

1949-2024



Highlights from SANDIA'S HISTORY

Sandia National Laboratories began in 1945 as Z Division, the ordnance design, testing and assembly arm of Los Alamos. The Division moved to Sandia Base near Albuquerque to access an airfield and work with the military. Ultimately, growth prompted separation from Los Alamos. On November 1, 1949, Sandia Corporation, a wholly owned subsidiary of Western Electric, began managing Sandia. Sandia was made a national laboratory by 1979 legislation. In 1993, Sandia Corporation became a Martin Marietta (later, Lockheed Martin) company. On May 1, 2017, National Technology and Engineering Solutions of Sandia, LLC, a Honeywell International, Inc., company assumed management of Sandia.

- 1949** Given on-going responsibilities for stockpile surveillance. Provided surveillance personnel at the nation's nuclear weapon storage sites until 1960.
- 1950s** Developed low-maintenance components for the wooden bomb concept, in which a weapon could sit ready in the stockpile for years with little maintenance.
- 1956** Opened a second laboratory in Livermore, California.
- 1958** Shock-resistant components and parachute systems enabled lay down delivery of nuclear bombs.
- 1960** Tonopah Test Range replaced the Salton Sea Test Base as Sandia's permanent test range.
- 1960** The science of terradynamics emerged from earth-penetrator design efforts.
- 1960** Introduced the Permissive Action Link to prevent unauthorized use of nuclear weapons.
- 1960** Laminar Flow Clean Room designed.
- 1962** Strypi rocket launched carrying a nuclear device for the high-altitude Dominic nuclear test series.
- 1962** Began B61 design program to create a flexible lightweight tactical thermonuclear weapon.
- 1962** Began work on an independently targeted warhead fully integrated with its reentry vehicle; led to Navy contract for the Poseidon's Mark 3 reentry body.
- 1963** Sandia data processing, logic, and power systems on Vela satellites launched to detect nuclear detonations.
- 1966** Helped locate the nuclear bomb lost in an aircraft collision over Palomares, Spain. In 1968, established an independent safety group to assess weapon designs.
- 1970** Introduced Safe Secure Trailer for transporting nuclear weapons; later designed and tested accident resistant containers for nuclear materials.
- 1972** Began research and training in counter-terrorism.
- 1973** Initiated research on enhanced fossil fuels recovery, solar, wind, photovoltaics and fusion.
- 1974** Named technical advisor on the Waste Isolation Pilot Plant; WIPP received its first shipment of transuranic waste in 1999.
- 1980** Named geotechnical adviser for the nation's Strategic Petroleum Reserve.
- 1981** Combustion Research Facility opened at Sandia/CA; available to researchers world-wide.
- 1983** Contributed to the assessment of countermeasures and vulnerability of the Strategic Defense Initiative.
- 1983** Published research on strained layer superlattices, materials that allow scientists to tailor semiconductors.
- 1984** Factored the 69-digit Mersenne number as part of the effort to test and challenge weapon security codes.
- 1991** Sandia-advanced synthetic aperture radar (SAR) used in Desert Storm.
- 1993** Received mission assignment for neutron generator production.
- 1994** Cooperative Monitoring Center began hosting arms control specialists from around the world.
- 1995** Enhanced testing and computing infrastructure in response to the Science-Based Stockpile Stewardship Program.
- 1996** Sandia/Intel ASCI Red machine achieved 1.06 teraflops; it eventually reached a peak of 3.2 teraflops and remained the fastest computer in the world into 2000.

