as of the end of March, according to the Federation of Electric Power Companies of Japan (FEPC). RFS was established jointly by Tokyo Electric Power Co. and Japan Atomic Power Co. in 2005. The Mutsu facility will use metal casks about 5 meters high with double lids to tightly seal in the spent nuclear fuel.

<http://www.asahi.com/ajw/articles/13693318>

2011 Fukushima nuclear disaster museum to open in Futaba town

The Asahi Shimbun, September 7, 2020

A new 5.3 billion yen (\$50 million) museum here is entrusted with the mission of keeping

lessons from one of the world's worst nuclear disasters alive. The museum of the Great East Japan Earthquake and nuclear disaster in Futaba, Fukushima Prefecture, which co-hosts the crippled Fukushima No. 1 nuclear plant, is now complete and waiting to welcome visitors on Sept. 20. It will feature firsthand accounts from survivors of the massive earthquake, tsunami and nuclear power plant accident, which devastated areas of Japan's Tohoku region in March 2011, and an array of artifacts reflecting the events.

The museum's collection includes roughly 150 items selected from the 240,000 items that the prefectural government collected after the triple disaster. Exhibition floors are divided into six zones by themes such as "responses to the nuclear accident" and "challenges for reconstruction." A video detailing the natural disaster and subsequent meltdown at the Fukushima No. 1 nuclear power plant, operated by Tokyo Electric Power Co., will be shown on a giant screen.

<http://www.asahi.com/ajw/articles/13705514>

Hitachi to exit stalled British nuclear power project - Mainichi newspaper

Reuters, September 15, 2020

Japanese conglomerate Hitachi Ltd will completely exit a stalled British nuclear power project, the Mainichi daily newspaper reported on Tuesday, a withdrawal that would deal a blow to Britain's plans to replace aging plants.

Hitachi's board of directors could make a formal decision as early as at their planned meeting on Wednesday, the paper said, citing sources. In a statement, Hitachi said the Mainichi report is not based on information disclosed by the company. "At this time, no formal decision has been made in this regard," it said. Hitachi last year froze the 3 trillion yen (\$28 billion) project, at Anglesey, Wales, and booked a writedown of 300 billion yen on its British nuclear unit, as the project failed to find private investors. Sources at the time said

Hitachi had called on the British government to boost financial support for the project. The Mainichi report on Tuesday said Hitachi's exit comes as the company sees little chance of progress regarding additional support from the British government, a condition that Hitachi has said would be necessary for project resumption.

<https://in.reuters.com/article/idINL4N2GB4HM>

N. Misc

S.Africa's Eskom expects 2021 replacement of generators at nuclear plant

Reuters, September 10, 2020

South African power utility Eskom said on Thursday it was on track to install six new steam generators at its Koeberg nuclear power plant in 2021, with the first already in transit and expected to arrive in Cape Town later this month. The 4.3 billion rand (\$258 million) project, which was unsuccessfully challenged in court by Westinghouse following its award to then French rival Areva, is seen as crucial for South African attempts to prolong Koeberg's operations. The original generators, which have U-tube piping susceptible to cracking, are heat exchangers used to convert water into steam from heat produced in a nuclear reactor core.

Africa's only commercial nuclear power plant situated close to Cape Town, Koeberg has two pressurised water reactors generating around 1,940 megawatts of power and in operation since 1985. "We are on track and progressing according to plan for installation during the next unit 1 and 2 outages," said an Eskom spokeswoman. "Three steam generators have been completely built and the remaining three for Koeberg Unit 2 are progressing well, even given the Covid-19 pandemic and consequences on productivity," the spokeswoman added. It is anticipated that the first set of generators will be replaced in February next year and the second set in September 2021 during scheduled refuelling maintenance, with each unit potentially offline for four months. Each weighing

around 366 tonnes, the generators are being assembled in China before shipped across to South Africa and then transported on flat-bed trucks to their destination. The old radioactive generators will be stored in a temporary site at Koeberg, Eskom said, before being finally disposed of underground "as complete and sealed units" at South Africa's remote Vaalputs radioactive storage facility in the Northern Cape.

