International Essay Competition on Nuclear Security for Students and Early Career Professionals

Report of Contributions

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THE UPCOMING NUCLEAR SECURITY IN CHINA:SUBSTAINING AND STRENGTHENING

Introduction

International Atomic Energy Agency (IAEA) defines nuclear security as "The prevention and detection of and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive substances or their associated facilities". This covers nuclear power plants and all other nuclear facilities, the transportation of nuclear materials, and the use and storage of nuclear materials for medical, power, industry, and military uses. China is a nuclear-weapon state and rising power entering an era of particularly rapid nuclear energy growth and fuel-cycle development. China's approach to strengthening the security of its nuclear weapons, materials, and facilities is important because of the quantity of materials involved and the role that China plays in facilitating strong global action on nuclear security.

President Xi announced a slew of new measures to shore up the nuclear security of China, the country with the fastest growth of nuclear power worldwide. China, he said, will build a network for capacity building on nuclear security, by using the existing platforms, such as the Center of Excellence on Nuclear Security jointly built by Beijing and Washington in China, to carry out training of nuclear security professionals, exercises and exchanges regarding nuclear security technologies. NTI has been working to strengthen nuclear security engagement between China, the U.S. and others. On November 3, 2015, NTI and the China Institutes of Contemporary International Relations (CICIR) jointly organized a scenario-based table-top simulation focused on how China and the United States can strengthen cooperation to prevent or respond to nuclear smuggling and related incidents.

Therefore, in this essay I will Recommend next steps for strengthen Nuclear security in China. China should take further steps to install a complete, reliable, and effective security system, ensuring that all of its nuclear weapons, weapon-usable nuclear materials, nuclear facilities, and nuclear transports are effectively protected against the full spectrum of plausible terrorist and criminal threats. A number of steps would be helpful to further improve China's nuclear security.

Updating, Enforcement Needed

China should update its regulations and rules by issuing rules and regulations that are clearer and more stringent, based on at least the minimum DBT standard described above. Although Beijing has pledged to adopt almost all of the existing international legal frameworks to prevent nuclear terrorism, China needs to effectively incorporate these frameworks into its domestic regulations and rules to strengthen its nuclear security on the ground.

Implementing and enforcing new regulations and rules are more difficult than establishing them. To ensure effective implementation, the government and operators should take several steps. For example, regulatory agencies should be adequately staffed with personnel possessing appropriate expertise. The government should have a regime of clear rewards and strict penalties to ensure compliance with its regulations and with international norms. The enforcement regime should include a review of records of the security performance of the companies being evaluated for contracts involving work with nuclear weapons or materi¬als.

In addition, China should have the ability to deploy and coordinate effective responses to threats to nuclear facilities or nuclear materials in transit. Finally, regulators should review implementa¬tion practices to confirm that operators can protect against the DBT for a given nuclear facility. Just as with nuclear safety, the focus should be on constantly working to find and fix remaining vulnerabilities and establish more-effective approaches.

Improving Cyber Security Requirements at Nuclear Facilities.

Cyber security is defined as all processes and mechanisms by which any digital equipment, information or service is protected from unintended or unauthorized access, change or destruction. Cyber security as a component of nuclear security means the range of measures enacted to prevent, detect, or respond to the theft of Category I nuclear material or the sabotage of a nuclear facility

that could result in catastrophic consequences through cyber-attacks, either alone or combined with physical attacks. Recently, strengthening cyber security at nuclear facilities has become an important topic in the nuclear security area. Past years, the licensing process for nuclear facilities in China does not cover cyber security for systems relevant to safety and security, though regulators are beginning to pay attention to these issues.

China have number of policies, regulations, and guidance documents relevant to cyber security, but they all generally refer to the security of computer and information systems, and do not include specific provisions that relate to protecting against hacks that would compromise physical protection or material accounting, for example.

Strengthening Security Culture

To make sure that nuclear security systems are actually implemented effectively, the future of china nuclear security should base on strengthening security culture. Chinese leaders have repeatedly emphasized the importance of promoting nuclear security culture at the last decade Chinese leaders have repeatedly emphasized the importance of promoting nuclear security culture at the last three nuclear security summits. From 2007 to 2013, CAEA and U.S Department of Energy (DOE) conducted several workshops on nuclear security culture. After it was addressed CAEA has paid more attention to building nuclear security culture.

Managers and employees at Chinese nuclear plants should recognize the importance of advanced and stringent material protection, control, and accounting systems. Some managers doubt whether it is worth the money and time to establish and maintain a stronger security system. In some cases, the guards turned off detectors at portals for enrichment facilities to reduce their usage to avoid the need for frequent replacement. In some cases, operators or relevant personnel who want to maintain a good record and avoid punishment downplay or conceal some faults. This act is also knows as Bolstering Nuclear Security Culture.

Conclusion

Nuclear terrorism threat is a top priority in Washington, Beijing's cooperation on the issue would benefit the Sino-U.S. relationship. Moreover, the increase in terrorism in China may someday pose serious threats to Chinese nuclear facilities. This possibility is particularly troubling because of the fact that by 2030, China will be home to the largest number of nuclear reactors in the world. Further, Beijing's active participation in building a robust global nuclear security system would improve its international image.

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