Idaho National Laboratory

An Overview

www.inl.gov

Idaho National Laboratory

Historical Perspective

1949
National Reactor Testing Station established

1952
Materials Test Reactor begins critical operation

1950 1955 1960 1965

1951
Experimental Breeder Reactor I produces electricity

1955
Arco, Idaho powered by BORAX III reactor

1967
Advanced Test Reactor begins critical operation

Historical Perspective

1968
NRTS Supercomputing Center built

1978
LOFT engineers conduct facility's first nuclear test

1981
INEL's Raft River Geothermal Pilot Plant starts up

1970 1975 1980 1985

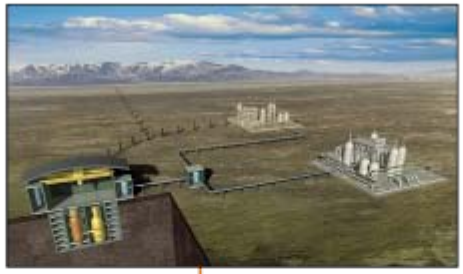
1974
NRTS renamed Idaho National Engineering Laboratory

1984
INEL Research Center dedicated

Historical Perspective

1994
DOE names INEL lead lab for environmental management

1997
DOE assigns Idaho lead lab status for nuclear reactor development



2002
Standup of new Geocentrifuge Research Laboratory

1990 1995 2000 2005

1996
INEL alternate fuel buses deployed at Olympics in Atlanta

2001
Idaho's STAR Fusion Facility named National User Facility

2005
INEEL and ANL-W combined to create new Idaho National Laboratory

Historic Contributions

- Proof of breeder reactor concept
- Development of Navy nuclear propulsion systems/operator training
- Design and construction of 52 nuclear reactors
- Production of key medical and industrial isotopes
- Nuclear reactor safety code development
- Leadership of DOE hydropower and geothermal programs
- Hybrid and electric vehicle testing
- Armor production
- NASA program support

INL's Position Today – Nationally

- One of only 10 DOE multiprogram labs
- DOE's designated lead lab for nuclear energy research, development and demonstration
- A major contributor in national and homeland security, alternate and renewable energy and science technology

INL's Position Today – in Idaho

- One of the state's largest employers
- Considered one of the four science and technology "pillars" of the state
- Contributes to Idaho's position as number one in the nation in patents issued per capita

INL's Three Main Facility Areas

Advanced Test Reactor Complex

Key Assets

- Advanced Test Reactor
  - Nation's most versatile test reactor
  - Materials and fuels testing; isotope production
- STAR
  - Fusion safety testing

Materials and Fuels Complex

Key Assets

- Hot Fuel Examination Facility/Fuel Conditioning Facility
  - Hot cells for fuel studies
- Center for Space and Security Power Systems
  - Assembly and testing of space batteries

Research and Education Campus

Key Assets

- INL Research Center
  - Multiprogram labs
- Information Operations Research Center
  - National and Homeland Security studies

INL's Major Business Centers

- Nuclear Programs
- Nuclear Operations
- National and Homeland Security
- Energy and Environment
- Specific Manufacturing Capability
- Facilities and Site Services

Nuclear Programs

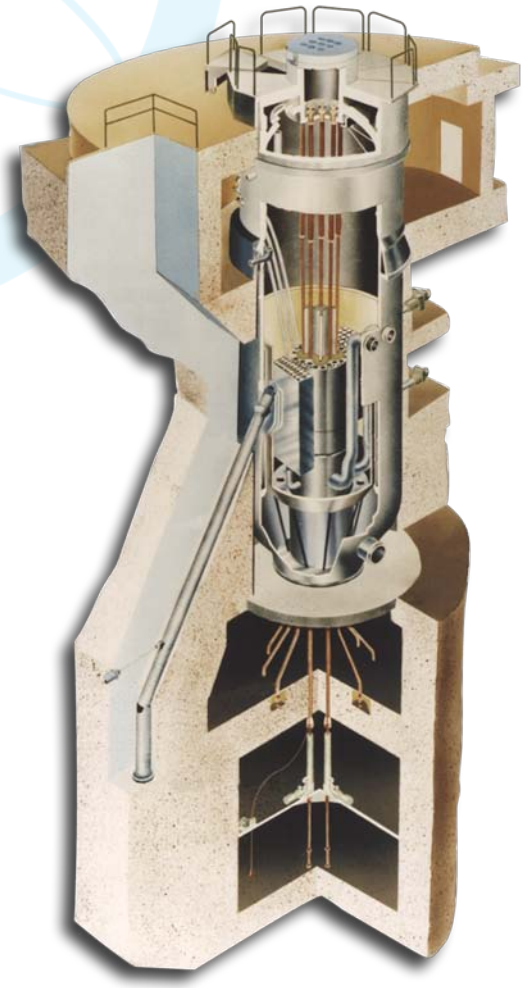
Primary Responsibilities

- Lead the global nuclear energy agenda
- Lead and deliver the Next Generation Nuclear Plant
- Build the basics for the fuel cycle of the future
- Power space exploration for the nation
- Support strategic commercial partnerships
- Provide technical bases and analyses for reactor system safety and operating regulations

Nuclear Operations

Primary Responsibilities

- Maintain and operate the Advanced Test Reactor
- Assure primary mission fulfillment
  - National Security reactor/materials applications
  - Current generation commercial reactor support
  - Medical, industrial and national interest isotope production



