Acronyms

AI – Aluminum
ATR – Advanced Test Reactor
DOE – Department of Energy
DRR – Domestic Research Reactor
EM – DOE Office of Environmental Management
EUD – Enriched Uranium Disposition
FRR – Foreign Research Reactor
FY – Fiscal Year
HEU – Highly Enriched Uranium >20%
HFIR – High Flux Isotope Reactor
INL – Idaho National Laboratory
IPT – Integrated Project Team
LAC – L Area Complex
LEU – Low Enriched Uranium <20%
LWT – Legal Weight Truck
LTH – L-Area To H-Area
MTHM – Metric Tons Heavy Metal
MTR - Material Test Reactor
NE – DOE Office of Nuclear Energy
NNSA – National Nuclear Security Administration
ORNL – Oak Ridge National Laboratory
SC – DOE Office of Science
SNF – Spent Nuclear Fuel
SRNS – Savannah River Nuclear Solutions
SRS – Savannah River Site
Purpose

➢ Describe the proposed work plan in FY2010 for:

  ▪ H-Canyon/HB Line

  ▪ K-Area Complex
Nuclear Materials Disposition Process

- **Foreign Research Reactor Spent Nuclear Fuel** (~1 MTHM)
- **Domestic Research Reactor Spent Nuclear Fuel** (~5 MTHM)
- **Zirconium & Stainless Steel Clad Spent Nuclear Fuel**
- **Non Moxable Plutonium**
- **Aluminum Clad Spent Nuclear Fuel** (~14.4 MT HEU or ~20 MTHM)
- **Offsite Enriched Uranium** (~7.5 MT HEU)
- **Low Enriched Uranium** (~250 MT LEU)
- **Residual Plutonium, High Activity Waste** Use for fuel for Power Reactors
- **New SRS Capabilities**
- **Plutonium Consolidation** (12.8 MT Pu)
- **Non-Pit Plutonium**
- **Non Moxable Plutonium** (2 MT Pu)
- **Moxable Pu** (4.1 MT Pu)
- **Oxides** (3.7 MT Pu)
- **Plutonium Pits and Clean Metal**
- **Pits and Clean Metal**
- **New SRS Facility**
- **MOX Fuel Fabrication**
- **Burn in Existing, Domestic Commercial Reactors**
- **Spent Nuclear Fuel Repository**

¹ Proposal only
FY10 Goals
H-Canyon/HB Line

- Complete Un-irradiated HEU dissolution by September 2010
  - Expecting final HEU receipts
    - HEU-Molybdenum
    - Aberdeen
    - SPR II

- Load 20 LEU trailers by September 2010

- After Un-irradiated HEU campaign is complete, transition to Spent Nuclear Fuel
HEU TO LEU

HEU BLEND DOWN PROJECT

HEU RECEIPT TANK

NU STORAGE TANKS

DISSOLVER SURGE TANKS

F1-3/ F1-4

E1-1

LEU STORAGE/TRANSFER TANK

E1-2

LEU MEASURING TANK

LEU LOADING HOSE

LEU TRANSFER TRAILER

LEU LOADING STATION

H-CANYON

17.2E

18.1/18.7

B3-1

B3-2

TRANSFER TANKS

HEU TRANSFER LINE

E4-2

HEU RECEPT TANK

LEU BLENDING TANK

F1-5

E1-2

LEGEND

NEW LINES

EXISTING LINES

A-LINE BASIN AREA

ENRICHED URANIUM SOLUTION TANK

B3-1

RECI RC

EUS

LEU LOADING STATION

LEU TRANSFER TRAILER
FY10 Goals
H-Canyon/HB Line

- Continue dissolving plutonium
  - This material will come from
    - Long term Pu surveillance program
    - Excess Pu that is unsuitable for MOX feed or disposition through WIPP

- Support Hanford’s de-inventory of low activity Pu material
FY10 Goals
K-Area Complex

- Continue long term Pu surveillance program
  - DOE technical standard requires 18 destructive examinations and 34 non-destructive examinations per year

- Complete fabrication and installation of Californium ‘Shuffler’

- Begin design of new storage vault
Summary and Path Forward

- All of the aforementioned goals are dependent upon the actual FY2010 funding that is received.

- There are a number of studies being finalized and/or initiated that may change the goals presented here.

- Allen Gunter will discuss the purpose of these studies.
Presentation to
Savannah River Site Citizens Advisory Board

Spent Fuel Project Planning for FY2010

September 28, 2009

Dawn Gillas, Federal Program Manager
Carl Lanigan, Federal Project Director PBS 12
Nuclear Material Programs Division, DOE-SR
## Acronyms

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Spent Fuel Project FY2010 Activities

- Railroad repairs
- On-site transport of SNF (70-ton cask)
- L-Basin crane upgrades
- INL SNF Exchange
- FRR/DRR Receipts
- Summary
Preparations to ship SNF from L to H Area

- Onsite Railroad Upgrade
  - Will finish in FY2010
- Upgrade of 70-Ton Casks for Onsite Shipping
  - As-built drawings complete for all 5 casks to support design
  - Design work completed June 2009 for required safety upgrades
  - Cask modifications to be performed FY2010 (3 casks)
- L Area Crane Upgrade
  - Modifications required to meet single point failure criteria for 70-Ton cask handling (DOE 420.1B). To complete FY2010.
- First shipment from L to H Area planned for FY2011.
INL SNF Exchange

Preparations for shipping non-Al-based SNF to INL and receiving Al-based SNF from INL

- FY10 funding would support:
  - Start of procurement and licensing of a commercial cask for the exchange
  - Start of L Area project to modify cask and fuel handling equipment for SNF packaging and cask loading
- INL Exchange shipments estimated to begin in FY2012
Approved SNF Casks

- GNS-16
- JRF-90Y-950K
- TN-7/2
- LWT
- TN-MTR
- GE-2000
- JRC-80Y-20T
- JMS-87Y-18.5T
L to H Transfers and INL SNF Exchange

- Current baseline - H Canyon starts processing SNF May 2011
  - Current (May 2009) L Area inventory: ~12,000 assemblies
  - Future FRR/DRR receipts: ~3,000 assemblies
  - INL SNF Exchange receipts: ~4,000 assemblies
  - Total SNF to be processed: ~19,000 assemblies

- Current baseline – SNF Exchange starts April 2012
  - L Area SS/Zr-clad inventory to INL: ~2,000 items
  - INL Al-clad inventory: ~4,000 assemblies
  - Approximately 20 shipments per year each way thru FY2019
FY10 FRR/DRR Receipts

- Planned receipts in FY2010
- DRR receipts from:
  - NIST (Maryland)
  - MURR (Missouri)
  - MIT (Massachusetts)
  - HIFR (Tennessee)
- FRR receipts from:
  - Germany
  - Israel
  - Japan
  - Turkey
  - Chile (GAP)
Summary

- L – Area SNF receipt and storage mission ends FY 2019
- LTH shipments begin FY2011
- LTH preparations begin continue in FY2010
- INL Exchange shipments begin in FY2012
- FRR/DRR receipts continue
- All of the aforementioned goals are dependent upon the actual FY2010 funding that is received.