

*Exceptional service in the national interest*



## 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 Cleanroom 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 a 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 solar and wind technology, photovoltaics, enhanced fossil fuels recovery, and fusion development.

**1974** Named the 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, a new class of 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.

**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.

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

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

**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 stopping the massive oil leak resulting 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 for emergency response.

**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, which provides critical patient data analysis in a matter of minutes. In 2015, added BaDx—a standalone, compact, and self-destructing device to detect anthrax.

**2014** Transferred Copperhead—a highly modified MiniSAR system mounted on unmanned aerial vehicles and used to uncover IEDs—to the U.S. Army.

**2015** Began development 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.

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