



## NRC Public Meeting Spent Fuel Storage at Indian Point

July 15, 2004  
Peekskill, NY

## Agenda

- Welcome
- Opening Remarks
- Presentation
  - Requirements for Dry Cask Storage
  - Licensing of Dry Cask Storage Systems
  - Inspection of Dry Cask Storage Systems
- Questions and Answers

## NRC Speakers

Chip Cameron, Facilitator  
Office of the General Council

Brian Holian, Deputy Director  
Division of Reactor Projects  
Region 1

Larry Camper, Deputy Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Dr. Ron Bellamy, Chief  
Projects Branch 6  
Division of Reactor Projects  
Region 1

John Monninger, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards



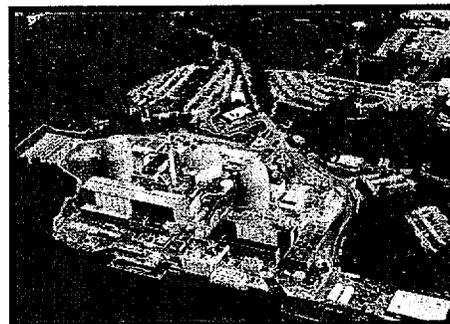
## Opening Remarks

Brian Holian, Deputy Director  
Division of Reactor Projects  
U.S. NRC, Region I

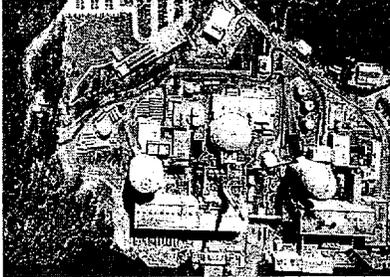
## Overview

- Annual Assessment Meeting Summary
- Recent Emergency Exercise
- Current Plant Performance
- Indian Point ISFSI Overview

## Indian Point Site



## Fuel Route to ISFSI



## Regulatory Process for Licensing of Dry Cask Storage Systems

Larry Camper, Deputy Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

### Overview

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- Regulatory Framework
- ISFSI Licensing Pathways
- Security Considerations

### NRC Mission

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- Ensure adequate protection of public health and safety
- Promote the common defense and security
- Protect the environment

### Regulatory Framework

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- Atomic Energy Act of 1954
- Nuclear Waste Policy Act of 1982
- 10 CFR Part 72
- Waste Confidence Decision
- Spent Fuel Project Office (SFPO)

### ISFSI Licensing Pathways

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- Specific License
- General License

### Site-Specific Licensing Process

- 10 CFR Part 72, Subpart B
- Application with Safety Analysis Report and Environmental Report
- Notice of Proposed Action and Opportunity for Hearing
- Environmental Assessment or Environmental Impact Statement
- At-Reactor or Away from Reactor Sites

### General Licensing Process

- Certificate of Compliance
- Power Plant Selects, Evaluates, and Constructs the Dry Cask Storage System
- NRC Inspections

### General Licensing Process

- Certificate of Compliance Usage
  - 10 CFR Part 72, Subpart K
  - Limited to Part 50 Reactor Licensees
  - Requires Use of NRC-Certified Cask Designs

### General Licensing Process

- Part 50 License Holder Actions
  - Evaluate and modify existing programs to support the ISFSI
    - Quality Assurance
    - Physical Security
    - Emergency Planning
    - Training
    - Health Physics
    - Procurement

### General Licensing Process

- Part 50 License Holders
  - Inform NRC 90 days prior to first planned loading
  - Register each cask with the NRC within 30 days
  - Maintain individual cask records
  - Maintain casks in accordance with Certificate of Compliance

### Security Considerations

- Compliance with 10 CFR Part 73
- Issuance of Security Advisories
- Issuance of Security Orders
- Vulnerability Assessments
- NAS Study on Spent Fuel Storage



## Dry Cask Storage Certificates of Compliance

John D. Monninger, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

## Review and Approval Process

- Part 72, Subpart L – Approval of Spent Fuel Storage Casks
  - Application to NRC
  - Application available for public inspection
  - Safety review
  - Draft safety evaluation and draft Certificate of Compliance
  - Notice of Rulemaking is published in Federal Register
  - Review public comments
  - Final safety evaluation and Issuance of Certificate of Compliance

## Technical Review Guidelines

- Standard Review Plan for Dry Cask Storage Systems (NUREG-1536)
- Standard Review Plan for Spent Fuel Dry Storage Facilities (NUREG-1567)
- Interim Staff Guidance Documents

## Areas of Evaluation

- Principal Design Criteria
- Structural
- Thermal
- Shielding
- Criticality
- Confinement
- Operating Procedures
- Acceptance Tests and Maintenance Program
- Radiation Protection
- Accident Analyses
- Conditions for Use
- Quality Assurance
- Decommissioning

## Hazards Considered

- Normal Operations
- Off-Normal Operations
- Design Basis Accidents
- Design Basis Natural Phenomena (e.g., Tornadoes, earthquakes, floods, lightning, tsunami, hurricanes)

## Conditions for Use

- Operating Procedures
- Acceptance Tests and Maintenance Program
- Quality Assurance
- Heavy Loads
- Design Features
- Pre-Operational Testing and Training

