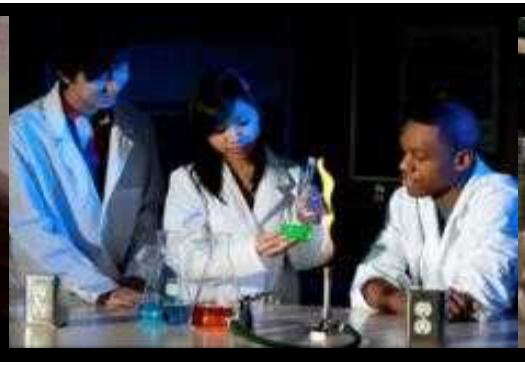
SAND2015-5608PE

Exceptional service in the national interest

Sandia National Laboratories


Sandia National Laboratories

Sandia National Laboratories' Overview

Paul Hommert, President and Laboratories Director

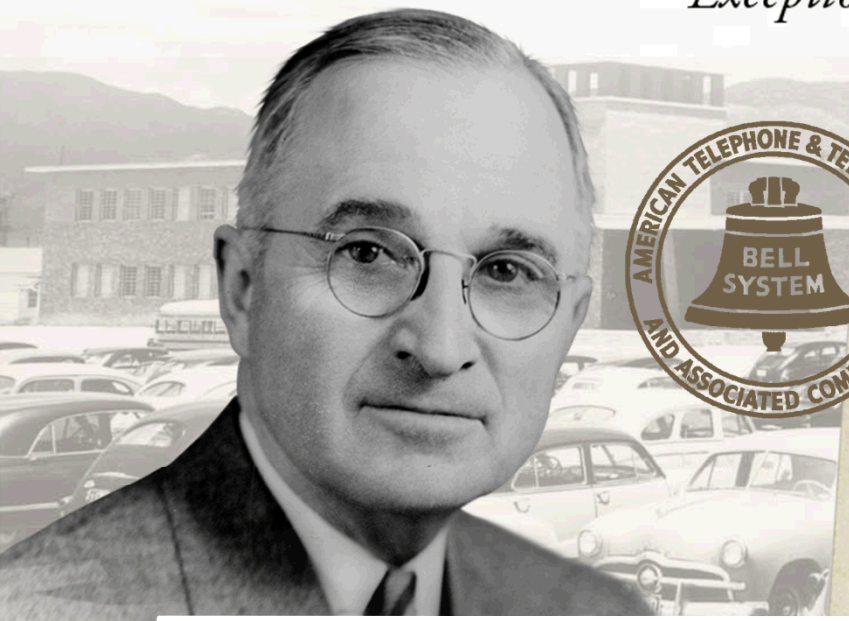
July 15, 2015

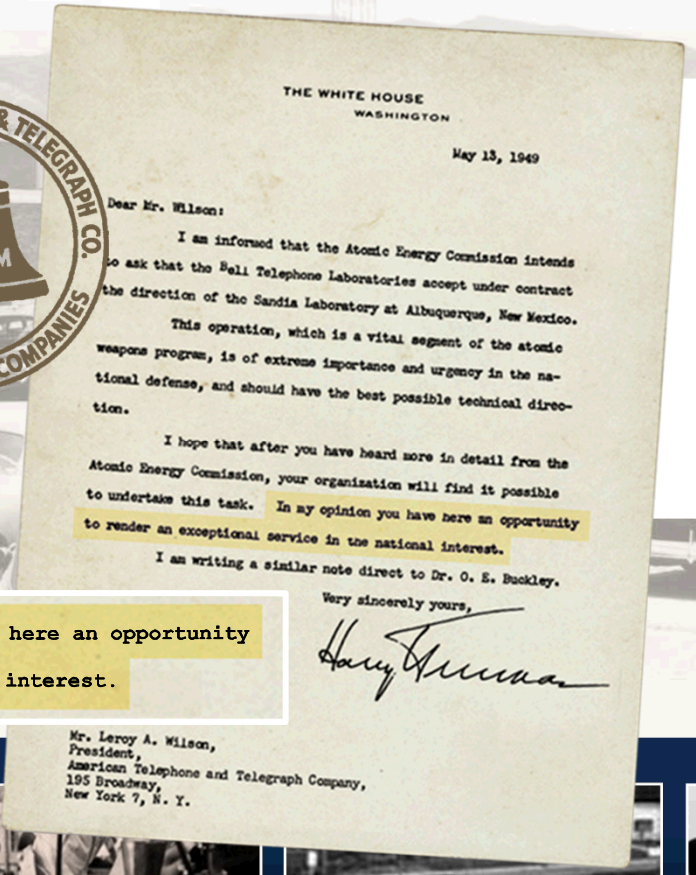
U.S. DEPARTMENT OF ENERGY | NNSA National Nuclear Security Administration

