

Exceptional service in the national interest



Sandia National Laboratories

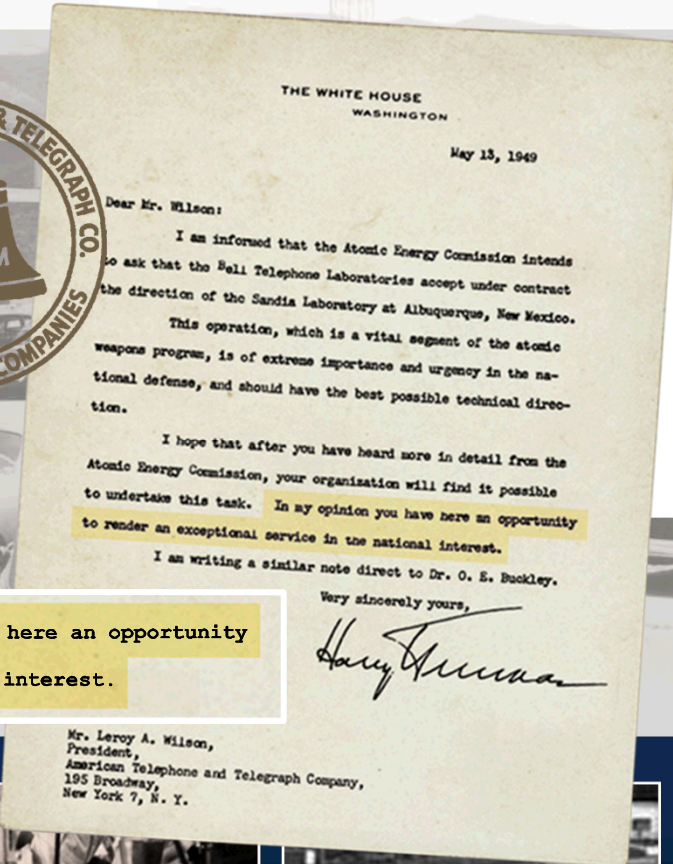
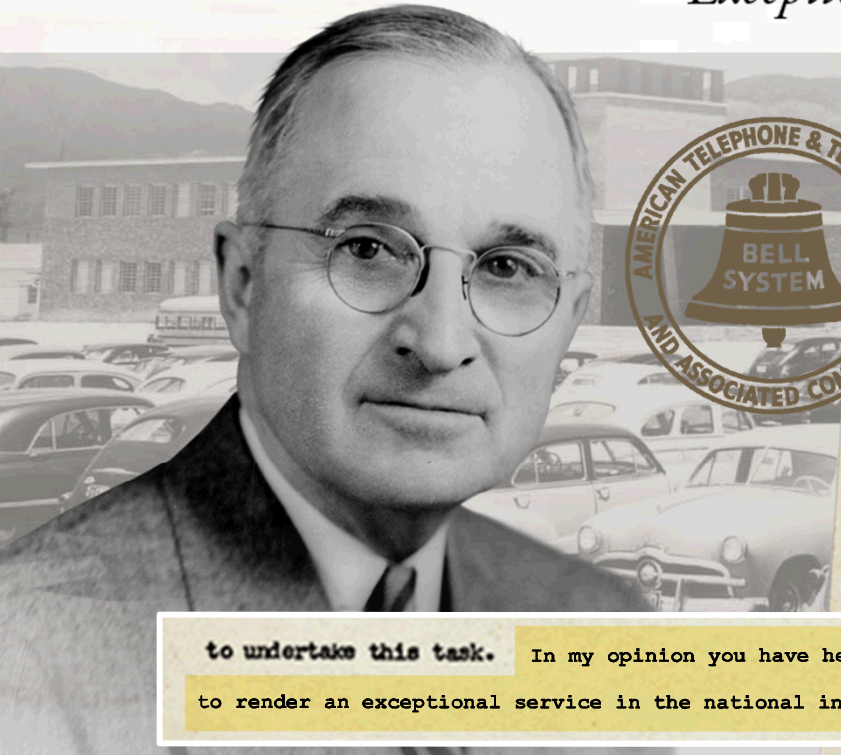
Sandia National Laboratories' Overview