## Approved Contents

- Fuel Loading Patterns
- Fuel Type (PWR, BWR)
- Cladding Type
- Enrichment
- Burnup
- Minimum Cooling Time
- Decay Heat

## Publicly Available Information

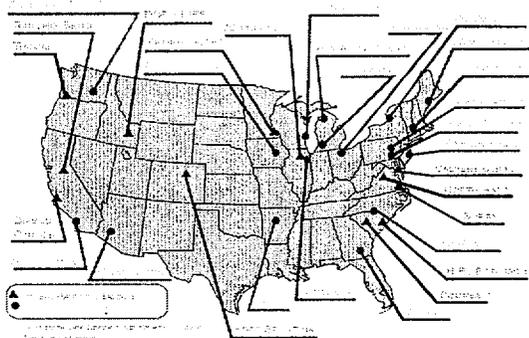
- NRC's Web-site ([www.nrc.gov](http://www.nrc.gov))
  - Electronic Reading Room (ADAMS web-based access)
- Indian Point Proposed ISFSI (Docket # 07200051)
- Holtec HI-STORM 100 Certificate of Compliance (Docket # 07201014)



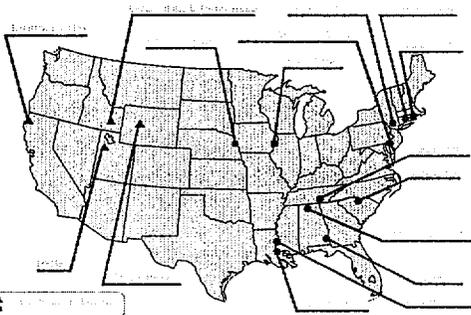
## Inspection Program for Dry Cask Storage Systems

Dr. Ron Bellamy, Chief  
Projects Branch 6  
Division of Reactor Projects  
U.S. NRC, Region I

## Operating Spent Fuel Storage (ISFSI) Locations



## Proposed, Near Term Spent ISFSI Locations



## Indian Point's Dry Cask System

### Hi - Storm 100 (Certificate of Compliance 1014)

- OPERATIONAL EXPERIENCE
  - ARKANSAS NUCLEAR (2003)
  - COLUMBIA GENERATING STATION (2002)
  - DRESDEN (2003)
  - EDWIN I. HATCH (2003)
  - FITZPATRICK (2002)
  - RIVER BEND (2004)
  - SEQUOYAH (2004)
  - TROJAN (2003)
- PLANNED
  - BROWNS FERRY (2005)
  - HOPE CREEK/SALEM (2008)
  - QUAD CITIES (2005)
  - DIABLO CANYON (2008)
  - PRIVATE FUEL STORAGE FACILITY (2005)

## NRC Inspection Program

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- Component Fabrication
- ISFSI Construction
- Preoperational Testing
- Operations
- Security

## Component Fabrication

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- IP 60851, "Design Control of ISFSI Components"
  - Conditions of Certificate of Compliance are met
  - Prior NRC approvals obtained
  - No significant increase in occupational radiation exposure
  - No significant unreviewed environmental impact

## ISFSI Construction

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- IP 60852, "ISFSI Fabrication by Outside Fabricators"
  - Construction of Systems, Structures, and Components in accordance with:
    - Safety Analysis Report
    - 10 CFR 72
    - Certificate of Compliance
  - Containers Maintain Function
    - Confinement
    - Criticality
    - Shielding
    - Heat Removal
  - Prevent damage to SNF containers during handling
  - Health and safety of public is maintained

## ISFSI Construction

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- IP 60853, "Onsite Fabrication of Components and Construction of an ISFSI"
  - Concrete storage containers built in accordance with:
    - Safety Analysis Report
    - Safety Evaluation Report
    - Certificate of Compliance
    - 10 CFR 72
    - Quality Assurance program
  - Pad constructed to specifications
    - Sub-soil compaction
    - Rebar
    - Concrete compressive strength
    - Qualification construction workers

## Preoperational Testing Reviews

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- IP 60854, "Preoperational Testing of an ISFSI"
  - NRC observes and independently evaluates licensee's capability
  - Test program and test procedures
  - Final determination of readiness to load spent fuel into an ISFSI

## Licensing Document Reviews

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- IP 60856, "10CFR72.212(B) Evaluations"
  - Emergency Plan
  - QA Program
  - Radiation Protection Program
  - Training Program
- IP 60857, "10CFR72.48 Evaluations"
  - Facility changes under certain conditions w/o prior NRC approval

## Operations

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- IP 60855, "Operation of an ISFSI"
  - Loading Campaigns
    - Frequency
  - Long-term Operations and Surveillance
    - Qualifications of Personnel
    - Security/Safeguards
    - Fire Protection
    - Environmental Monitoring
    - Maintenance

## Security

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- IP 81001, "Security and Safeguards at an ISFSI"
  - Security Plan
  - Patrols
  - Barriers
  - Detection Aids
  - Access Control
  - Local Law Enforcement Interface
  - Compensatory Measures
  - Contingencies
  - Guard Training and Qualifications
  - Audits and Assessments