<https://in.reuters.com/article/idINL8N2G71WZ>

Lithium giant Albemarle locks horns with Chile over reserves data

Dave Sherwood

Reuters, September 10, 2020

Albemarle, the world's largest lithium producer, is locked in a feud with Chilean regulators over how it calculates its reserves of the ultralight metal, a potential risk to its plans to ramp up production. Regulators are demanding extra information on reserves Albemarle holds in the lithium-rich Atacama salt flat, according to a non-public regulatory filing seen by Reuters. The U.S.-based miner told Reuters that the information it has provided already goes beyond Chilean requirements. Albemarle won approval in 2016 to hike its production from the Atacama flat, by far the biggest source of supply in South America's so-called 'lithium triangle.'

Its export permit requires the miner prove its reserves can sustain the increased output. That information is provided to Chilean nuclear agency CCHEN, which oversees lithium exports. Should CCHEN decide that Albemarle is not complying with its rules, it could suspend that permit. The high-stakes feud comes as Albemarle pushes to expand production in Chile and take control of Australia's Greenbushes, the world's largest lithium mine, to meet an expected tripling in demand for the key battery metal by 2025 as automakers produce more electric vehicles. Globally,

both companies and countries are racing to secure the resources necessary to ramp up EV production, including copper, cobalt and lithium.

<https://in.reuters.com/article/idINL1N2G602J>

O. Op-Ed

India

India's Ambitious Nuclear Power Plan – And What's Getting in Its Way

Niharika Tagotra

The Diplomat, September 9, 2020

As India embarked on its commercial nuclear power production in 1969, its nuclear power program was conceived to be a closed fuel cycle, to be achieved in three sequential stages. These stages feed into each other in such a way that the spent fuel generated from one stage of the cycle is reprocessed and used in the next stage of the cycle to produce power. This kind of a closed fuel cycle was designed to breed fuel and to minimize generation of nuclear waste. The stage at which India is currently at in its nuclear power production cycle will be a major determinant of the future of nuclear power in India. The three-stage nuclear power production program in India had been conceived with the ultimate objective of utilizing the country's vast reserves of thorium-232. It is important to note that India has the world's third largest reserves of thorium. Thorium, however, cannot be used as a fuel in its natural state. It needs to be converted into its usable "fissile" form after a series of reactions. To aid this and to eventually produce nuclear power from its thorium reserves, Indian scientist Dr. Homi J. Bhabha drew the road map of the three-stage nuclear program.

In the first stage, Pressurized Heavy Water Reactors (PHWRs) will be used to produce energy from natural uranium. PHWRs do not just produce energy; they also produce fissile plutonium (Pu)-239. The second stage involves using the indigenous Fast Breeder Reactor technology fueled by Pu-239 to produce energy and more of Pu-239. By the

end of the second stage of the cycle the reactor would have produced more fissile material than it would have consumed, thus earning the name "Breeder." The final stage of the cycle would involve the use of Pu-239 recovered from the second stage, in combination with thorium-232, to produce energy and U-233 – another fissile material – using Thermal Breeders. This production of U-233 from thorium-232 would complete the cycle. U-233 would then be used as fuel for the remaining part of the fuel cycle. As of now, India produces about 6.7 GW power from nuclear fuel from its 22 nuclear power plants, effectively contributing 1.8 percent to the total energy mix. This is way lower than the vision of the Department of Atomic Energy (DAE), which hoped to produce at least 20 GW of nuclear power by 2020, and at least 48 GW by 2030. While India has successfully completed the first stage of its nuclear fuel program, the second stage is still in the works and has taken much longer than expected. The first 500 MW Pressurized Fast Breeder Reactor (PFBR) BHAVINI, being set up in Kalpakkam, Tamil Nadu, is still in the process of being commissioned and has suffered from significant time and cost overruns. It is expected to be ready by 2022-23, with an estimated total cost of a whopping 96 billion Indian rupees.

<https://thediplomat.com/2020/09/indias-ambitious-nuclear-power-plan-and-whats-getting-in-its-way/>

China

China's mystery experimental spacecraft 'could be part of Shenlong space plane project'

Liu Zhen

South China Morning Post, September 8, 2020

China's "experimental reusable spacecraft" that has just completed its first test flight may have been a space plane, according to sources, in what would be a step towards a craft that could potentially be developed for military applications

including to strike satellites or ballistic missiles.

