Sandia National Laboratories

Overview of Laboratory and Nuclear Energy Safety Capabilities

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,
for the United States Department of Energy's National Nuclear Security Administration

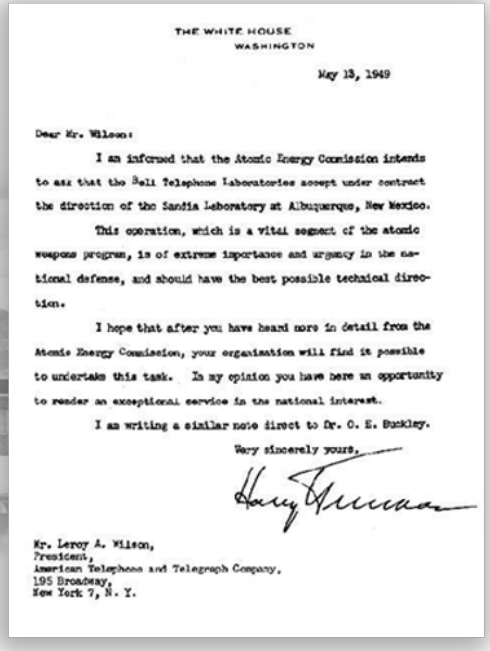
under contract DE-AC04-94AL85000

National Nuclear Security Administration

Sandia National Laboratories

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.

Sandia National Laboratories

Sandia's Sites

Albuquerque, New Mexico

Livermore, California

Tonopah, Nevada

Waste Isolation Pilot Plant, Carlsbad, New Mexico

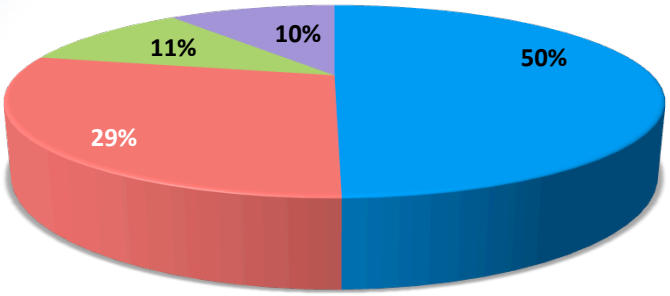
Pantex, Texas

People and Budget

(As of October 11, 2011)

- On-site workforce: 11,876
- Regular employees: 9,122
- Gross payroll: ~$943 million

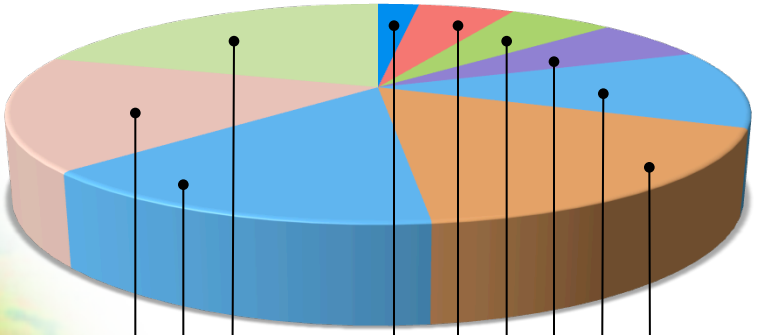
FY11 Operating Revenue
$2.4 billion

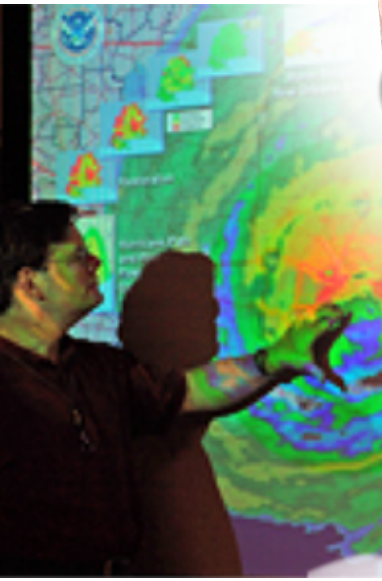


(Operating Budget)

- Nuclear Weapons
- Defense Systems & Assessments
- Energy, Climate & Infrastructure Security
- International, Homeland, and Nuclear Security

