Spent Fuel Pool Under Rack Cleaning
Agenda

- Challenge Statement
- Operating Experience
- Summary
Spent Fuel Pool Under Rack Foreign Material Challenge

- Foreign material under the SFP rack is disturbed when moving fuel
  - Refueling
  - Dry Cask Loading
- Moving fuel creates an “updraft” in the cell, drawing foreign material up, in and through the rack
- Material has the potential to deposit in fuel assemblies destined for the core

Dry Cask Loading
Foreign Material Examples
Operating Experience

• Prepare to handle large volumes of highly radioactive foreign material
  • Site A: 1,000 REM / hour of debris and 50 discrete objects
  • Site B: 200 REM / hour of debris and 150 discrete objects
• Stock up on filters

Pen Spring
Operating Experience

• Ensure vacuum filtration system is in good repair
  • Capability effects the effectiveness and duration of the service

• Monitor filter radiation levels to meet disposal requirements
  • Dose limit 20 REM / hour
Cleaning Results

Pre-Cleaning

Post-Cleaning
Case Study

- General source term removal
- Mitigate potential sources of failed fuel
  - Support full core offload
- Twelve 10 micron filters were collected
- Two crawlers
  - Primary for vacuum activities
  - Gripper for collecting large foreign material
- Ancillary components readily removed under water to reduce radiological concerns (treads, brush)
- Operated remotely from low dose area
- No significant handling/maintenance issues
- Ultimate success will be measured by fuel failure free cycle following RF20
Summary

Spent Fuel Pool Under Rack Cleaning

- Prevention of foreign material-induced fuel failures
- Risk mitigation for fuel failure-induced source term and contamination level increases
- Risk mitigation for response to foreign material found in a fuel assembly
- Risk mitigation for the costs associated with these issues