

Idaho National Laboratory



INL/CON-07-12354

U.S. Domestic Reactor Conversion Programs

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2007 RRFM Conference

March 2007

Background on the current U.S. Domestic Conversion Program at the INL

- Support the National Nuclear Security Administration's Global Threat Reduction Initiative
- Oversee the HEU-to-LEU conversion of 7 U.S. research and training reactors

These Conversion Generally Include:

- Revision of the facilities Safety Documents and supporting analysis
- Fabrication of new LEU fuel
- Change out the reactor core
- Removal of the used HEU fuel from the facility

Two major milestones were accomplished during 2006 in the Reactor Conversion Program

- The conversion of the TRIGA reactor at Texas A&M University Nuclear Science Center
- The conversion of the University of Florida Training Reactor



Texas A&M University Nuclear Science Center

- TRIGA conversion reactor
- 1 megawatt
- 94 fuel rods
- Spent core shipped before conversion
- Conversion milestone accomplished on 27 September, 2006



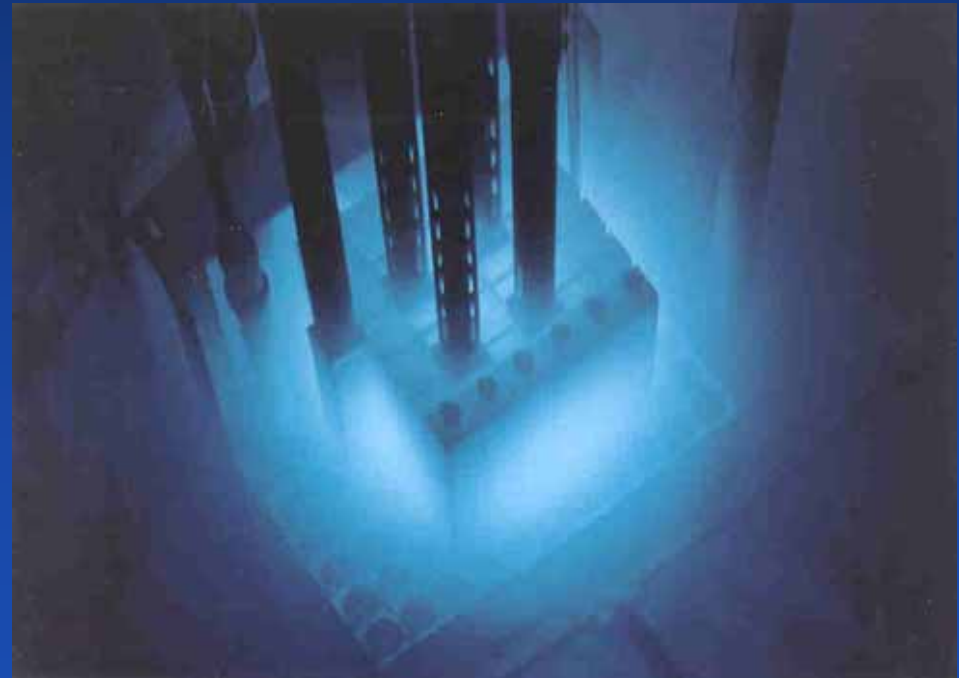
University of Florida Training Reactor

- Argonaut type reactor
- 100 kilowatt
- 21 fuel assemblies
- Spent core shipped before conversion
- Conversion milestone accomplished on 28 September, 2006



Purdue University Reactor

- Open pool MTR type reactor
- 1 kilowatt
- 16 fuel assemblies



The Project Tasks Can Seem Overwhelming

DOE EM

DOE NE

Route
Assessment

Conversion
Proposal

INL

Spent
Fuel
Data

Shipping
Data

INTEC

- The project tasks are generally broken down as those required to:

ANL

Security Force

– Perform Conversion Analysis and obtain authorization to convert

Multiple
Analyses

Reactor
Hardware

– Develop and fabricate new fuel

SRS

New Fuel
Specifications

GA

– Load core and restart reactor

NRC

– Ship spent fuel off-site

STS

Chemical
Analyses

Fuel

Cask

Preparations

Budgets

Fabrication
New Procedures

DOE NA



NAC

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BWXT

Security
Plans

MURR

The major entities involved were:

- **U.S. Nuclear Regulatory Commission**
various branches
- **University reactor department**
reactor operations, radiation protection, shipping, procurement, and etc
- **Fuel fabricators**
BWXT, TRIGA International
- **Spent fuel receipt facility**
Savannah River Site, Idaho Nuclear Engineering and Technology Center
- **Shipping cask provider**
NAC International, Secured Transportation Services (STS)
- **U.S. Department of Energy and their subcontractors**
Argonne National Laboratory, Idaho National Laboratory

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Our current and future near-term projects are to:

- Convert Purdue University School of Nuclear Engineering reactor by Sept 30, 2007
- Convert Washington State University Nuclear Radiation Center reactor by Sept 30, 2008
- Convert Oregon State University TRIGA Reactor by Sept 30, 2008
- Convert the University of Wisconsin Nuclear Reactor by Sept 30, 2009
- Convert Neutron Radiography Reactor Facility by Sept 30, 2009



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2006



2007



2008



2009