National and Homeland Security

Primary Responsibilities

- Critical Infrastructure Protection – Reduce cyber and physical risks to infrastructures
- Nuclear Nonproliferation – Prevent the illicit use, acquisition, and transportation of radiological material
- Defense Systems and Technology – Develop innovative technologies and survivability solutions for military customers
- Special Projects – Support federal agencies through material science, information analysis / operations and engineered prototypes

Energy and Environment

Primary Responsibilities

- Establish five labwide distinctive scientific signature capabilities
  - Instrumentations, Control and Intelligent Systems
  - Materials and Nuclear Fuels Science and Technology
  - Microbiological and Geological Systems Science
  - Separations and Actinide Science
  - Theory, Modeling and Simulation
- Manage alternate and renewable energy research portfolio

Specific Manufacturing Capability

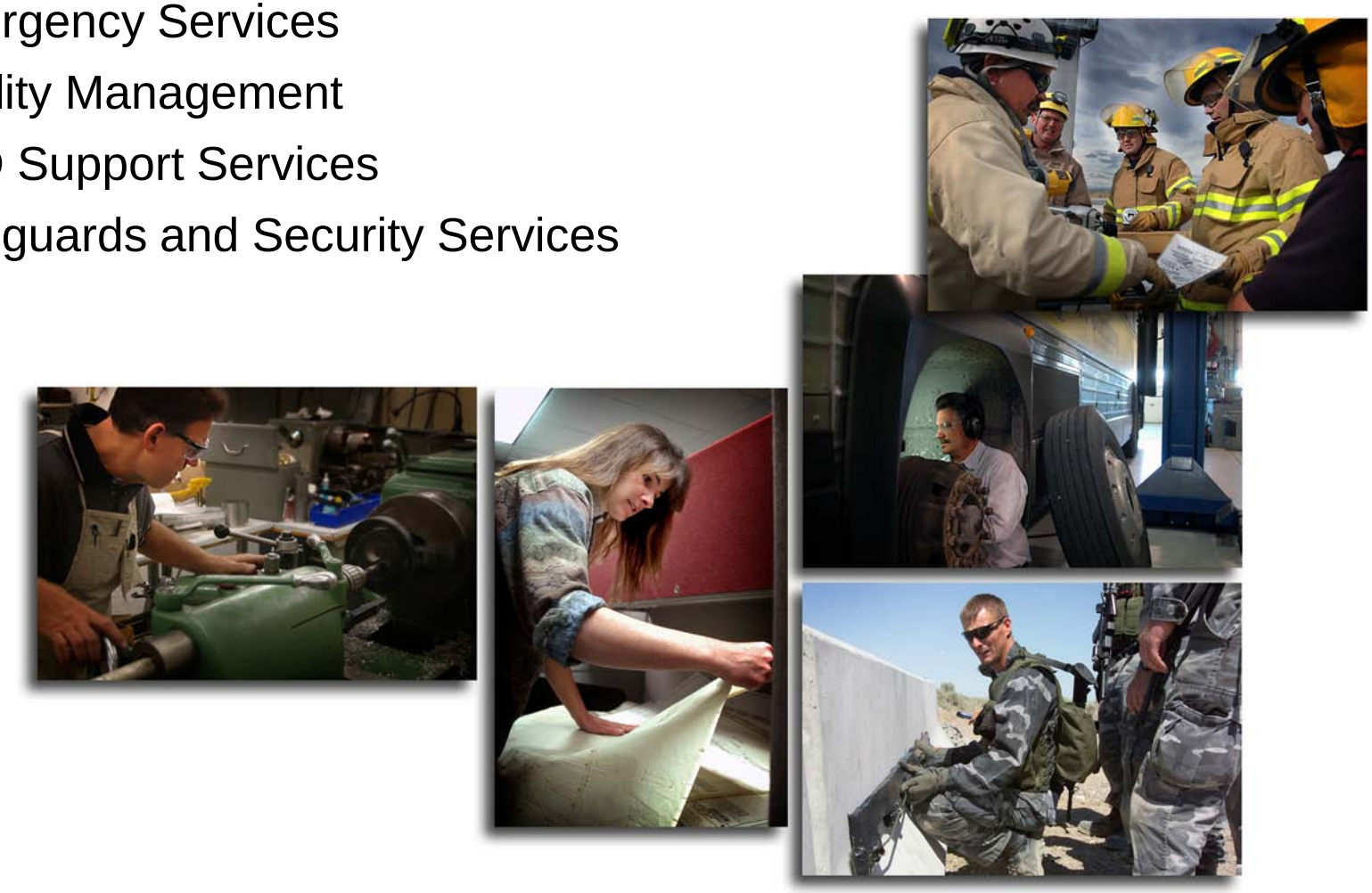
Primary responsibilities

Manufacture armor packages

- Used for U.S. Army's M1-A2 Abrams Main Battle Tanks
  - Assignment first received in 1985
  - Full production achieved in 1988
  - More than 3,900 packages have been produced at the facility

Facilities and Site Services

- Emergency Services
- Facility Management
- R&D Support Services
- Safeguards and Security Services



INL Future Plans

- Continue conducting all operations with simultaneous excellence in science, safe operations and community service
- Continue growing the business base
- Modernize and consolidate research infrastructure
- Invest in INL's most precious asset – it's people

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