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ISFSI Inspection Program Enhancement Initiative Overview

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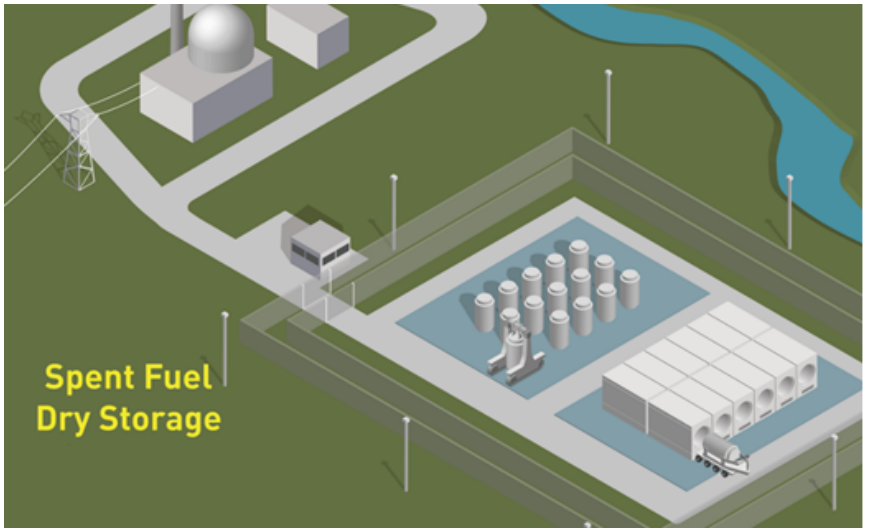
Background

- NRC Transformation Team established in early 2018
- Internal feedback received to improve program efficiency and consistency
- 27 ROP recommendations provided to NRR by NEI (September 19, 2018)
  - Recommendation 1H: “Eliminate Materials Inspections of ISFSI”
- In response to all feedback the staff committed to assess the ISFSI program



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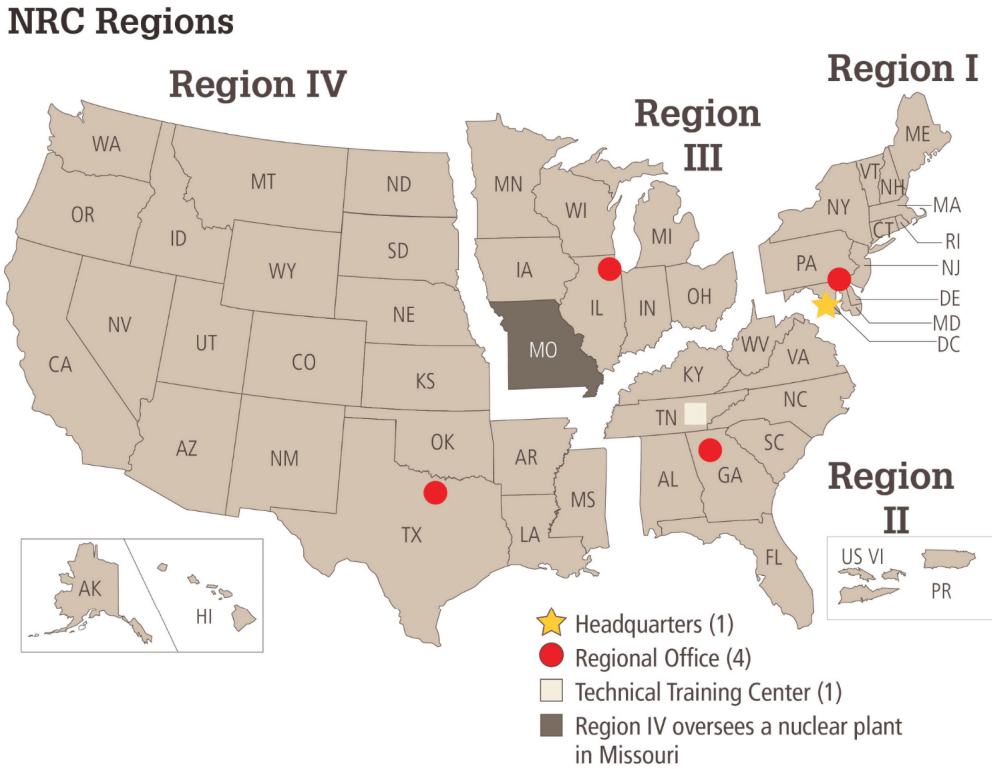
ISFSI Enhancement Team

- A team of Regional ISFSI inspectors and headquarters staff was created to assess the ISFSI program
  - Develop recommendations for a more effective and efficient ISFSI inspection program
  - (Team Charter, ADAMS Accession No. ML19155A273)



Nuclear Power Plants
- Each regional office oversees the plants in its region—except for the Callaway plant in Missouri, which Region IV oversees.

Materials Licensees
- Region I oversees licensees and Federal facilities located geographically in Region I and Region II.