Details of the spacecraft have not been released, but the secretive mission was hailed for “key breakthroughs” by state news agency Xinhua on Sunday after the craft landed safely following two days orbiting the planet. It said the spacecraft was launched with a Long March-2F rocket from the Jiuquan satellite centre in Inner Mongolia. Only one image of the rocket on the launch pad was released, and there were none of the mysterious spacecraft itself and no other information was given.

<https://www.scmp.com/news/china/diplomacy/article/3100750/chinas-mystery-experimental-spacecraft-could-be-part-shenlong>

Nation planning scientific station on the moon

Zhao Lei

China Daily, September 9, 2020

China plans to establish a scientific station on the moon and has started preparatory research, according to a key figure in the country’s lunar exploration program. “The next steps in our lunar exploration endeavor will be challenging and demanding as we aim to set up a scientific outpost on the moon’s south pole. In the near future, we will also send our astronauts to land on the moon,” said Wu Weiren, chief designer of China’s lunar exploration program and an academician of the Chinese Academy of Engineering. He is now working on the planning and feasibility research on the proposed station and the lunar program’s fourth step. The scientist made the remarks at a ceremony on Tuesday at the China National Space Administration that announced the naming of an asteroid after him.

The asteroid was discovered in August 2007 by researchers at the Xuyi Station in Jiangsu province’s Xuyi county, which belongs to the Chinese Academy of Sciences’ Purple Mountain Observatory in Nanjing. The move was approved by the International Astronomical Union in June to honor his

significant contribution to China’s lunar and deep-space exploration programs. In China’s most recent lunar mission, the Chang’e 4 robotic probe, which consists of an unmovable lander and a rover named Yutu 2, was lifted atop a Long March 3B carrier rocket in December 2018 at the Xichang Satellite Launch Center in Sichuan province, marking the country’s fourth lunar exploration and the world’s first expedition to the far side of the moon, which never faces Earth.

<https://global.chinadaily.com.cn/a/202009/09/WS5f581650a310675eafc585c4.html>

Will China upgrade its destroyers with ‘carrier killer’ missiles?

Liu Zhen

South China Morning Post, September 12, 2020

China’s Type 055 guided-missile destroyers have the potential to be refitted with “aircraft carrier killer” missiles but the weapons would have to be lighter and smaller than existing land-based technology, observers said. The assessment comes as the military nears the end of another phase in its massive naval expansion programme. The eighth and final Type 055 was launched in Dalian, Liaoning province, at the end of last month, meaning that its structure is complete and it is in the process of being fitted with equipment. The first in the series has been commissioned and the others are also being fitted out. The 12,000-tonne warship is considered the one of the world’s most powerful multi-role surface combat ships, because it can be fitted with various armaments including anti-ship cruise missiles, surface-to-air missiles, anti-submarine weapons and land-attack cruise missiles.

But there has been speculation that future destroyers could be upgraded to a new “Type 055A” variant or even an entire new class produced capable of firing “carrier killers”. According to an analysis by US-based Military Watch Magazine, one possibility is upgrading the power

system into an integrated fully electric propulsion system, enabling high-energy weapons like laser or electromagnetic guns. The People's Liberation Army already has "carrier killers" in its arsenal but these are part of the heavy land-based Dongfeng (DF) range. Two of these missiles – the DF-21D and DF-26B – were fired by the PLA Rocket Force from the Chinese mainland into the South China Sea last month. The Rocket Force also has the DF-17, the world's first hypersonic glide missile in service. There have been no reports of these land-based missiles being adapted for use by the PLA Navy, although the Pentagon's 2020 China military power report said that when operational, the Type 055 would carry anti-ship ballistic missiles.

<https://www.scmp.com/news/china/military/article/3101244/will-china-upgrade-its-destroyers-carrier-killer-missiles>

USA

America vs. Russia: Brinksmanship With Nuclear Bombers Risks Starting a Disastrous War

Jason Ditz

National Interest Blog, September 12, 2020

In the past few months, the Black Sea is a lot less quiet than it ought to be. A mostly land-locked sea with decades of treaties designed to keep interlopers from sending warships into the area willy-nilly, the source of tension is in the skies, with U.S. planes showing up just outside of Russian airspace. There have been times where such interceptions are reported twice or even thrice a week, usually with Russian Su-27 fight jets intercepting U.S. Navy surveillance planes that were moving to the outskirts of Russia's airspace.