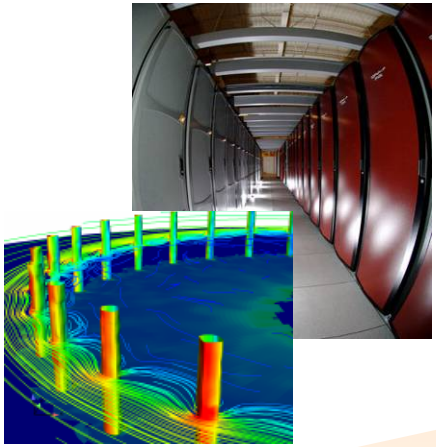
Technical staff (4,557) by discipline

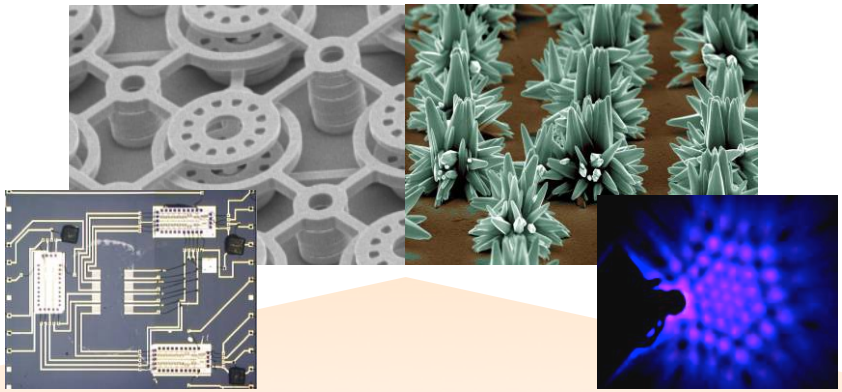


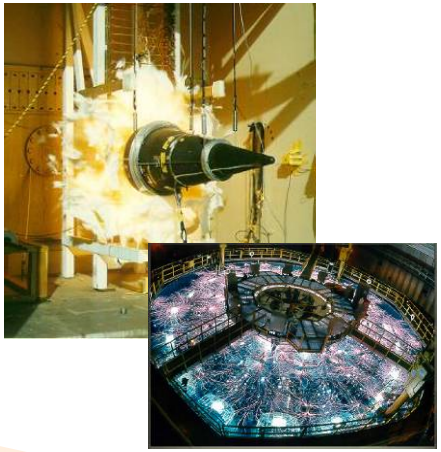


- Computing 17%
- Other fields 12%
- Other science 6%
- Physics 6%
- Chemistry 5%
- Math 2%
- Electrical engineering 20%
- Mechanical engineering 17%
- Other engineering 15%