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ISFSI Enhancement Initiative Scope

- Oversight of ISFSI operations:
  - On-site component construction
  - Dry-runs
  - Loading
  - Monitoring

- Not in Scope of Review:
  - Transportation
  - Vendor Inspections
  - Aging Management
  - Security

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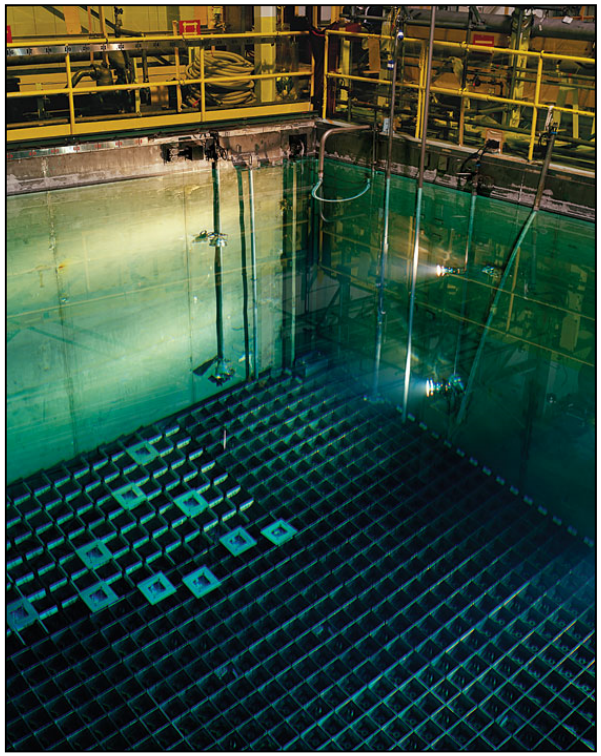
Focus Areas of ISFSI Program



The team identified five safety focus areas:

- Occupational Dose,
- Public Dose/Exposure,
- Fuel Damage,
- Confinement/Canister Integrity, and
- Impact to Plant Operation

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Areas of Potential Enhancement

- Application of Risk insights (Methodology)
- Frequency of Inspections
- Qualification and training
- Level of Effort

Team's Assessment – Option 1

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- Methodology
  - More risk-informed, performance-based ISFSI program that takes into account information from:
    - Probabilistic Models
      - ISFSI Pilot PRA - NUREG/CR-1864
      - Materials Systems Risk Analysis - NUREG/CR-6642
    - Operating Experience
    - Subject Matter Expertise
  - Risk prioritization tool to help inspectors identify the most risk significant items

Team's Assessment – Option 1

- Inspection Frequencies
  - Informed by risk insights, specifically the fixed radiographic installation and irradiator facility inspection frequencies
    - Proposed Program
      - Routine inspections - triennial;
      - All other inspection frequencies - as needed
    - Current Program
      - Routine inspections - biennial
      - All other inspection frequencies - as needed
  - Routine monitoring inspections at Away From Reactor ISFSIs subject to change based on aging management inspection results

Team's Assessment – Option 1

- Formal qualification and training specific for ISFSI inspectors
  - Applicable to regional or resident inspectors
  - Interim qualification table developed for routine loading inspections performed by resident or regional engineering inspectors
  - No recommendation on who performs inspection

Team's Assessment – Option 1

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- Inspection Effort
  - Routine inspections
    - Level of effort assessed by performing line by line review of hours needed for the risk-significant inspection activities
      - Welding, Heavy Loads, Fuel Loading activities
    - Proposed Program
      - 96 hours every 3 years for routine loading inspections
      - 24 hours every 3 years (includes Away From Reactor ISFSIs) for routine monitoring inspections
    - Current Program
      - 132 hours every 2 years for routine loading inspections
      - 24 hours every 2 years (includes Away From Reactor ISFSIs) for routine monitoring inspections

Team's Assessment – Option 1

- Inspection Effort (cont.)
  - Pre-operational and initial loading inspections
    - Based on actual resource expenditures and activities in revised risk informed inspection procedures
    - Proposed Program
      - Pre-operational inspection (IP 60854) 200 hours
      - Review of 72.212 evaluations (IP 60856) 160 hours
    - Current Program
      - Pre-operational inspection (IP 60854) 120 hours
      - Review of 72.212 evaluations (IP 60856) 120 hours

Team's Assessment – Option 2

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- The scope of the program requirements for inspection of the five safety focus areas primarily informed by pilot PRA study.
- Inspection Frequencies consistent with Option 1
- Inspector Qualification and Training
  - Provides training alternatives dependent on the inspector implementing the program
    - E.g., A qualified ROP resident inspector, for oversight of routine loading activities, would complete applicable modules of the new ISFSI inspector training course
  - Region-based ISFSI program support available from qualified specialized inspectors
    - E.g., Radiological and welding/NDE

Team's Assessment – Option 2

- Inspection level of effort
  - Proposed Routine loadings: 20 hours every 3 years
    - Option 2 level of effort is based on consideration of the risk profile and approach for implementation of the program
  - Option 1 Routine loadings: 96 hours every 3 years
  - Level of effort for all other inspection activities is consistent with Option 1

Additional Areas for Consideration

- The team also recommended the following:
  - Assess and provide recommendations for enhancement in the areas of inspection readiness for
    - Transportation of spent nuclear fuel
    - Consolidated Interim Storage Facilities (CISFs)
  - Review possible efficiency gains and overall improvement related to the creation of a Center of Expertise for ISFSI oversight activities
  - Development of a self-assessment process for the ISFSI oversight program

Status and Next Steps

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- Internal review of evaluation and recommendations
- Public feedback on proposed recommendations being accepted through December 20
- Consideration and assessment of feedback on team recommendations/options and final report submitted for decision
- Upon decision, program documents will be updated
  - New technical basis document
  - Revisions to Inspection Manual Chapters and Inspection Procedures
- Goal for implementation in Fiscal Year 2021