MOX Fresh Fuel Package
2nd NRC Meeting

NRC Docket No. 71-9295
October 4, 2000

Agenda

- Introduction
- Design Overview
- Preliminary Criticality Analysis Results
- Preliminary Thermal Analysis Results
- Preliminary Structural Analysis Results
- Planned Schedule
Introduction

• Purpose
  – Update NRC SFPO
  – Present status of the MOX fresh fuel package (MFFP) design
  – Obtain NRC views of:
    • Design approach
    • Preliminary analysis results
    • Certification test plan

Introduction

• Background
  • Excess plutonium (PU) from various DOE defense programs
  • Consortium of Duke, COGEMA, & Stone & Webster (DCS) awarded contract by DOE-MD (Materials Disposition) to design, license and build:
    – MOX fuel fabrication facility (MFFF)
    – MOX PWR fuel assemblies
    – Transportation packages (MFFP)
  • Fuel fabrication facility & transportation package to be NRC-licensed
  • Fuel to be transported between MFFF and mission reactors by DOE using Safeguards Transport (SGT) Vehicles
Design Overview

- Design Overview
  - System Overview
  - Containment Boundary
  - Impact Limiters
  - Payload (Strongback and MOX Fuel Assemblies)

Design Overview

- General Configuration:
  - Overall Envelope Parameters (Approx.)
    - Length: 174.5 inches (w/o impact limiters)
    - Containment Shell Outer Diameter: 29 3/4 inches
    - Impact Limiter Outer Diameter: 60 inches
    - Package Gross Weight: 14,500 pounds (15,000 Maximum)
    - Weight of Internals (strongback, support discs, fuel assemblies): 7,100 pounds
Design Overview

- General Configuration:
  - Type B(U)F-85 packaging
  - Single containment boundary per 10 CFR §71.63(b)(1)

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Design Overview

- General Configuration:
  - Cylindrical containment shell with conventional, polyurethane foam filled impact limiters at each end
Design Overview

- Containment Boundary:
  - Cylindrical, high strength stainless steel shell, reinforced flat ends, and a bolted closure lid at one end
  - Leak tight containment boundary (shell, inner bottom plate, closure lid, and seals)

Design Overview

- Impact Limiters - Top Impact Limiter
  - In addition to limiting impact forces, is designed to resist puncture