Paul Hommert, President and Laboratories Director

March 11, 2015

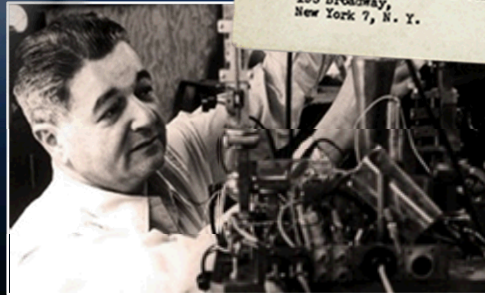
Sandia's history

Exceptional service in the national interest



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

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



Core essence

Forged by more than 65 years of exceptional delivery on our core nuclear weapons mission

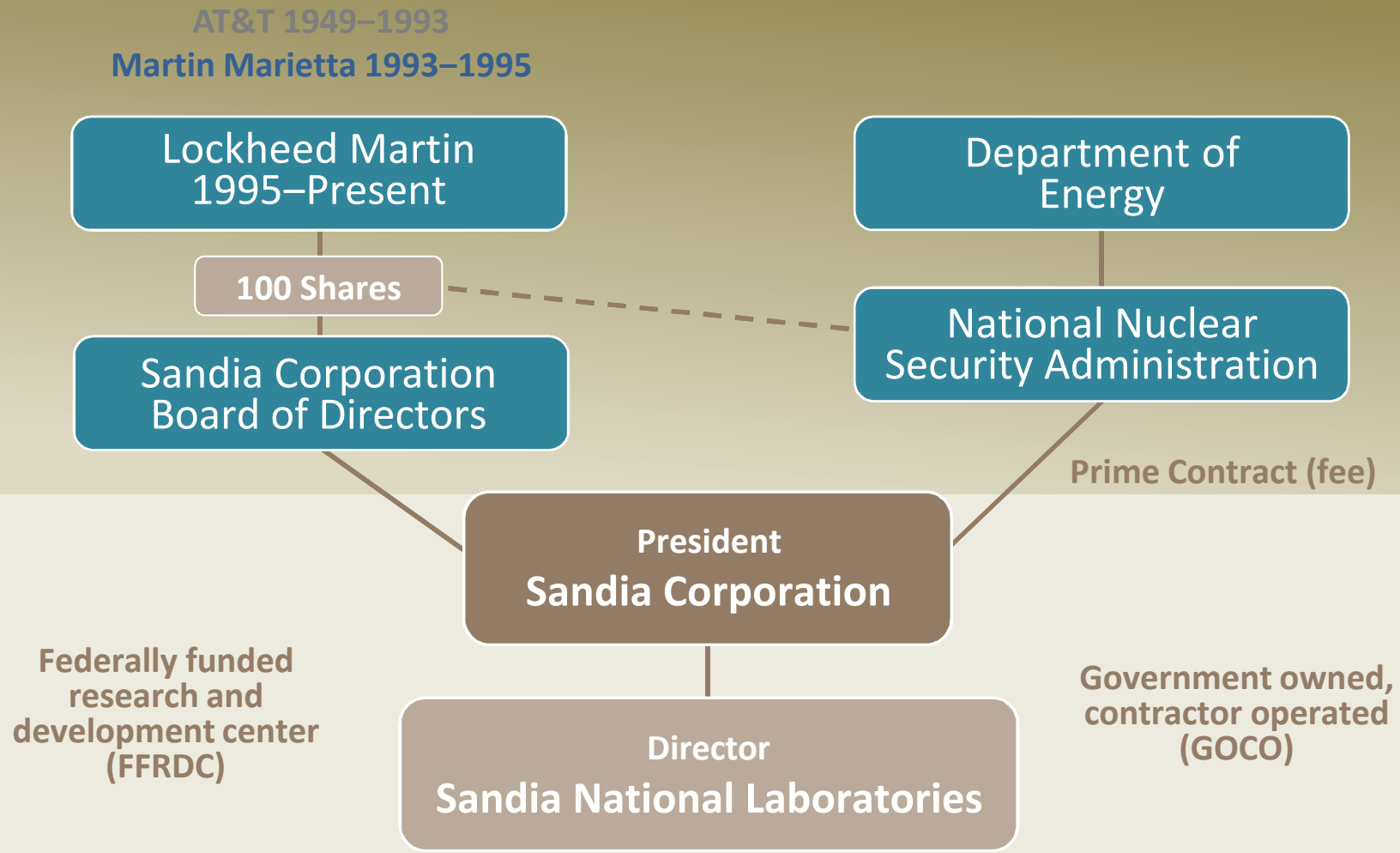
- Responsible to ensure that a nuclear weapon will **always** work as intended when called upon by the U.S. president...and **never** work under any other circumstances
- Operated as a federally funded research and development center
- Shaped by the legacy of our Laboratories' pioneers
- Enriched by management and operating entities