Research Disciplines Drive Capabilities





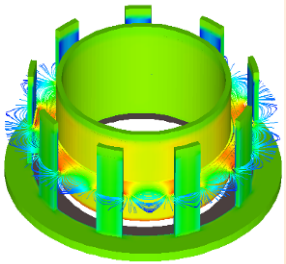


High Performance Computing

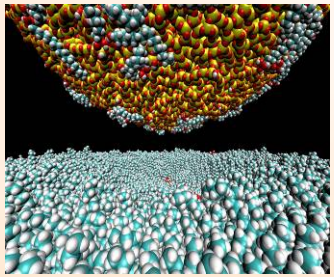
Nanotechnologies & Microsystems

Extreme Environments

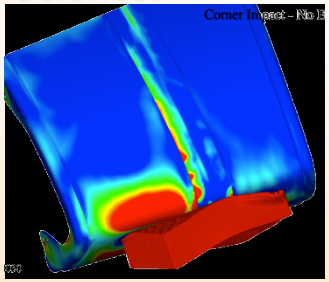
Computer Science



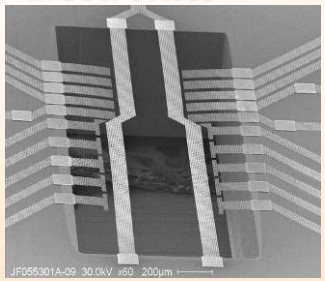
Materials



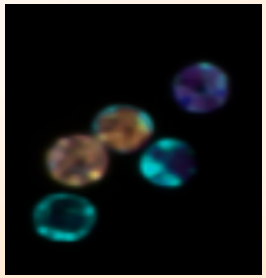
Engineering Sciences



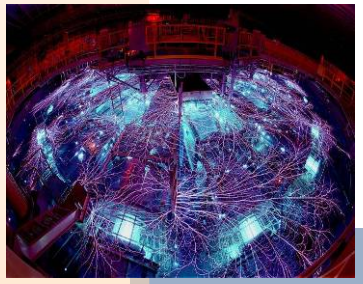
Micro Electronics



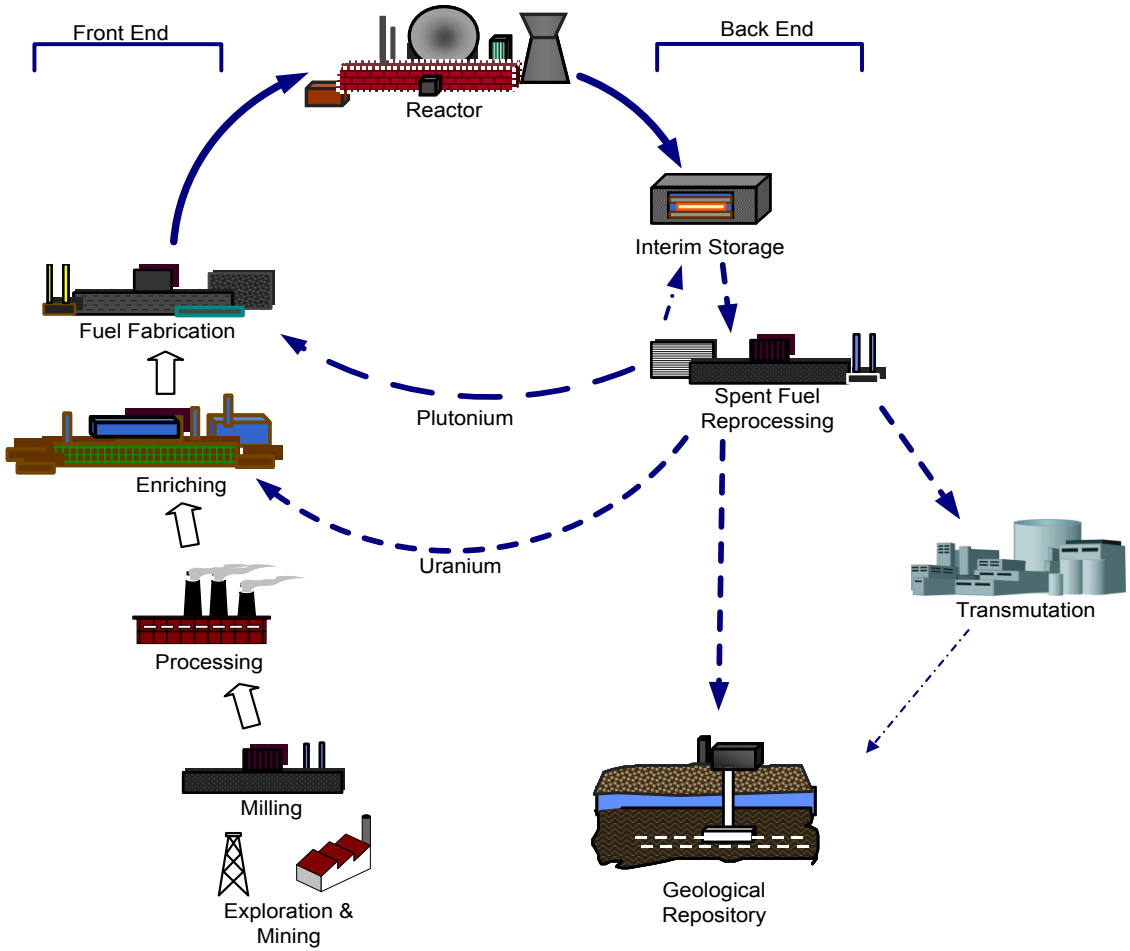
Bioscience



Pulsed Power

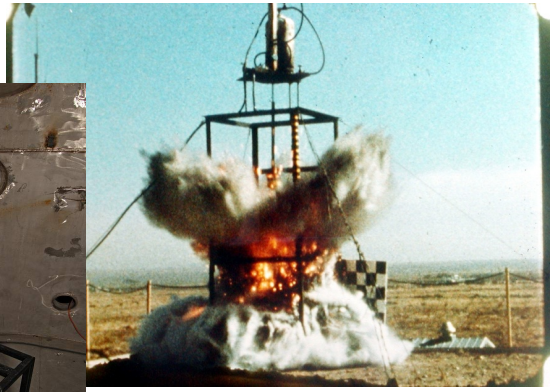


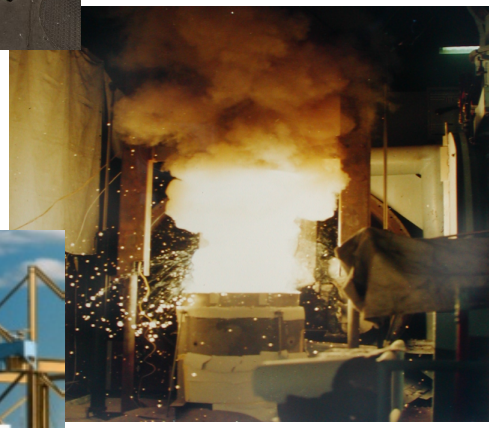
Sandia Has Expertise in the Nuclear Fuel Cycle



