

VSC-24 Lead Canister Inspection

Suzanne Leblang, Entergy
Steven Sisley, EnergySolutions

Initial Challenges

- ▶ A large amount of information is needed from each user to support the license renewal for example:
 - ❖ Historic Radiation Survey Data
 - ❖ Operating History including corrective actions
 - ❖ Design Modifications
 - ❖ Inspection & Surveillance data/results

Schedule

- ▶ Cask Vendor requested information 18 months prior to the license renewal submittal date
 - ❖ Sites took approximately 8 months to respond (only 3 sites)
 - ❖ Cask vendor needs this information to complete development of the Aging Analysis, Lead Cask Inspection, and Aging Management Program

Scope of Inspection

▶ Areas Inspected

- ❖ Exterior concrete surfaces
- ❖ VCC bottom surface and underlying ISFSI pad
- ❖ MSB shell, VCC liner and VCC air ducts
- ❖ VCC cask lid and MSB top end

▶ Overall Conclusion

- ❖ No unanticipated degradation of VSC-24 storage system components during initial storage period

Background

- ▶ VSC-24 Ventilated Storage Cask System CoC Renewal Application Submitted to NRC
 - ❖ Requested 40-year renewal term to May 7, 2053
 - ❖ NRC currently reviewing application
- ▶ Lead Canister Inspection performed and included with CoC renewal application per NUREG-1927
 - ❖ Performed at Palisades on May 21-24, 2012
 - ❖ Cask No. VSC-15

Lead Canister Selection

- ▶ Palisades Cask No. 15 selected for inspection because it has the highest overall heat load
- ▶ Other selection parameters considered
 - ❖ Design configuration: No significant differences between three GL casks
 - ❖ Environmental Conditions: Palisades and Point Beach similar, and slightly worse than ANO
 - ❖ Time in Service: Not governing selection criteria
 - Oldest casks are already subjected to 5-year inspections
 - Additional operating experience gained by inspecting different cask

Inspection Results

VCC Concrete Exterior

- ▶ Visual examination of concrete side & top surfaces for aging effects
- ▶ Concrete in good overall condition
 - ❖ Small number of “bug-holes”
 - ❖ No other aging effects identified



Inspection Results

VCC Bottom Surface

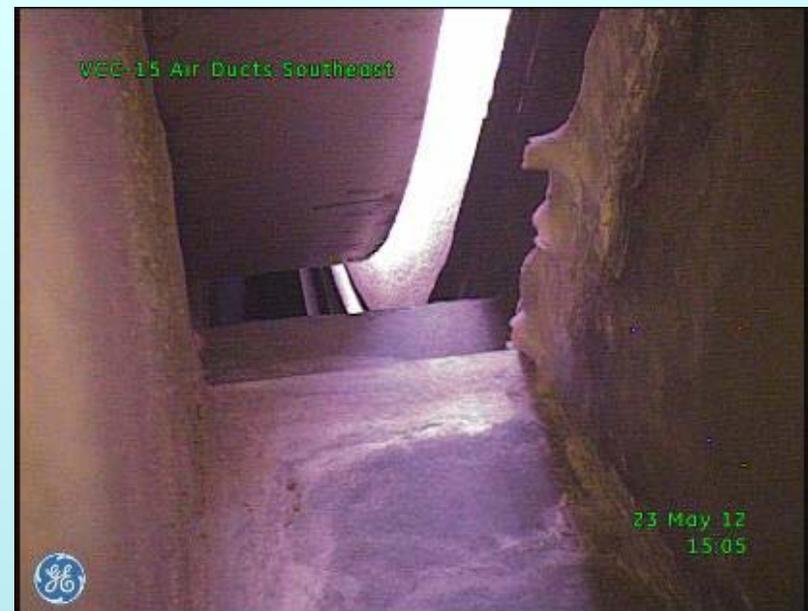
- ▶ Lifted cask using jacks and performed remote visual examination cask bottom surface and underlying ISFSI pad
- ▶ Cask bottom and ISFSI pad surfaces in good overall condition
- ▶ Small amount of debris, dust, bugs found
- ▶ Slight separation of bottom plate from concrete (due to jacking)



Inspection Results

MSB Shell, VCC Liner and Vents

- ▶ Remote visual inspection of VCC annulus and vents
- ▶ Surfaces in good overall condition
- ▶ Small amount of debris inside VCC
 - ❖ Leaves/bugs collected at bottom of VCC annulus
 - ❖ Small mineral deposits (e.g., stalactites) at inside end of outlet vent
- ▶ Coating on MSB and VCC liner in good condition – no degradation or corrosion



Inspection Results

VCC Lid, MSB Top End

- ▶ Removed VCC lid and performed visual inspection MSB top end
- ▶ VCC lid in good condition
 - ❖ Coating intact
 - ❖ Lid bolts acceptable – minor corrosion
 - ❖ Lid gasket – no evidence of leakage
- ▶ MSB top end in good condition
 - ❖ Coating intact – few small “bubbled” areas
 - ❖ Small areas of coating scraped off when temporary shielding removed
 - No corrosion on underlying steel
 - Scraped areas re-coated



Inspection Conclusions

- ▶ No unanticipated degradation of VSC-24 storage system components during initial storage period
 - ❖ Concrete surfaces show no unexpected aging effects
 - ❖ Coating on steel surfaces intact and no indication of corrosion of underlying steel
 - ❖ No significant accumulation of debris in ventilation paths

License Renewal Lessons Learned

- ▶ Start Early
- ▶ Expect that information gathering will take time and resources
- ▶ Budget and Schedule Lead Cask Inspection

License Renewal Lessons Learned

- ▶ Final issuance of General License Renewal
 - ❖ Traditional Rulemaking
 - ❖ Direct Final Rulemaking
- ▶ Each site to Implement new requirements and inspections

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