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.

Sandia's history

Exceptional service in the national interest





THE WHITE HOUSE
WASHINGTON

May 13, 1949

Dear Mr. Wilson:

I am informed that the Atomic Energy Commission intends to ask that the Bell Telephone Laboratories accept under contract the direction of the Sandia Laboratory at Albuquerque, New Mexico.

This operation, which is a vital segment of the atomic weapons program, is of extreme importance and urgency in the national defense, and should have the best possible technical direction.

I hope that after you have heard more in detail from the Atomic Energy Commission, your organization will find it possible to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

I am writing a similar note direct to Dr. O. E. Buckley.

Very sincerely yours,

Harry Truman

Mr. Leroy A. Wilson,
President,
American Telephone and Telegraph Company,
195 Broadway,
New York 7, N. Y.

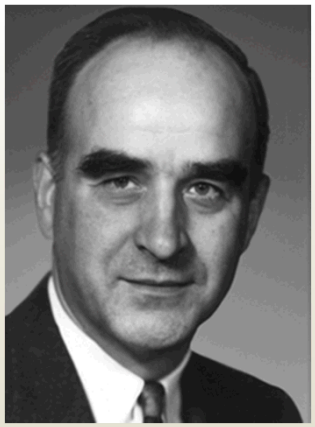
to undertake this task. In my opinion you have here an opportunity to render an exceptional service in the national interest.

- **July 1945:** Los Alamos creates Z Division
- Nonnuclear component engineering
- **November 1, 1949:** Sandia Laboratory established

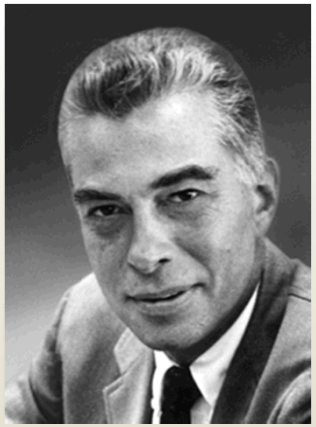
Bell Labs heritage—A cultural imprint

Donald A. Quarles
(March 1952–
August 1953)

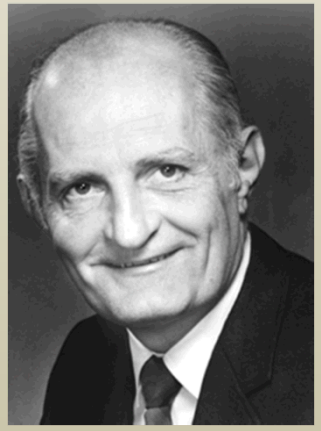
James W. McRae
(September 1953–
September 1958)



Julius P. Molnar
(October 1958–
August 1960)

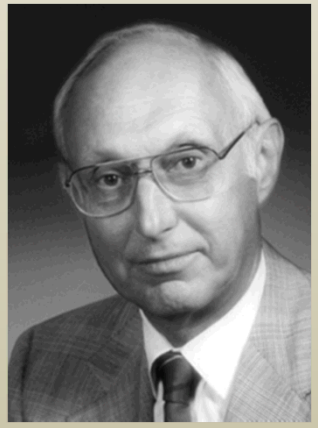


John A. Hornbeck
(October 1966–
September 1972)