This culminated at the end of August, with an overflight by U.S. strategic bombers of the entire NATO alliance. Nominally a show of solidarity, it quickly became provocation when one of the bombers, a nuclear-capable B-52, made a beeline for the Black Sea, and

headed for Russian airspace. An interception followed, and the usual U.S. complaining about how "unprofessional" that was. An incident with spy planes happened at the same time.

<https://nationalinterest.org/blog/skeptics/america-vs-russia-brinksmanship-nuclear-bombers-risks-starting-disastrous-war-168851>

Russia

The U.S. Navy's Seawolf Submarine Just Sent a Message to Russia

Caleb Larson

The National Interest Blog, September 4, 2020

The Seawolf-class is one of the most expensive class of vessels ever built for the United States Navy. The nuclear-powered fast attack submarines were originally supposed to be twenty-nine in number, though the end of the Cold War coupled with their high \$3 billion price tag resulted in just three completed Seawolf-class hulls. Compared to the preceding Los Angeles-class submarines they were to replace, the Seawolves are both larger and faster with a higher weapon loadout—eight 21-inch heavyweight torpedo tubes compared to the Los Angeles-class' four tubes. Each Seawolf carries fifty torpedoes onboard, and although they lack vertical-launch missile capabilities, they can fire Tomahawk cruise missiles via their torpedo tubes.

One of the Seawolves, the USS Jimmy Carter, is about 100 feet, or 30 meters longer than the other two Seawolves, and is thought to have several unique capabilities. It is also one of the newest submarines in the United States Navy, and was commissioned in 2005.

<https://nationalinterest.org/blog/buzz/us-navys-seawolf-submarine-just-sent-message-russia-168371>

West Asia

Iran

West should fulfil its obligations under nuclear deal'

Tehran Times, September 9, 2020

Mojtaba Zonnour, the chairman of the Parliament's National Security and Foreign Policy Committee who met with French Ambassador to Tehran Philippe Thiebaud on Wednesday, said that the Western countries should fulfil their obligations under the 2015 nuclear deal, known as the JCPOA. Violation of the deal to accompany the United States in imposing sanctions on Iran is unacceptable, he added.

Elsewhere, he said that security and stability in the region should be established by the regional countries without any foreign interference. Thiebaud, for his part, said that France opposes the U.S. withdrawal from the nuclear deal, adding that consultation among the parties can help keep the deal.

<https://www.tehrantimes.com/news/452269/West-should-fulfil-its-obligations-under-nuclear-deal>

Niger rejects U.S. bid to restore UN sanctions on Iran

Tehran Times, September 4, 2020

In the latest blow to the U.S. push to trigger a snapback of UN sanctions on Iran, Niger, the president of the UN Security Council for September, reaffirmed a rejection of a U.S. complaint against Iran at the Security Council. On August 20, U.S. Secretary of State Mike Pompeo lodged a complaint with the Council accusing Iran of violating its commitments under a 2015 nuclear deal between Iran and world powers. Pompeo announced that the U.S. has initiated a 30-day process to restore all UN sanctions on Iran. The process, known as the snapback mechanism, faced firm opposition from most UN Security Council member states including Indonesia, the council president for August.

Indonesia UN Ambassador Dian Triansyah Djani said that he, as the Council president,

was "not in the position to take further action" because there was "no consensus in the Council." Earlier, thirteen of the 15-member UN body rejected what Pompeo called U.S. "notification" to the Council regarding Iran's compliance with the deal. Most Council's members said that the U.S. had no legal authority to submit a notification to the UN Security Council and start the snapback process because it withdrew from the nuclear deal on May 8, 2018, and thus it has lost all participants' rights envisaged in the deal including the right to trigger the return of UN sanctions. However, the U.S. keeps insisting that it has the right to trigger the snapback process, a mechanism built into the 2015 nuclear deal that allows participants to restore international sanctions on Iran in case it breached the deal.