" We must find a way to form a very close coupling between advances in fundamental knowledge and engineering design of new weapons."

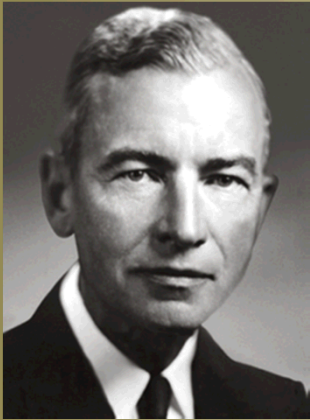
Dick Claassen, director of physical research, 1960



Sandia's governance and management model



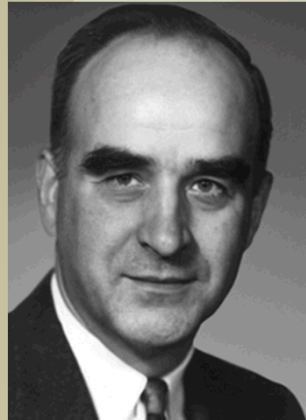
Bell Labs heritage—A cultural imprint



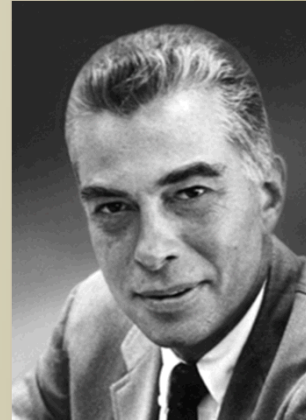
Donald A. Quarles
(March 1952–
August 1953)



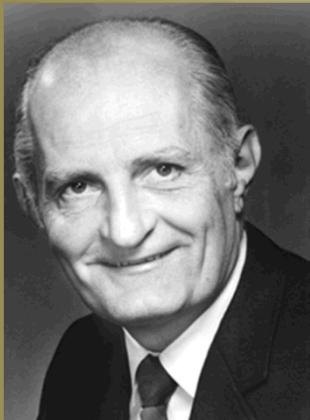
James W. McRae
(September 1953–
September 1958)



Julius P. Molnar
(October 1958–
August 1960)



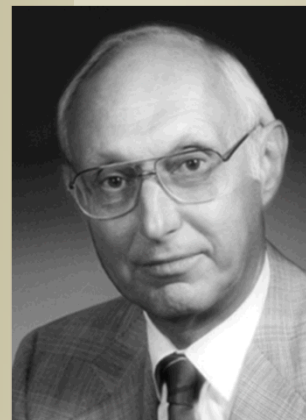
John A. Hornbeck
(October 1966–
September 1972)



Morgan Sparks
(October 1972–
July 1981)



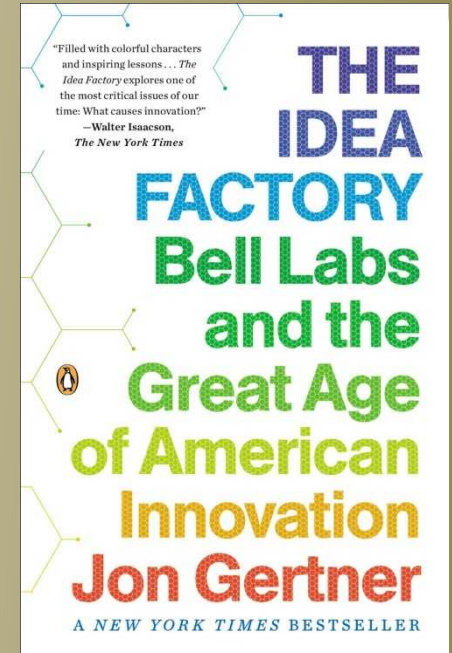
George C. Dacey
(August 1981–
January 1986)



