

# Sandia National Laboratories

*A History of Exceptional Service in the National Interest*



Sandia National Laboratories is one of the Department of Energy's (DOE) National Nuclear Security Administration (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 outside of Albuquerque to be near an airfield and work closely with the military. Ultimately, its growth prompted its 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 (now Lockheed Martin) company.

## Highlights of Sandia's achievements.

**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 made possible the safe 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; subsequent contract from Navy for the Poseidon missile'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. Established an independent safety group to assess weapon designs.

**1970** Designed the 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 solar and wind technology, photovoltaics, enhanced fossil fuels recovery, and fusion development.

**1974** Named the technical advisor on the Waste Isolation Pilot Plant (WIPP). WIPP received first waste in 1999.

**1976** Using electron-beam-pumped laser, first recorded the argon fluoride spectrum.

**1981** Combustion Research Facility opened at Sandia/CA; available to researchers from around the world.

**1983** Contributed to the assessment of countermeasures and vulnerability of the Strategic Defense Initiative.

**1983** Published research on strained-layer superlattices, a new class of materials that allow scientists to tailor semiconductors to specific functions.

**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.

**1996** The Sandia/Intel ASCI Red machine achieved 1.06 teraflops; remained the fastest computer in the world into 2000.

**1997** NASA's Pathfinder space probe arrived on Mars, its landing cushioned by airbags designed by a Sandia/Jet Propulsion Laboratory team.

**2000** Work in microelectromechanical (MEMS) technology research expanded, pushing ever-smaller chip features to the atomic scale.

**2001** Sandia-developed decontamination foam used to neutralize anthrax in buildings on Capitol Hill.

**2004** Sandia/CA dedicated the Distributed Information Systems Laboratory (DISL), providing a test-bed for new advanced technologies.

**2005** BiNational Sustainability Laboratory (BNSL) in Santa Teresa, NM, opened to support collaborative technical efforts by the U.S., Mexico, and the State of New Mexico.

**2007** New Microsystems and Engineering Sciences Applications (MESA) facilities dedicated, combining Sandia's expertise in weapon design, fast computing, and microsystems into an advanced research environment.

**2007** Sandia/Los Alamos joint Center for Integrated Nanotechnologies (CINT) researchers witnessed birth of carbon-linked nanostructures (buckyballs).

**2008** Refurbished Z machine operating, achieved 26 million amperes for a few billionths of a second.

**2011** Sandia and Cray form Supercomputing Institute for Learning and Knowledge Systems to tackle big data issues.



*Observing birth of buckyballs at CINT*

*Joint Test Assembly drop test of B53 at Tonopah Test Range*

**2011** New UNM-SNL agreement deepens commitment to joint collaboration and delivery of science-based benefits to the community and nation.

**2012** Joint Sandia-UK team announced potentially revolutionary effects of Criegee biradicals.

**2012** Cyber Engineering Research Institute (CERI) dedicated; created to coordinate with industry and universities on cyber security issues and solutions.

**2012** Supported Pantex's completion of B53 nuclear weapon disassembly.

**For more information, visit the Sandia National Laboratories web site at [www.sandia.gov](http://www.sandia.gov) or contact:**

Myra O'Canina, Corporate Archivist,  
(505) 844-6315 or [mlocann@sandia.gov](mailto:mlocann@sandia.gov)

Rebecca Ullrich, Corporate Historian,  
(505) 844-1483 or [raullri@sandia.gov](mailto:raullri@sandia.gov)



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND No.2012-2657P

