

SERVING THE NATION:

... FROM THE COLD WAR

Since the creation of Sandia National Laboratories in 1949 at the request of President Harry S. Truman, the nation has relied on Sandia to ensure proper stewardship of the nuclear weapons stockpile. As a U.S. Department of Energy (DOE) national laboratory, Sandia fulfilled this mission with the utmost competence, skill, and dedication.



Over the ensuing decades, Sandia significantly contributed to the security missions of many agencies outside the DOE by leveraging our knowledge and expertise gained from our nuclear weapon activities. As a result of these impactful contributions, today Sandia has the largest portfolio of non-National Nuclear Security Administration (NNSA) work of all the DOE laboratories.

... TO THE WAR AGAINST TERROR

Today, a number of homeland security risks have arisen with high potential consequences to our society. Their potential for disruption and destruction is so high, in fact, that homeland security now requires a level of diligence and enduring vigilance equal to that needed for the nuclear stockpile. In response to these newer risks, Sandia has supported the U.S. Department of Homeland Security (DHS) since its inception. Sandia's relevant expertise, capabilities, and facilities enable us to provide the nation great value in securing our society through effective use of science, technology and systems solutions. Our contributions, described below, underscore Sandia's commitment to making enduring and effective contributions to homeland security at the highest levels.



CORE WORK IN UNDERSTANDING AND DEFENDING AGAINST WMD

In the early 1990s, Sandia was actively engaged in programs that detected and tracked special nuclear materials (SNM), focusing on SNM amassed by the Soviet Union and the United States during the Cold War. As the world moved from a super-power construct to a world facing a larger set of adversaries with different set of tools and motivations, Sandia's activities expanded to include other types of WMD. This work centered largely on understanding and defending the United States and our allies against catastrophic events caused by rudimentary, stolen, or black market-acquired chemical or biological weapons. With our heritage of developing security systems and technologies to protect nuclear assets (weapons, components, and special nuclear material) while in storage and during transportation, resulting expertise in designing facilities, tools and capabilities have allowed Sandia to now assist the DoD (Air Force, Navy, Missile Defense Agency) in the protection of their high value assets including military installations and infrastructures

Like most national laboratory work in WMDs, Sandia's efforts in this area were primarily sponsored by DOE until after September 11, when oversight of such work was transferred to the DHS Science and Technology Directorate (S&T). This transfer was enabled by the Homeland Security Act of 2002, Section 309, which provides DHS full access to the DOE national laboratories.

A BROADER SCOPE AGAINST BROADER THREATS

Increasing interest in protecting the U.S. public, infrastructure, military bases, and key assets from a broader range of threats, including natural disasters, has broadened the scope of national laboratory WMD work. This broader scope, supported by DOE, DHS and the Department of Defense (DoD), includes enhanced border security, infrastructure protection, and public alerting and warning.

Further, Sandia and other national laboratories are now engaged in protection against weapons of mass disruption. Such weapons—principally explosives or cyber threats—could provoke high-consequence events that are less destructive than those caused by radiological, nuclear, chemical or biological threats, but that nonetheless have a high likelihood of occurrence and high potential for disrupting society.

DELIVERING SOLUTIONS

Through work spanning basic R&D and engineering through demonstrations and operational deployments, Sandia has delivered a number of solutions that have actively contributed to our nation's security. Specific accomplishments include:

- Characterization of the scientific threat of improvised liquid explosives for air transportation to improve decision making by the Transportation Security Administration (TSA).
- Development and deployment of biological detection systems for use in transportation hubs and guidelines for airport operators in the event of detection.
- Demonstrated restoration systems, procedures, and tools that can minimize the downtime and economic consequences of a biological terrorism event.
- Development, demonstration, and routine deployment of a rapidly deployable system for chemical detection at special events.
- Definition of a layered architecture for detecting radiation or nuclear material in the United States that is being used to prioritize activities.

- Development of new radiation detection techniques and software tools that improve our ability to identify SNM from naturally occurring radioactive materials, enabling more robust and efficient scanning.
- Independent test and evaluation of industry-developed spectroscopic portals.
- 24/7 operational support if radiation detection signals need additional analysis or if an indoor chemical event occurs

NON-BIASED TECHNICAL EXPERTISE GUIDES INVESTMENTS

As an engineering laboratory, Sandia contributes broadly to homeland security by providing non-biased technical expertise. Our goal is to help the nation make wise investment decisions in large-scale acquisitions, such as those for cargo screening, border protection, infrastructure response, and public alerting and warning. Examples of programs and impact include:

- Infrastructure consequence analysis used in Hurricanes Wilma, Katrina, and Rita,
- Pandemic influenza (simulation of multi-scale epidemiology and the public health infrastructure),
- Border fence testing, building from a long history in physical security,
- Deployment of a pilot Integrated Public Alert and Warning System (IPAWS) in Louisiana, Mississippi, and Alabama, and
- Advanced container security.
- Physical security for 46 military installations.

A VALUED NATIONAL ASSET

At Sandia, our work to understand and defend against WMD and other high-consequence threats is core to our historical mission and competence. In partnership with our sister national laboratories, we constitute the nation's brain trust for guarding against events that will hopefully never occur—but against which constant vigilance and preparation is requisite. It's clear that our work has already made a significant impact on national security. As we continue to take responsibility for protecting against a broader array of threats, the nation will accrue enhanced benefits in the form of systems, capabilities, and expertise that lead to increased homeland security.