<https://www.tehrantimes.com/news/452003/Niger-rejects-U-S-bid-to-restore-UN-sanctions-on-Iran>

Trump achieved nothing by pressuring Iran, says professor

Tehran Times, September 10, 2020

An Iranian university professor says U.S. President Donald Trump has achieved nothing by putting pressure on Iran. In an interview with IRNA published on Tuesday, Mahdi Nourbakhsh said Trump has no foreign policy achievement to present to the American public in the upcoming presidential elections. Pointing to the U.S. failure in the United Nations to reimpose international sanctions on Iran, Nourbakhsh said the U.S. will need nine votes in favor if it wants to hold a UN Security Council emergency meeting and approve an anti-Iran resolution. "But, the U.S. does not have those votes, because when it presented the resolution to extend arms embargo on Iran, none of the United Nations Security Council members except for Dominican Republic voted for the resolution," he said. In May 2018, Trump withdrew his country from the Iran nuclear deal, officially called the Joint Comprehensive Plan of Action (JCPOA), and introduced the "toughest ever

sanctions” on Iran. Meanwhile, Washington has accused Tehran of violating the JCPOA and attempted last month to reimpose the UN sanctions on the Islamic Republic.

However, in a joint letter to the Security Council on Thursday hours after the U.S. submitted its complaint, Britain, Germany and France said: “Any decisions and actions which would be taken based on this procedure or on its possible outcome would also be devoid of any legal effect.” According to Nourbakhsh, that was the first time in the history of the UN that the United States faced such a defeat and could not get what it wished. He argued that the U.S.’s unilateral approach is the most important reason behind its defeat.

<https://www.tehrantimes.com/news/452288/Trump-achieved-nothing-by-pressuring-Iran-says-professor>

UAE

UAE’s Nuclear Power Pivot Comes At A High Cost

Viktor Katona

Oil Price, September 9, 2020

The United Arab Emirates have just become the first Arab nation to operate a nuclear plant as its 5.6GW Barakah nuclear plant achieved criticality on its Unit 1 in the first week of August. The pressurized water reactor has received its operating license this February and has been in a test regime throughout the past 6 months, placating regional fears that the Arab Peninsula’s first nuclear plant might experience some difficulty in operation. The Barakah nuclear plant’s Unit 2 is expected to be fully ready by the winter season of 2020/2021, whilst Units 3 and 4 are nearing completion (construction works are 90% done), suggesting that the pioneering UAE reactor might become a steady part of the country’s energy matrix in the upcoming 1-2 years. The underlying question, however, is the cost thereof – was nuclear power a necessity for the Emirati economy?

The idea of utilizing nuclear energy within the Arabian Peninsula emerged in the mid-

2000s when six member states of the Gulf Cooperation Council set out to assess the prospects of nuclear in the region. All of them, at that point spearheaded by Saudi Arabia, signed the Non-Proliferation Treaty by that point – in most cases the rationale for developing nuclear lied in rapidly increasing electricity needs on the back of surging populations. The UAE took on the task more zealously than the others and by late 2009 it had set up its Nuclear Energy Corporation (ENEC) and subsequently selected KEPCO’s bid to build four APR1400 reactors at the Barakah site. The total value of the contract rose to some \$24 billion, almost \$4 billion more than initially presumed.

<https://oilprice.com/Alternative-Energy/Nuclear-Power/UAEs-Nuclear-Power-Pivot-Comes-At-A-High-Cost.html>

East Asia

Risk of nuclear war and N. Korea

Tong Kim

The Korea Times, September 7, 2020

With the continuing nuclear and missile development by China and North Korea, amid a prolonged stalemate on nuclear talks with the North, the existential risk of a nuclear conflict – either between China and the U.S. or between North Korea and the U.S. – is lingering, if not rising, in Northeast Asia. For a quarter of a century, the United States has tried and failed different forms and approaches to denuclearizing North Korea. It failed with the 1994 Agreed Framework, the 2004 joint statement of the 6-party talks, the 2012 Leap Day agreement, and the 2018 Singapore summit agreement.