MAKING HISTORY, SHAPING THE FUTURE



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- 1997** NASA's Pathfinder space probe arrival on Mars cushioned by airbags designed by a Sandia/Jet Propulsion Laboratory team.
- 1998** Sandia staff members recognized for disarming a small bomb without destroying it, preserving vital evidence in the Unabomber case.
- 2001** Sandia- and Pantex-developed Weigh and Leak-Check robotics system moved its first radioactive nuclear material.
- 2001** Sandia-developed decontamination foam used to neutralize anthrax in buildings on Capitol Hill.
- 2003** Red Storm replaced ASCI Red. One of the most influential machines of its era, its calculations enhanced support to multiple programs.
- 2004** Distributed Information Systems Laboratory dedicated at Sandia/CA, providing a test-bed for new advanced technologies.
- 2007** Microsystems and Engineering Sciences Applications (MESA) facilities opened, providing a research environment combining expertise in nuclear weapon design, microsystems, high performance computing and computational simulation.
- 2008** The W76-1 Life Extension Program (LEP) achieved its first production unit.
- 2010** Assisted in ending the massive oil leak from the BP Macondo Well's damaged wellhead.
- 2010** Emulytics™ platform introduced to provide cyber analysis and cyber training on large-scale, heterogeneous networked systems.
- 2011** Provided analysis of the Fukushima Daiichi nuclear power complex reactor condition and plume migration. By the following year Sandia-developed and UOP-manufactured crystalline silico-titanates (CSTs) had been used to remove radioactive material from more than 43 million gallons of contaminated wastewater.
- 2011** U.S. Army Space and Missile Defense Command conducted first test flight of the Advanced Hypersonic Weapon from Sandia's Kauai Test Facility.
- 2012** Introduced SpinDx lab-on-a-disk platform for critical patient data analysis in a matter of minutes. In 2015, added BaDx—a standalone, self-destructing device to detect anthrax. By 2019, SpinDx was able to do nucleic acid tests to search for genetic codes in any virus, parasite, or bacteria while detecting toxin proteins.
- 2014** Transferred Copperhead—a modified MiniSAR system mounted on unmanned aerial vehicles and used to uncover IEDs—to the U.S. Army.
- 2015** Began development work on the Mobile Guardian Transporter, the third-generation secure system for over-the-road transport of weapons and special nuclear materials.
- 2017** Served as lead technical integrator on an Intermediate Range Conventional Prompt Strike Flight Experiment-1 flight test collecting data on hypersonic boost-glide technologies.
- 2018** New START inspectors deployed a new generation of Sandia-designed radiation detection equipment originally developed for Intermediate-Range Nuclear Forces Treaty monitoring.
- 2018** The Mk21 program built, tested and delivered two flight-quality Arming and Fuzing Assemblies (AFAs) to the U.S. Air Force for ICBM flight testing.
- 2018** Astra achieved petaflops performance. It is the first advanced prototype platform deployed to evaluate emerging high-performance computing technologies for stockpile stewardship.
- 2019** W80-4 LEP entered Phase 6.3, development engineering.
- 2019** Building on three decades of design and testing of hypersonic vehicles, Sandia formed Autonomy New Mexico, an academic research coalition with a mission to create artificially intelligent aerospace systems.
- 2019** Submitted a patent for the Whetstone software tool, which sharpens the output of artificial neurons, allowing neural computer networks to process information up to a hundred times more efficiently.
- 2020** Covid-19 response included new practices to protect the workforce, research to identify and track the virus, a variety of technology for protecting against it, and increased donation to those suffering ill effects.
- 2020** Successful compatibility test of a mock B61-12 at Tonopah Test Range. The device was released from the internal bomb bay of an F-35A Lightning II at greater than the speed of sound.
- 2021** Sandia and Goodyear developed the Tread Tester, a breakthrough virtual method to show a tire's performance before building any prototypes.
- 2021** The W88-0/Mk5 Alteration 370 system successfully delivered the first production unit, signifying completion of the first mark-quality war reserve W88 ALT 370 system.
- 2021** Explosive Technologies Group stood up the Labs' first internal production capability for explosive components.
- 2021** Sandia's UAS Research and Engineering Center chartered and in operation at request of DOE and NNSA.
- 2023** Patented method for integrating microscale optical devices, including lasers, on silicon microchips, paving the way for more versatile radars and safer self-driving cars.
- 2023** Received R&D100 Award for a wearable seizure sensor that detects small changes in body chemistry to warn of an impending seizure.



Sandia National Laboratories



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2024-00373M