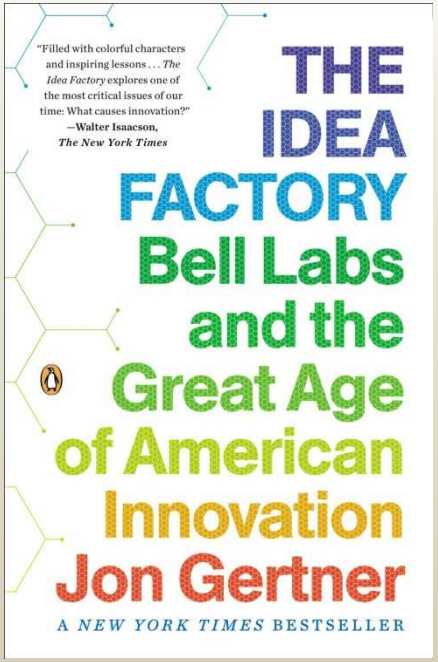
Morgan Sparks
(October 1972–
July 1981)

George C. Dacey
(August 1981–
January 1986)



Irwin Welber
(February 1986–
March 1989)

Albert Narath
(April 1989–
August 1995)



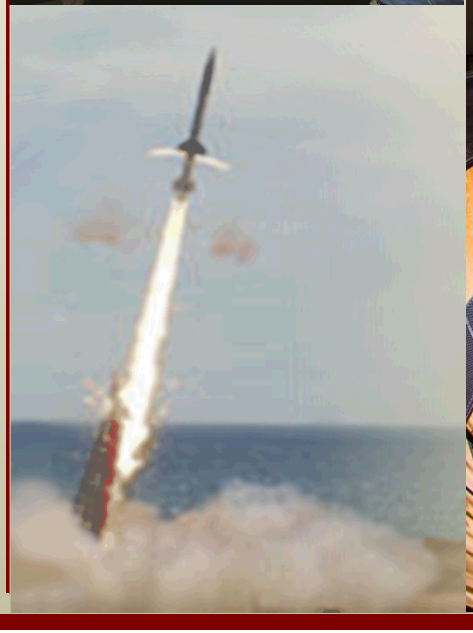
Lockheed Martin—Industry best practices

1993–Present

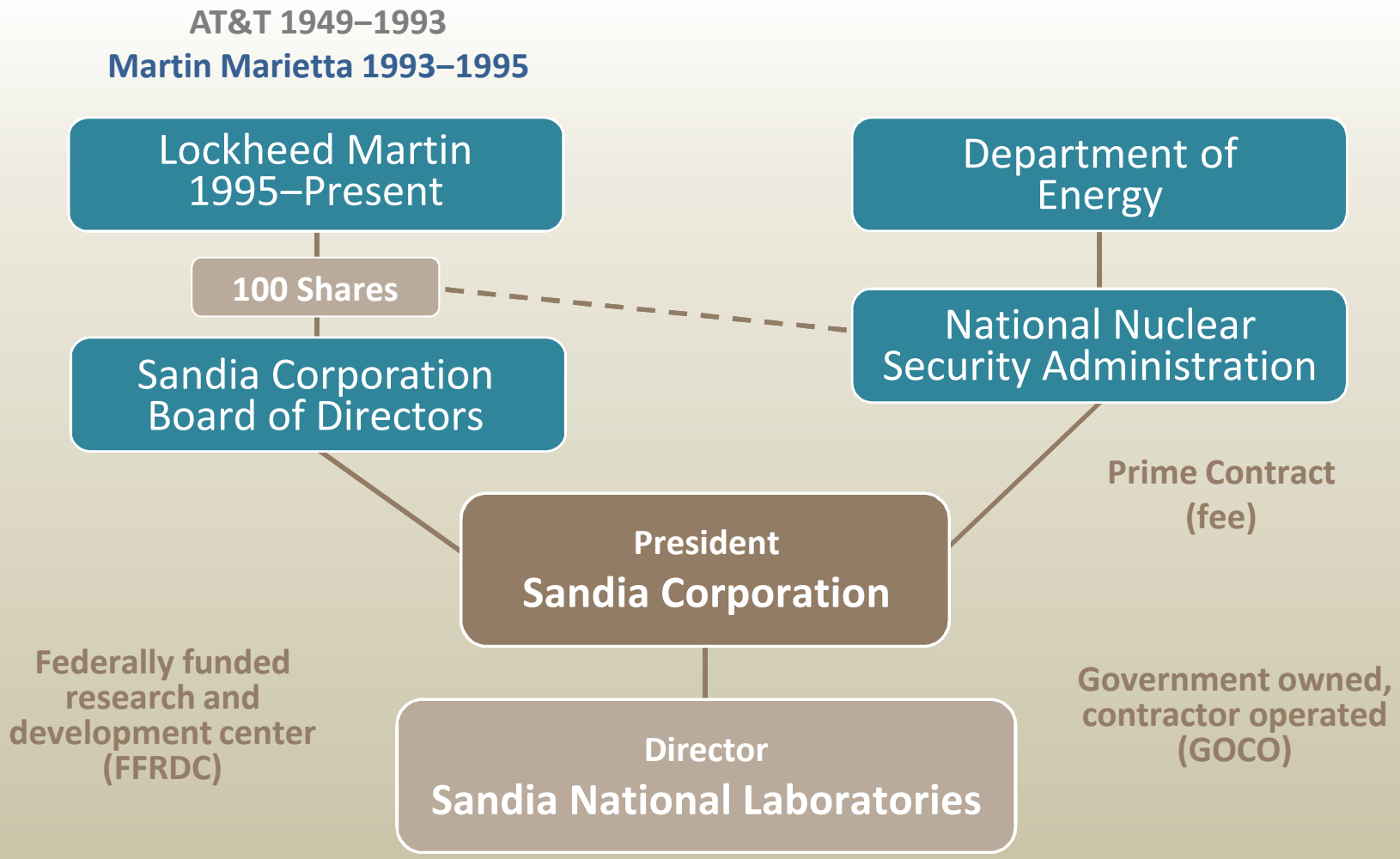
- Leadership talent

- Sharing business practices
  - Human resources
  - Finance
  - Operations
- Tools
  - Training
  - Project management

- Strict separation in mission space



Sandia's governance and management model



Key FFRDC attributes*

- Long-term relationships with the government afford the continuity that will *attract high-quality personnel* to the FFRDC and encourage the FFRDC to *maintain currency in its field(s)* of expertise.
- Meets *special long-term research or development needs*.
- Operates in the public interest with *objectivity and independence*, is *free from organizational conflicts of interest*, and fully discloses its affairs to the sponsoring agency.
- Is operated, *managed*, and/or administered as an *autonomous organization* or as an identifiable separate operating unit of a parent organization.
- *Does not* use privileged information to *compete with the private sector* but may work for other than the sponsoring agency when the work is not available from the private sector.

* *Abridged definition from the Federal Acquisition Regulation*

Sandia's sites

Sandia National Laboratories

Albuquerque, New Mexico

Livermore, California

Kauai, Hawaii

Waste Isolation Pilot Plant, Carlsbad, New Mexico

Pantex Plant, Amarillo, Texas

Tonopah, Nevada

14,168 acres (NM & CA sites); 179,333 acres (test areas, TTR, KTF); and 754 buildings