Did neither the Non-Proliferation Treaty (NPT), which Pyongyang joined in 1986 and withdrew from it in 2003, nor well-intended arms reduction treaties help prevent North Korea’s breakout as a de facto nuclear state? The NPT has three goals: non-proliferation, nuclear disarmament, and the peaceful use of nuclear energy. Under the NPT, non-nuclear-weapon states pledge not to

acquire or manufacture nuclear weapons, and the five recognized nuclear states – the U.S., Russia, China, Britain, and France – agree not to transfer nuclear weapons to or assist non-nuclear states in developing a nuclear weapon.

http://www.koreatimes.co.kr/www/opinion/2020/09/137_295556.html

Korea faces new missile guidelines

Alex Soohoon Lee

Korea Times, September 9, 2020

South Korea and the United States have recently agreed to new missile guidelines that allow Seoul to use solid fuel for space launch vehicles, yet the range of its missiles stays the same as before. From the perspective of national security, the new missile guidelines brings about several positive changes, such as enhancing surveillance and reconnaissance capability. However, there are issues that must be balanced. What are the implications of these new guidelines? Are they good for the South Korea-US alliance? How do they affect South Korea in general? To answer them, it is crucial to review the history of South Korea's missile development and examine the opportunities that the country Korea may encounter after implementing the new guidelines.

First, South Korea's missile development program has historically been limited by proliferation concerns and the US alliance, not technical constraints as in the case of North Korea. South Korea's ballistic missile development program was first initiated in 1971 under then-President Park Chung-hee. Henceforth, South Korea signed a memorandum of understanding (MOU) in 1979 with the United States which set the maximum capacity of ballistic missiles to a range of 180km with a payload of 500kg which was just enough for South Korean ballistic missile to reach Pyongyang but not beyond.

http://www.koreatimes.co.kr/www/opinion/2020/09/137_295711.html

P. Reports/Interviews

DOD Official Outlines U.S. Nuclear Deterrence Strategy

David Vergun

US Dept of Defense, September 2, 2020

There is broad, bipartisan support for the modernization of the nuclear triad, which includes bombers, intercontinental ballistic missiles, submarines and the systems that control them, a Defense Department expert said.

Robert Soofer, the deputy assistant secretary of defense for nuclear and missile defense policy, also said support is more divided for the creation of W76-2, which is a class of low-yield, tactical nuclear warhead that is different from those in the nuclear triad. An example would be a submarine-launched ballistic missile nuclear warhead.

<https://www.defense.gov/Explore/News/Article/Article/2334600/dod-official-outlines-us-nuclear-deterrence-strategy/>

Speech: World(s) of possibilities with nuclear technology

World Nuclear News, September 8, 2020

Milestones achieved within a recent two-week period demonstrate what nuclear technology is all about, what it is doing and can do for humanity, Agneta Rising, World Nuclear Association director general, said ahead of the Association's Strategic eForum 2020.

"Recently, just two weeks showed the amazing potential of nuclear technology. From 20 July to 1 August we saw progress in construction and the start-up of reactors around the world; new nuclear research facilities offering the potential for advances in nuclear physics, waste management and medical treatments; steps being taken towards the start-up of fuel recycling facilities; and nuclear technology allowing us to explore new worlds. On 20 July, the first of 163 nuclear fuel assemblies was loaded into unit 2 of the Leningrad II nuclear power plant, marking the

beginning of the process towards start-up of the reactor. When it enters service the unit will become the fourth VVER-1200 in operation. Similar reactors are under construction in Bangladesh, Belarus, and Turkey, bringing nuclear generation to those countries for the very first time over the next four years.

On the same day in Belgium, researchers succeeded accelerating a proton beam for the first time through a radio frequency quadrupole (RFQ). The RFQ is a component of the particle accelerator that will drive the Myrrha sub-critical research reactor. This reactor will be used to demonstrate the concept of transmutation of long-lived radionuclides into shorter-lived elements; a process that one day may be used to treat nuclear waste. It will also produce radioisotopes for medicine. Used primarily for diagnosis, radioisotopes are used for tens of millions of medical procedures each year.

<https://www.world-nuclear-news.org/Articles/Speech-Worlds-of-possibilities-with-nuclear-techno>

Future energy system must include nuclear, says panel

World Nuclear News, September 10, 2020

A high-level panel of senior political figures and experts from leading international energy organisations yesterday discussed how nuclear energy can address some of the most pressing issues the world is facing. The discussion took place during the first session of World Nuclear Association's Strategic eForum 2020. Opening the event - titled Building a stronger and cleaner tomorrow with nuclear energy - World Nuclear Association Director General Agneta Rising said the world has many challenges to tackle simultaneously: climate change, the post COVID-19 pandemic recovery and supplying ever more electricity around the world.