Irwin Welber
(February 1986–
March 1989)



Albert Narath
(April 1989–
August 1995)



Lockheed Martin—Industry best practices

1993–Present

- Leadership talent



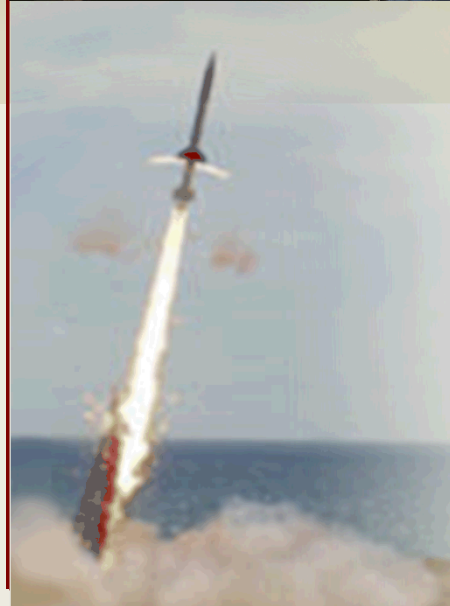
- Sharing business practices

- Human resources
- Finance
- Operations

- Tools

- Training
- Project management

- Strict separation in mission space



Sandia's sites

Albuquerque, New Mexico



Livermore, California



Kauai, Hawaii



*Waste Isolation Pilot Plant,
Carlsbad, New Mexico*



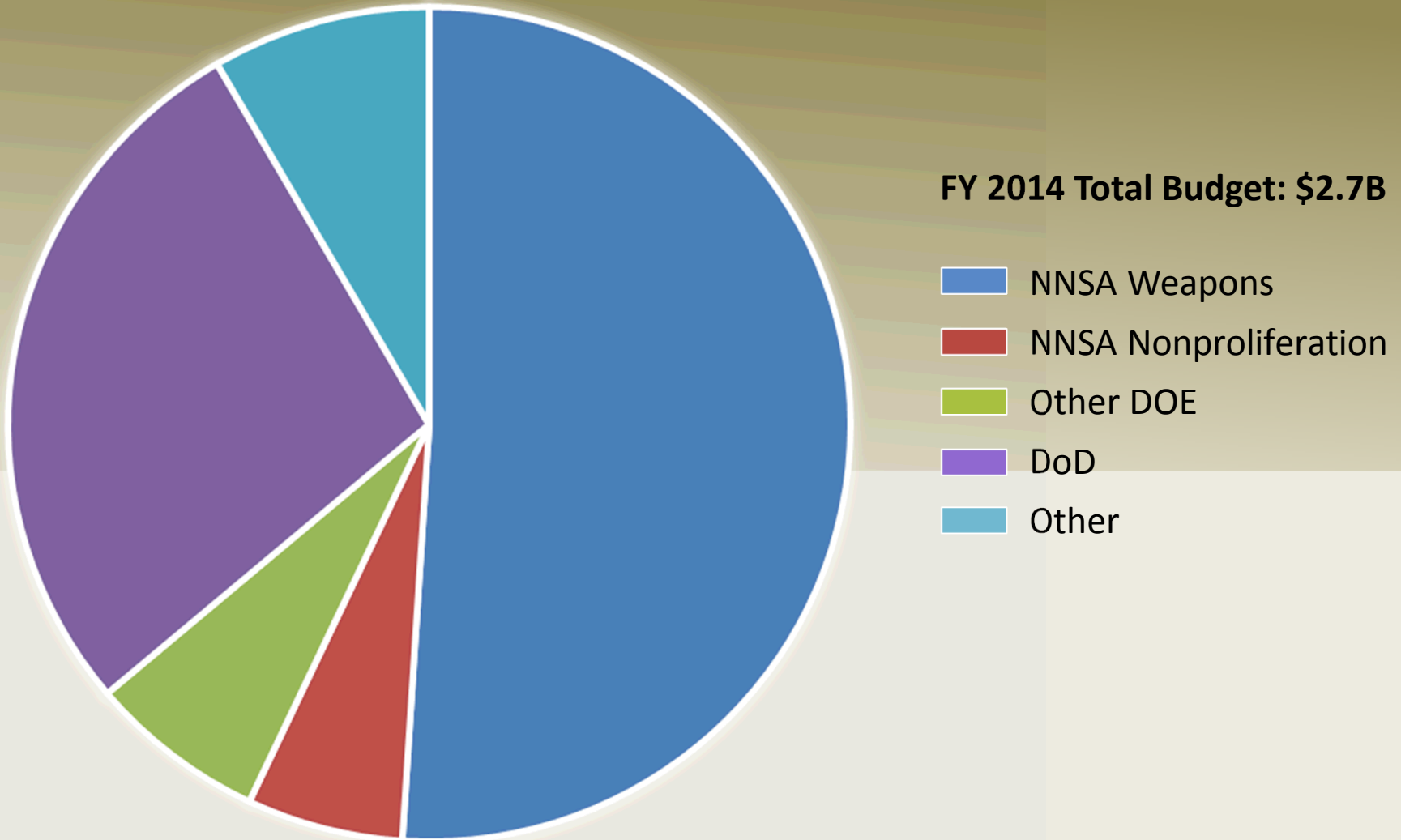
*Pantex Plant,
Amarillo, Texas*



*Tonopah,
Nevada*



Federal funding organizations



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