Vision and mission statements

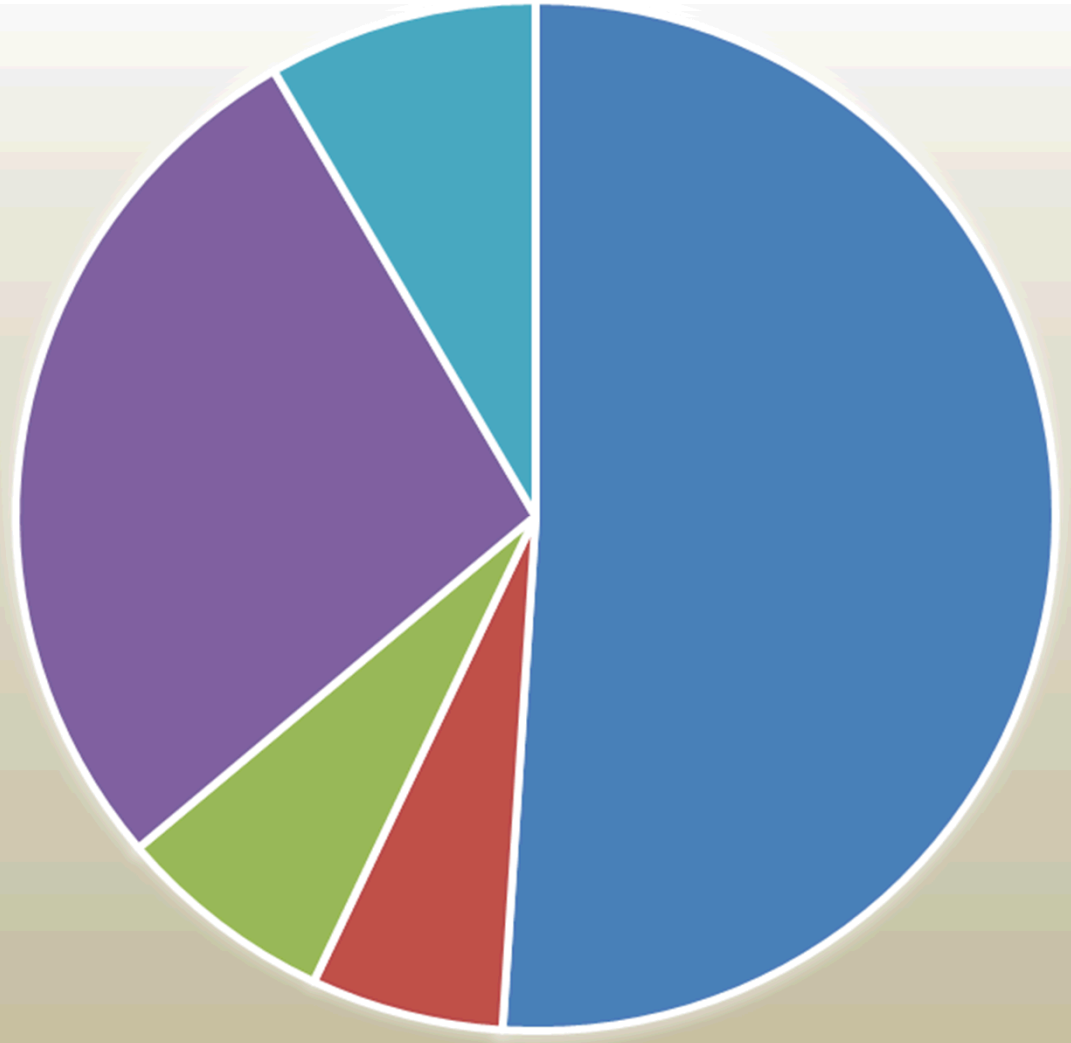
- On behalf of our nation, we anticipate and solve the most challenging problems that threaten security in the 21st century.
- The synergy and interdependence between our nuclear deterrence mission and broader national security missions forge a robust capability base and empower us to solve complex national security problems.

Sandia's mission work reflects national security challenges

Sandia National Laboratories

1950s	1960s	1970s	1980s	1990s	2000s	2010s
NW production engineering & manufacturing engineering	Development engineering	Multiprogram laboratory	Missile defense work	Post–Cold War transition	Expanded national security role post 9/11	LEPs Cyber, Biosecurity Proliferation
	Vietnam conflict	Energy crisis	Cold War	Stockpile stewardship		Evolving national security challenges

Federal funding organizations



FY 2014 Total Budget: $2.7B

- NNSA Weapons
- NNSA Nonproliferation
- Other DOE
- DoD
- Other

Sandia's nuclear weapons mission

Central to U.S. national security

Sandia originated as a single-mission engineering organization for nonnuclear components of nuclear weapons