International Atomic Energy Agency (IAEA) Director General Rafael Grossi, the first panellist, said: "There is something very unique about the circumstances we are all living in now. It has to do with the fact that,

for the first time, we are all operating under a global pandemic situation, which means, apart from the obvious evident health considerations that go with it, that we are, together with national financial institutions, looking at the necessary ingredients for economic recovery and how to make it sustainable." The energy component of this recovery, including the use of nuclear power, is crucial, he said. Investment in the long-term operation of existing reactors is also essential, he said.

<https://www.world-nuclear-news.org/Articles/Future-energy-system-must-include-nuclear-says-pan?feed=feed#:~:text=A%20high%20level%20panel%20of,issues%20the%20world%20is%20facing.>

Q. Think tanks

Russia in the Asia-Pacific: Less Than Meets the Eye

Eugene Rumer, Richard Sokolsky and Aleksandar Vladicic

Carnegie Endowment for International Peace, September 3, 2020

Much has been written about Russia's so-called pivot to the Asia-Pacific since its 2014 invasion of Ukraine and break with the West, but there is less to this supposed strategic shift than meets the eye. The country is and will remain a European—rather than an Asian—power by virtue of its history, strategic culture, demographics, and principal economic relationships.

The Asia-Pacific will remain important for Russia's foreign policy primarily because of its growing strategic partnership with China, a rapprochement that began not in 2014 but in 1989. Moscow's other economic, military, security, and diplomatic interests in the region are of much less importance, and it will subordinate these interests to the overriding priority of maintaining and strengthening its critical geopolitical relationship with Beijing.

<https://carnegieendowment.org/2020/09/03/russia-in-asia-pacific-less-than-meets-eye-pub-82614>

India–China border dispute: the curious incident of a nuclear dog that didn't bark

Ramesh Thakur and Manpreet Sethi

Bulletin of Atomic Scientists, September 7, 2020

On June 15, nuclear-armed China and India fought with fists, rocks, and clubs along the world's longest un-demarcated and contested boundary. Twenty Indian soldiers were killed; Indian estimates put the Chinese dead at around 40. The two countries remain in a state of military standoff.

Like the case of the dog that didn't bark, which interested the great fictional detective Sherlock Holmes, the nuclear dimension of the recent border clashes was conspicuous by its invisibility. This may be in part because of the nuclear no-first-use policy expressed in the official nuclear doctrines of both countries. At a time when geopolitical tensions are high in several potential nuclear theaters, the nuclear arms control architecture is crumbling, and a new nuclear arms race is revving, there is a critical need to look for ideas that can prevent potential crises from escalating. Other nuclear powers can learn from China's and India's nuclear policies.

<https://thebulletin.org/2020/09/india-china-border-dispute-the-curious-incident-of-a-nuclear-dog-that-didnt-bark/>

Is nuclear deterrence in the cards for India and China

Pulkit Mohan

Observer Research Foundation, September 11, 2020

The recent Ladakh military standoff between India and China has drawn significant concern and coverage due to its escalatory nature and the increasingly tense relationship between neighbors. The skirmishes resulted from Beijing's objection to India's construction of a road in the Galwan valley, with tensions spiraling into an intense standoff and casualties on both sides. The standoff, which has stretched over a 100-day period, has added to the growing

concern in New Delhi about an increasingly militarily aggressive China.

Given the nuclear-armed status of both India and China, there has been buzz around the possibility of nuclear escalation as a result of unresolved territorial disputes. In order to address the nuclear question, it is useful to examine both the relevance of both countries' deterrence policies to the current scenario and how these policies have played out across previous conflicts between India and China. Both countries have adopted nuclear policies of credible minimum deterrence and No First Use (NFU). Therefore, a change in the aforementioned policies (or lack thereof) coupled with the absence of nuclear signaling and/or escalation in previous conflicts, indicates that a change in future deterrence policies by either country remains unlikely.

<https://www.orfonline.org/research/is-nuclear-deterrence-in-the-cards-for-india-and-china/>

With climate change, aging nuclear plants need closer scrutiny. Turkey Point shows why.

