



UNITED STATES AIR FORCE
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Welcome to [USAF Center for Strategic Deterrence Studies](#) News and Analysis. As part of the CSDS mission to develop [U.S. Air Force](#), [Department of Defense](#), and other [government](#) leaders to advance the state of knowledge, policy, and practices within strategic defense issues involving nuclear, biological, and chemical weapons, we offer the government and civilian community a source of contemporary discussions.

Feature Paper

[“Nuclear Weapons Technology 101 for Policy Wonks”](#). Bruce T. Goodwin, Center for Global Security Research, Lawrence Livermore National Laboratory; August 2021.

"There is thus today a clear need to impart to the new generation of nuclear policy experts the necessary technical context. That is the purpose of this paper. Specifically, to: introduce a new generation of nuclear policy experts to the technical perspectives of a nuclear weapon designer, explain the science and engineering of nuclear weapons for the policy generalist, review the evolution of the U.S. approach to nuclear weapons design, explain the main attributes of the existing U.S. nuclear stockpile, explain the functions of the nuclear weapons complex, and show how all of this is integrated to sustain future deterrence." [Read Paper](#).

Nukes and Deterrence, Counter-WMD, and Arms Control in News and Research

NUCLEAR WEAPONS AND DETERRENCE

- [The Cold, Cold War: Rear Admiral Richard Byrd, Antarctic Expeditions, and the Evolution of America's Strategic Interest in the Polar Regions](#) (Arctic Institute)

Because a nuclear strike would come over the North Pole, Byrd argued that American strategists now had to consider polar preparedness as vital to national defense.

- [Europe's Evolving Deterrence Discourse](#) (Center for Global Security Research/LLNL)

Rebuilding deterrence dialogue in response to a shifting strategic landscape is one important step in strengthening not only the transatlantic partnership, but also European security.

- [LANL's Improperly Stored Nuclear Safes Raise Larger Concerns](#) (Santa Fe New Mexican)

Federal officials want the lab to produce 30 of the softball-sized pits a year by 2026. They also hope to have Savannah River Site in South Carolina manufacture an additional 50 pits yearly in the 2030s.

- [China's Nuclear Development Outstrips Predictions; 1,000 Warheads by 2030](#) (Air Force Magazine)
- Air Force Secretary Frank Kendall, speaking at AFA's Air, Space & Cyber Conference in September, foreshadowed the report, saying that, in his view, China is "developing a first-strike capability."

- [Russian Nuclear Weapons Stand Out in Defense Budget Request](#) (Defense News)

The funding proposal to upgrade Russia's nuclear arsenal comes as the military awaits new hypersonic missiles to replace its Soviet-era strategic weapons.

COUNTER-WMD

- [Soldiers, Airmen, Marines Test New Chemical Agent Detection Systems](#) (U.S. Army)
Soldiers ... along with Marines ... went hands-on with the Aerosol and Vapor Chemical Agent Detector (AVCAD) and the Multi-phase Chemical Agent Detector (MPCAD).
- [Israel Launches New Inflatable Missile Tracking System](#) (Breaking Defense)
The aerostat is ... essentially a blimp tethered to the ground with a long-range radar developed almost entirely from annual Foreign Military Financing funds provided to Israel from the US.
- [Time After Time's Up](#) (DTRA via DVIDS)
Medical countermeasures (MCMs) known as "resurrectors" may one day be incorporated into the combination antidote for nerve agents and organophosphate (OP) pesticides

US ARMS CONTROL

- [How Not to Dismantle an Atomic Bomb](#) (RAND)
The author argues that ... the United States and its allies should adopt a "something-for-something" strategy that gradually establishes a framework for managing Pyongyang's nuclear capability
- [Deterring Chinese Strategic Attack: Grappling with the Implications of China's Strategic Forces Buildup](#) (Atlantic Council)
What are the implications of this buildup for international security, and what can the United States and its allies do about it?
- [North Korean Uranium Mining Picked Up From 2017 to 2020](#) (Defense One)
Satellite photos show accelerated mining efforts but the meaning of the activity is still unclear.

COMMENTARY

- [AUKUS, US Allies and the Age of Conditional Proliferation](#) (International Institute for Strategic Studies)
"Washington's willingness to share highly sensitive nuclear technology as part of the AUKUS deal serves as confirmation of a significant US policy shift."
- [The West Cannot Rescue Arms Control Alone](#) (Carnegie Europe)
"The global arms control regime is disintegrating. To reverse this trend, Europe and the United States will have to find a way to engage both Russia and China."
- [New Tech Will Erode Nuclear Deterrence. The US Must Adapt](#) (Defense One)
"The old model of strategic nuclear deterrence is increasingly threatened by a new suite of military technologies, from hypersonic missiles and advanced missile defenses to non-kinetic cyberattacks."