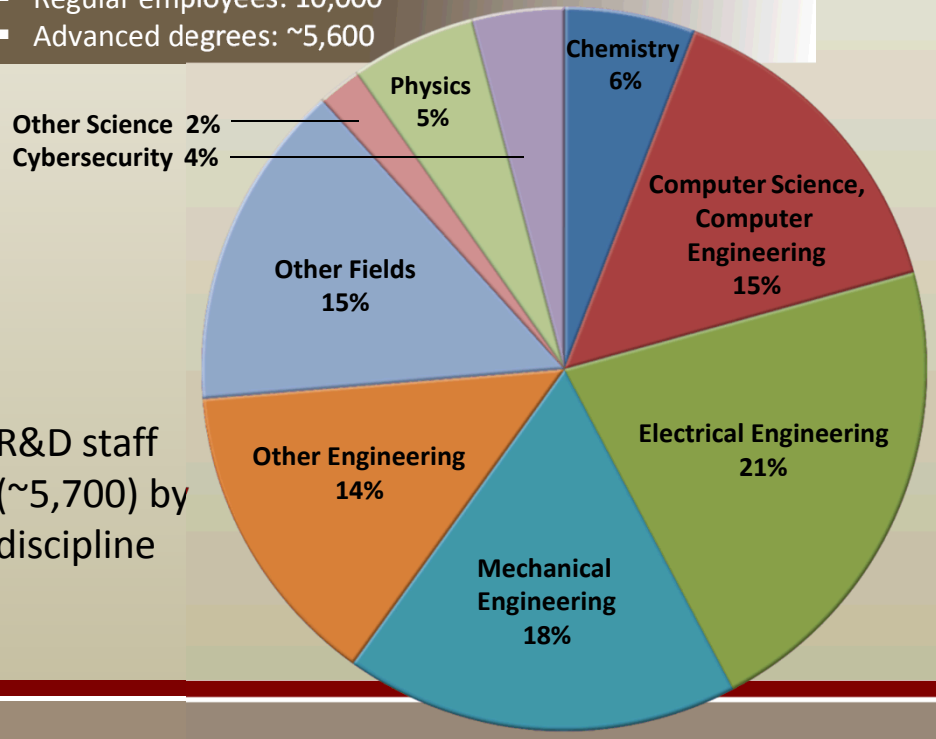
Our nuclear weapons FFRDC mission is focused on three major imperatives:

- Maintain the current U.S. nuclear weapons stockpile
- Sustain the stockpile into the future
- Steward the long-term vitality of our capabilities, infrastructure, and operations