Nuclear Weapons

Current activities

Warhead Systems Engineering and Integration



Pulsed Power and Radiation Effects Sciences



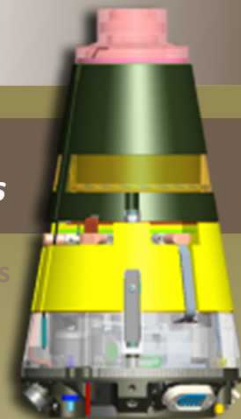
Gas transfer systems



Neutron generators

Design Agency for Nonnuclear Components

Arming, fuzing, and firing systems



Safety systems

Production Agency



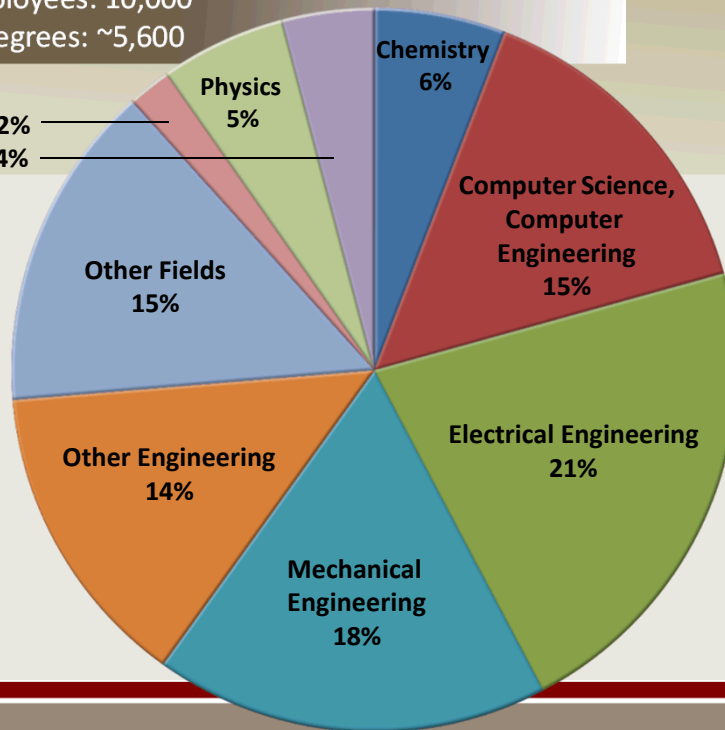
Sandia's people

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

Other Science 2%
Cybersecurity 4%



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

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



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Sandia's national security mission areas