Caroline Reiser

Bulletin of the Atomic Scientists, September 14, 2020

Last December, two nuclear reactors at Florida's Turkey Point Nuclear Generating Station, located 25 miles south of Miami, became the first reactors in the world to receive regulatory approval to remain operational for up to 80 years, meaning reactors that first came online in the 1970s could keep running beyond 2050. The ages of the Turkey Point reactors are not unusual; of the 95 reactors currently licensed to operate in the United States, only five are less than 30 years old, while more than half are 40 or more years old. The Turkey Point reactors are a bellwether, just the first of possibly many aging nuclear reactors that will seek permission to stay online well into the middle of the century. Not long after the December decision, in March 2020, the US Nuclear Regulatory Commission granted two more

reactors, located in Pennsylvania, the same extensions that it gave Turkey Point.

In pursuing these extensions, the US commercial nuclear industry and its supporters collide with the realities of the aging US nuclear fleet and climate science projections. Existing safety and environmental requirements fail to provide the oversight necessary to ensure communities and the environment are protected. As nuclear reactors receive permission to operate for twice as long as originally envisaged, and in a world that, because of climate change, is drastically different from the one they were built for, the insufficiency of the existing regulatory framework is daunting.

<https://thebulletin.org/2020/09/with-climate-change-aging-nuclear-plants-need-closer-scrutiny-turkey-point-shows-why/>

U.S. Modifies Arms Control Aims with Russia

Arms Control Association, September, 2020

The Trump administration has softened its demand that China immediately participate in trilateral nuclear arms control talks with the United States and Russia and says it is now seeking an interim step: a politically binding framework with Moscow that covers all nuclear warheads, establishes a verification regime suitable to that task, and could include China in the future. Still, the administration continues to oppose an unconditional five-year extension of the 2010 New Strategic Arms Reduction Treaty (New START) and wants Moscow's support for limiting all types of U.S. and Russian nuclear warheads and strengthening the New START verification regime as a condition for prolonging the treaty.

Russia supports an unconditional extension and says that it will not agree to any changes to New START. The impasse continues to cast an ominous shadow over the future of the last remaining arms control agreement limiting the U.S. and Russian nuclear arsenals five months before it is slated to expire.

<https://www.armscontrol.org/act/2020-09/news/us-modifies-arms-control-aims-russia>

Status of World Nuclear Forces

Hans M. Kristensen and Matt Korda

Federation of Academic Scientists, September, 2020

The number of nuclear weapons in the world has declined significantly since the Cold War: down from a peak of approximately 70,300 in 1986 to an estimated 13,410 in early-2020. Government officials often portray that accomplishment as a result of current or recent arms control agreements, but the overwhelming portion of the reduction happened in the 1990s. Some also compare today's numbers with that of the 1950s, but that is like comparing apples and oranges; today's forces are vastly more capable. The pace of reduction has slowed significantly compared with the 1990s. Instead of planning for nuclear disarmament, the nuclear-armed states appear to plan to retain large arsenals for the indefinite future, are adding new nuclear weapons, and are increasing the role that such weapons play in their national strategies.

Despite progress in reducing Cold War nuclear arsenals, the world's combined inventory of nuclear warheads remains at a very high level: roughly 13,410 warheads as of early-2020. Of these, nearly 9,320 are in the military stockpiles (the rest are awaiting dismantlement), of which some 3,720 warheads are deployed with operational forces, of which about 1,800 US, Russian, British and French warheads are on high alert, ready for use on short notice.

<https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>

Contribute Articles

Indian Pugwash Society welcomes research articles from students, researchers and faculties on Space, Missile, nuclear technology, WMD proliferation, arms control, disarmament, export controls and other related issues. Articles should be crisply written and should address contemporary debates in the policy arena. Manuscripts submitted for the consideration of the Indian Pugwash Society should be original contributions and should not have been submitted for consideration anywhere else. For further assistance, please contact us at : indianpugwashsociety@gmail.com

The Indian Pugwash Society aims to promote the study, discussion, and knowledge of and to stimulate general interest in, and to diffuse knowledge in regards to problems relating on WMD proliferation, arms control, disarmament, space security, export controls, nuclear technology and other related issues. This newsletter is part of the project "Emerging Nuclear Order in Asia: Implications for India" sanctioned to us by Department of Atomic Energy-Board of Research in Nuclear Sciences (DAE-BRNS).

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