Sandia's people
Exceptional talent

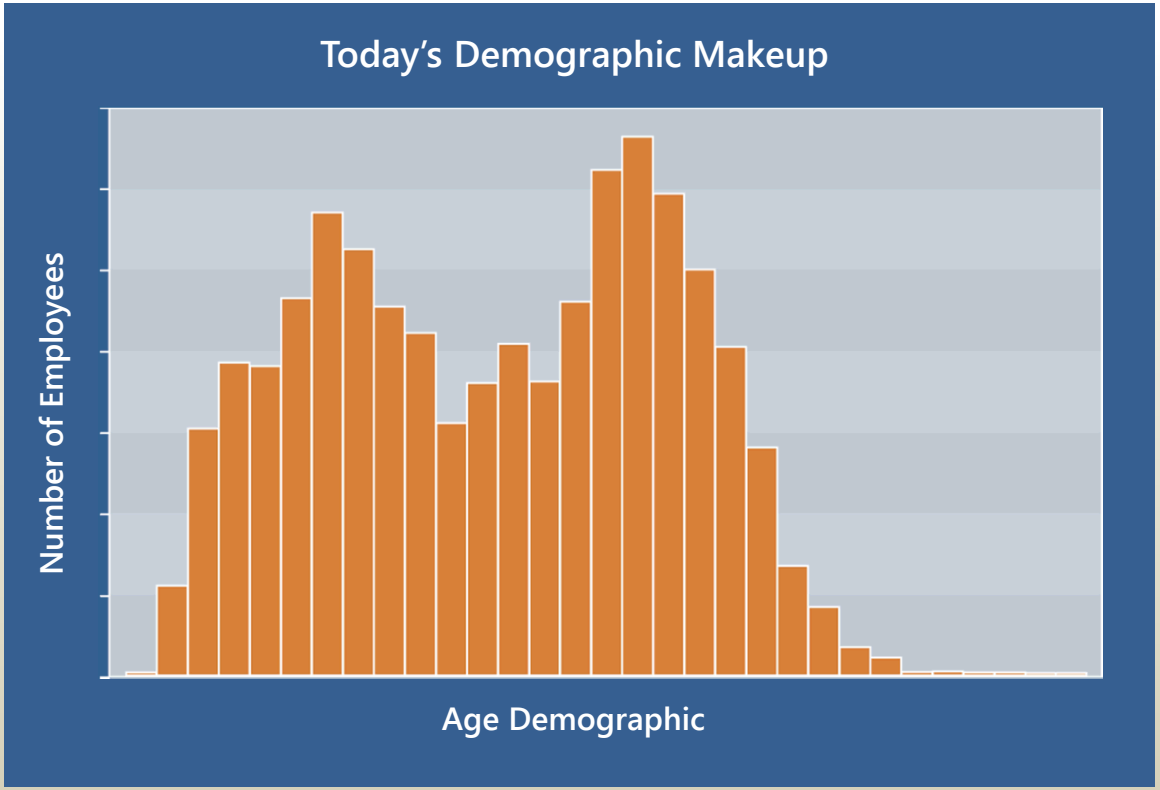
- Highly educated workforce
- Strategically managed workforce of diverse skills and competencies
- Modern business practices and operations in support of our missions

- On-site workforce: 12,000
- Regular employees: 10,000
- Advanced degrees: ~5,600

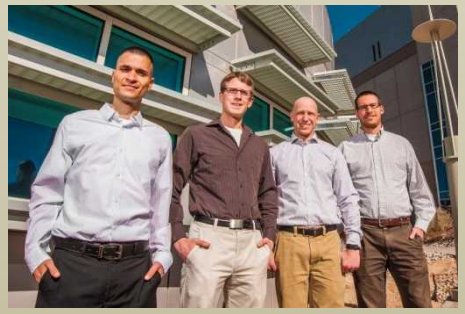


R&D staff (~5,700) by discipline

Hiring new talent for the long term



- 33% of the R&D staff we hired since FY10 hold PhD degrees
- ~10,000 regular employees
- ~3,300 with less than 5 years of service



Sandia's facilities and tools

Enable differentiated scientific and engineering test and discovery

Sandia has facilities in multiple locations: Albuquerque, NM; Livermore, CA; Carlsbad, NM; Tonopah, NV; Kauai, HI; Amarillo, TX.

Key Facilities and Tools

- Major Environmental Test Facilities
- Microsystems and Engineering Sciences Applications (MESA)
- High-Performance Computing
- Explosive Components Facility
- Weapons Evaluations Test Laboratory (WETL)
- Pulsed-Power Facility
- Center for Integrated Nanotechnologies (CINT)
- Combustion Research Facility (CRF)
- Ion Beam Laboratory
- . . .

Sandia's research strategy

Fundamental to the success of Sandia's national security missions

- Research primarily enabled by Laboratory Directed Research and Development (LDRD)
- Discipline-based research foundations
- Interdisciplinary research challenges
  - Beyond Moore Computing
  - Data Science
  - Cyber Resiliency
  - Trusted Systems & Communications
  - Detection at the Limit

Leveraging core capabilities to solve 21st century national security challenges

- High-reliability engineering
- Sensors and sensing systems
- Cyber technology
- Reverse engineering
- Pathfinders
- Modeling & simulation and experiment
- Natural and engineered materials
- Micro & nano electronics and systems
- Safety, risk, and vulnerability analysis

Sandia's national security mission areas