



Highlights from Sandia's History

Sandia National Laboratories is one of the Department of Energy, National Nuclear Security Administration (DOE/NNSA) laboratories. Sandia 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 wholly owned subsidiary of Honeywell International, Inc., 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 technologies for the wooden bomb—a weapon that 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 laydown 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 developed 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 Vela satellites—with Sandia-designed optical sensors as well as data processing, logic and power subsystems—launched to detect nuclear detonations.

1966 Helped locate the bomb lost in an aircraft collision over Palomares, Spain. In 1968, established an independent safety group to assess weapon designs.

1970 Safe Secure Trailer for transporting nuclear weapons; later designed and tested accident resistant containers for nuclear materials.

1972 Began research and training in anti-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 waste 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; remained the fastest computer in the world into 2000.





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 system moved its first radioactive nuclear material.

2001 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.

2004 Sandia/Los Alamos joint Center for Integrated Nanotechnologies (CINT) researchers witnessed birth of carbon-linked nanostructures (buckyballs).

2007 Microsystems and Engineering Sciences Applications (MESA) facilities dedicated. MESA is a state-of-the-art 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.

2009 Invented tiny glitter-sized photovoltaic cells that can charge satellites in space or light-weight electronic devices at remote locations.

2010 Assisted in ending the massive oil leak from the explosion of the Deepwater Horizon'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 nuclear power complex reactor condition and plume migration.

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 had a heating element to enable 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.

2016 The B61-12 LEP entered the production engineering phase, on track for scheduled initial production in 2020.

2017 W88-0/Mk5 Alteration 370 LEP began production engineering.

2017 Conducted an Intermediate Range Conventional Prompt Strike Flight Experiment-1 flight test that collected data on hypersonic boost-glide technologies. Sandia served as lead technical integrator.

2018 The Mk21 program built, tested and delivered two flight-quality Arming and Fuzing Assemblies (AFAs) to the U.S. Air Force for real-world ICBM flight testing.

2018 Astra achieved petaflops performance. It is the first advanced prototype platform deployed to evaluate emerging high-performance computing technologies for NNSA's stockpile stewardship mission.

2018 Ongoing research, test and evaluation in advanced controls for unmanned and robotic systems.

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. Collaborators represent Georgia Institute of Technology; Purdue University; the University of Illinois, Urbana-Champaign; the University of New Mexico; Stanford University; Texas A&M University; The University of Texas at Austin; and Utah State University.

2019 Sandia submitted a patent for its Whetstone software tool. Whetstone sharpens the output of artificial neurons, after which neural computer networks process information up to a hundred times more efficiently.

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