



SPENT FUEL STORAGE: *BUILDING ON DOE'S ACCOMPLISHMENTS*

WM'13 Phoenix

DOE'S PAST ACCOMPLISHMENTS FOR SPENT FUEL MANAGEMENT AND STORAGE

- FACILITY DESIGN
- SITING, SYSTEMS ANALYSIS, SAFETY ANALYSIS
- FUEL CONSOLIDATION
- FUEL PACKAGING
- DRY STORAGE & RETRIEVAL

FACILITY DESIGN

- MRS FACILITY 30% DESIGN COMPLETE
- 3,600 MTHM PER YEAR OF FUEL RECEIPT
- 72,000 MTHM TOTAL STORAGE CAPACITY, EXPANDABLE
- 8,000 MTHMe of HLW
- WORK DONE IN 1980's FOR OCRWM/DOE-RL

SITING & SYSTEM AND SAFETY ANALYSES

- **NATIONWIDE SITING STUDY: TRANSPORTATION, SOCIOECONOMIC, INSTITUTIONAL, REGULATORY, ENVIRONMENTAL, GEOTECHNICAL, INFRASTRUCTURE AND COST**
- **SELECTION OF CLINCH RIVER SITE**
- **PROBABILISTIC ANALYSES OF TRANSPORTATION ISSUES AND OPTIONS**
- **EXTENSIVE SAFETY MODELING AND MONITORING OF PARALLEL DEMONSTRATION PROGRAMS**

SPENT FUEL CONSOLIDATION

- FABRICATION AND HOT OPERATION OF PRODUCTION-SCALE FUEL CONSOLIDATION SYSTEM AT TAN-INEL
- WORK WAS DONE TO PRODUCE CONSOLIDATED SPENT FUEL FOR DRY STORAGE DEMONSTRATION
- CONCEPTION DESIGN OF THREE ALTERNATIVE SYSTEMS FOR CONSOLIDATION FOR DOE-ID

PACKAGING

- NTS:
 - 13 SPENT FUEL ASSEMBLIES ACQUIRED FROM UTILITY AND PACKAGED AT EMAD
 - PART OF DRY STORAGE DEMONSTRATION
- INEL
 - PACKAGING OF BOTH CONSOLIDATED AND UNCONSOLIDATED SPENT FUEL AT TAN
 - PART OF DRY STORAGE DEMONSTRATION

DRY STORAGE & RETRIEVAL

- SURFACE BOREHOLE STORAGE AT EMAD – NTS
- UNDERGROUND BOREHOLE STORAGE AT CLIMAX
- STEEL CASK AT TAN-INEL
- CONCRETE CASK AT TAN-INEL

FINAL COMMENTS

- DOE HAS FULLY DEMONSTRATED KEY ELEMENTS OF PRODUCTION-SCALE CONSOLIDATION, PACKAGING, STORAGE AND RETRIEVAL OF SPENT FUEL
- DOE HAS COMPLETED DESIGNS, SITING, SYSTEMS AND SAFETY ASSESSMENTS
- THESE ACCOMPLISHMENTS MUST BE INTEGRATED INTO ONGOING PROGRAMS TO ADVANCE PROGRAM OBJECTIVES WITH MINIMAL EXPENDITURES