National Nuclear Security Administration
Defense Nuclear Nonproliferation

Briefing with the NRC

for the

Fuel Fabrication Capability Project

NA-21 GTRI Reactor Conversion Program

(March, 2008)

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MISSION & OBJECTIVE

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Program Mission:

The GTRI Reactor Conversion mission statement is to support the minimization and, to the extent possible, elimination of the use of HEU in civil nuclear applications by working to convert research and test reactors and radioisotope production processes to the use of LEU fuel/LEU targets throughout the world.

FFC Objective:

To support the mission of GTRI to convert HEU fueled research reactors to LEU fuel by 2014. The creation of the FFC will enable 6 domestic reactors to convert that use ~250 kg HEU per year and for up to 22 additional international reactors that use another ~250 kg HEU annually.

BACKGROUND

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- 1953 - "Atoms for Peace" program announced by President Eisenhower
- 1978 - RERTR program begins under the DOE
- 2004 - GTRI created, Reactor Conversion (RERTR) integrated into GTRI
- 2006 - GTRI – Reactor Conversion starts the High Performance Reactor Working Group (HPRWG) to compliment the International Fuel Development Working Group (IFDWG)
- 2007 - DOE-NE and NNSA sign agreement defining roles and responsibilities for the construction and operations of the FFC
- 2014 – Secretary of Energy's commitment to convert US research reactors to LEU

Status

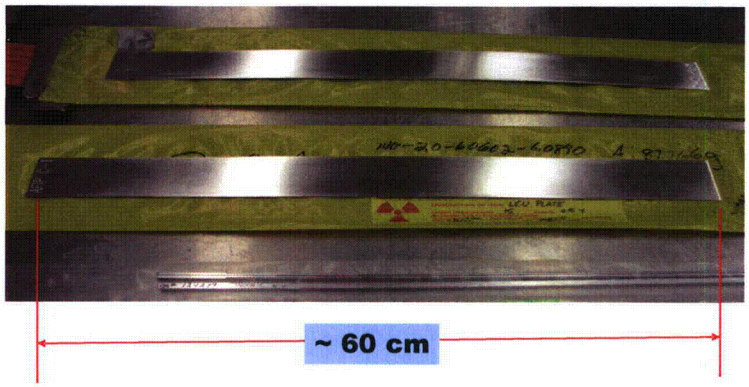
CD-0 package completed and approved.

- Justification of Mission Need.
- Mission and functional facility requirements defined.

CD-1 preparations being made. Process Definition Document completed detailing the fuel manufacture techniques.

Fuel Development is currently testing full size plates

Full-size Fuel Plate Fabrication



Fabricated for ATR-C and AFIP-2 tests by Friction Bonding