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National Nuclear Security Administration

Year in Review

- The 2018 Nuclear Posture Review was published, setting a clear course to modernize the Nuclear Security Enterprise for 21st century threats.
- More than 98 percent of the total weapons production run of the W76-1 Life Extension Program has been completed.
- The Final Design Review for the B61-12 confirmed the design meets requirements and the program remains on track for First Production Unit in 2020.
- The Nuclear Weapons Council certified NNSA's recommended alternative for recapitalization of the plutonium pit production mission, calling for repurposing of the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site and producing pits at Los Alamos National Laboratory.
- NNSA and Sandia National Laboratories successfully launched a scientific instrument-carrying rocket for the first time since the 1990s to support stockpile stewardship.
- NNSA labs, plants, and sites took home 13 R&D 100 Awards, known as the "Oscars of Invention."
- The Sierra supercomputer at Lawrence Livermore National Laboratory was ranked second-fastest in the world, according to the Top500 list.
- The United States and United Kingdom commemorated the 60th anniversary of the U.S.–U.K. Mutual Defense Agreement.
- The National Ignition Facility at Lawrence Livermore and Z machine at Sandia National Laboratories once again pushed the envelope in the field of high energy density science with record performances for output.
- The ongoing Source Physics Experiments at the Nevada National Security Site improved the Nation's confidence in determining the yield and depth of underground nuclear explosions regardless of geology.

60th Anniversary of the U.S.–U.K. Mutual Defense Agreement


Los Alamos National Laboratory

U.S. Navy's 150th Spent Fuel Canisters in Dry Storage

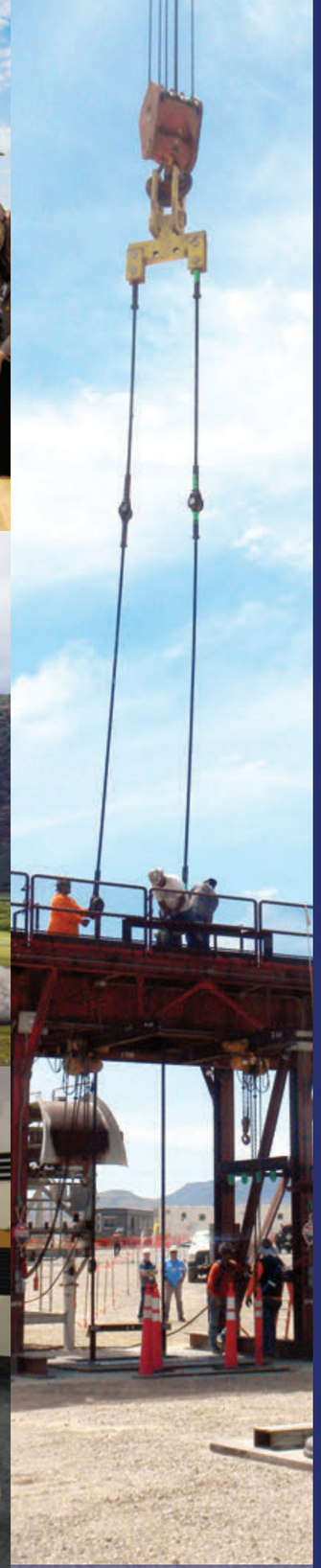

Sierra Supercomputer at Lawrence Livermore National Laboratory


Cesium Irradiator Replacement Project


Z machine at Sandia National Laboratories

Emergency and Continuity of Operations

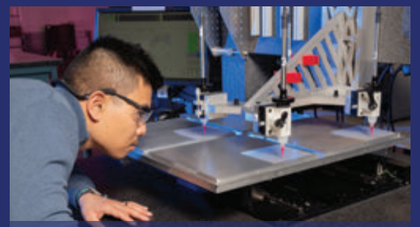
- NNSA removed or confirmed disposition of more than 280 kilograms of highly enriched uranium from four countries – enough material for more than 11 nuclear weapons.
- Working with the IAEA, China, and Nigeria, NNSA was instrumental in the conversion of Nigeria's research reactor to low enriched uranium fuel and the repatriation of its highly enriched uranium (HEU) to China, making Nigeria the 33rd country plus Taiwan to become HEU free.
- NNSA's partnership with the U.S. healthcare industry resulted in the first domestic production of molybdenum-99 (Mo-99) in 30 years. A vital medical radioisotope, Mo-99 is used in approximately 40,000 patient procedures daily in the United States.
- At Georgetown University Hospital, NNSA conducted its 50th removal of a high-activity radioactive source as part of the Cesium Irradiator Replacement Project.
- NNSA's Naval Reactors continued its unblemished record of safe nuclear propulsion and is contributing its expertise to the U.S. Navy's Columbia Class program, which will ensure required sea-based deterrence capabilities for decades.
- The Naval Reactors Facility at Idaho National Laboratory placed the U.S. Navy's 150th spent fuel canister into dry storage.
- The Radiological Assistance Program, the Nation's preeminent radiological/nuclear incident response capability, marked its 60th anniversary.
- NNSA's counterterrorism expertise was called upon for special events like the Super Bowl, Boston Marathon, Macy's Thanksgiving Day Parade, the lighting of the Rockefeller Center Christmas Tree, and the G20 Buenos Aires Summit to ensure safety and security from radiological threats.
- NNSA led the emergency operations and continuity of operations mission for the entire Department of Energy, conducting numerous exercises and drills to ensure 24/7 readiness.
- The Uranium Processing Facility at the Y-12 National Security Complex remained on track and on budget, facilitating the start of construction on the main buildings.
- The John C. Drummond Center opened at the Pantex Plant, providing a modern work environment for more than 1,100 employees and replacing 52 Cold War-era facilities.



Source Physics Experiments

- Ground was broken on the Albuquerque Complex Project, a 333,000 square-foot project that will provide modern workspace for 1,200 employees.
- A new Advanced Manufacturing Facility at the Kansas City National Security Campus will support additive manufacturing technologies.
- The Los Alamos National Laboratory Transuranic Waste Facility project was completed $2 million under budget and four months ahead of schedule.
- In a joint venture with NASA, NNSA completed final design, fabrication, and full-power testing of a nuclear criticality experiment that can be used for a manned lunar or Mars space mission.
- NNSA successfully awarded and transitioned the Management and Operating (M&O) contract for Los Alamos National Laboratory – the third successful M&O contract transition in the last two years and the fifth since 2014.
- An integrated plan to recruit the next generation of scientists, engineers, and technicians for the enterprise was launched by NNSA. With over 350 new hires, staffing reached a five-year high of 98 percent.
- Over $65 million in grants were awarded to academic institutions across the Nation to support fundamental research relevant to NNSA's stockpile stewardship mission.

Safety and Security at Special Events



Advanced Manufacturing Facility

NNSA Graduate Fellowship Program

YEAR IN REVIEW

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NNSA YEAR IN REVIEW 2018