Nuclear Energy Safety Technologies

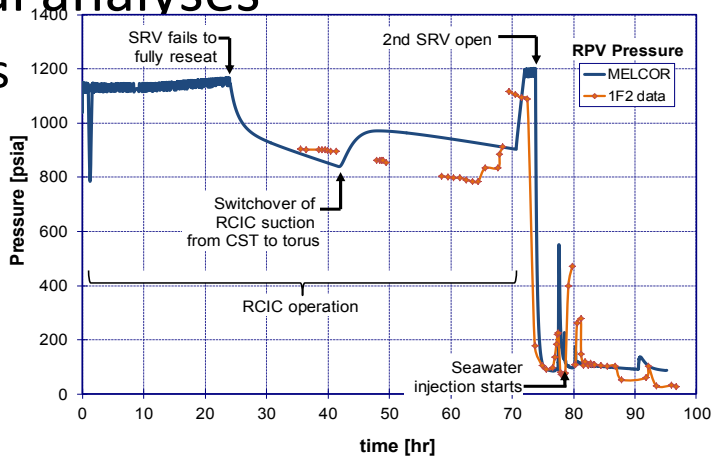
- Experiments and code validation
  - Equipment qualification
  - Spent fuel pool testing
  - Severe transportation environments
  - Reactor containment
  - In-situ fuel pin clad strain
  - Cable fire tests
  - Waste Isolation Pilot Plant
  - Yucca Mountain Project
  - Physical Security
  - Cyber Security

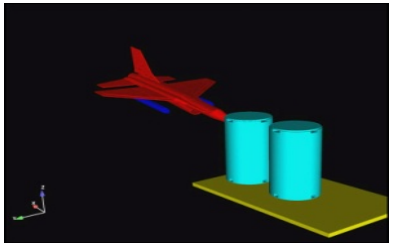


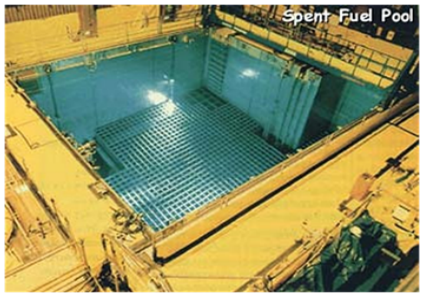


Nuclear Energy Safety Technologies

- Computational simulation and technical analyses
  - Human Reliability Analyses, Human Factors
  - Nuclear reactor accident progression
  - Public health consequences
  - Containment performance
  - Sodium combustion
  - Nuclear power plant aircraft vulnerability
  - Emergency preparedness and response
  - Transportation of nuclear materials
  - Waste Isolation Pilot Plant Performance Assessment
  - Yucca Mountain Project Total System Performance Assessment
  - Uncertainty quantification
  - Physical Security
  - Cyber Security

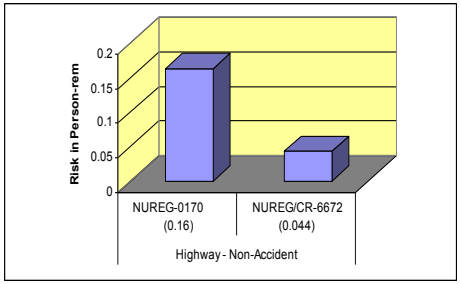






Nuclear Energy Safety Technologies

- Regulatory support
  - License reviews for new nuclear power plants
  - Regulatory gap analyses
  - Standards & regulations development
  - Environmental management
  - Training
  - Quality assurance
    - Sandia's Integrated Laboratory Management System received ISO 9000 Quality Management Systems registration
    - Sandia's Center for Neutron Generator Production was awarded the Shingo Prize for Excellence in Manufacturing
    - Sandia's nuclear waste management programs are under ASME NQA-1 Quality Assurance Program Requirements for Nuclear Facilities
  - Safety culture
  - Protecting classified and proprietary information



International Nuclear Energy Safety Projects

- Argentina
- Belgium
- Canada
- France
- Germany
- India
- Iraq
- Japan
- Norway
- South Africa
- South Korea
- Spain
- United Arab Emirates
- United Kingdom
- International Organization for Standardization
- Organization for Economic Cooperation and Development
- International Atomic Energy Agency

For more information please visit

ne.sandia.gov

This website contains fact sheets, video clips, and contact information about nuclear energy safety capabilities and other related capabilities at Sandia National Laboratories.