

Cable Spreading Room (CSR) Sprinkler System



Progress Energy

2/25/2003

Agenda

- Introduction David Hinds
- Presentation
 - ▶ Licensing Basis Lenny Beller
 - ▶ Present Concern Roger Sims
 - ▶ Resolution Roger Sims
- Conclusion David Hinds

Licensing Bases

- March 1981: Exemption Requested for Automatic Suppression in Control Room (CR) and CSRs
- November 1981: Exemption Granted for CR
 - CSR Addressed Separately
- July 1982: NRC-CP&L Meeting
- November 1982: NRC Denied Exemption Request

Licensing Bases

- May 1983 Exemption Request

- ▶ “We propose the installation of a manually operated, fixed sprinkler system located below the cable trays for these zones. The suppression systems will be designed to extinguish a transient combustible fire. We believe the proposed manually operated, fixed, sprinkler system will provide protection equivalent to Section III.G.3, 10CFR50, Appendix R.”

Licensing Bases

● July 1983 SER

- ▶ “However, you have proposed to install a manually operated sprinkler system in the cable spreading room of each Brunswick unit. This type of fixed fire suppression meets the requirements of Section III.G.3 and therefore, an exemption is not needed.... Based on this discussion, we understand that you will begin modification of the Diesel Generator Building equipment hatches and the installation of ***fixed floor-mounted suppression systems in the Cable Spreading Rooms*** within six months.”

Licensing Bases

- Resident Inspector Considered Configuration a Risk Concern
- Task Interface Agreement Sent to NRC Headquarters
- Violation Proposed Against GDC 3

Present Concern - Initial Response

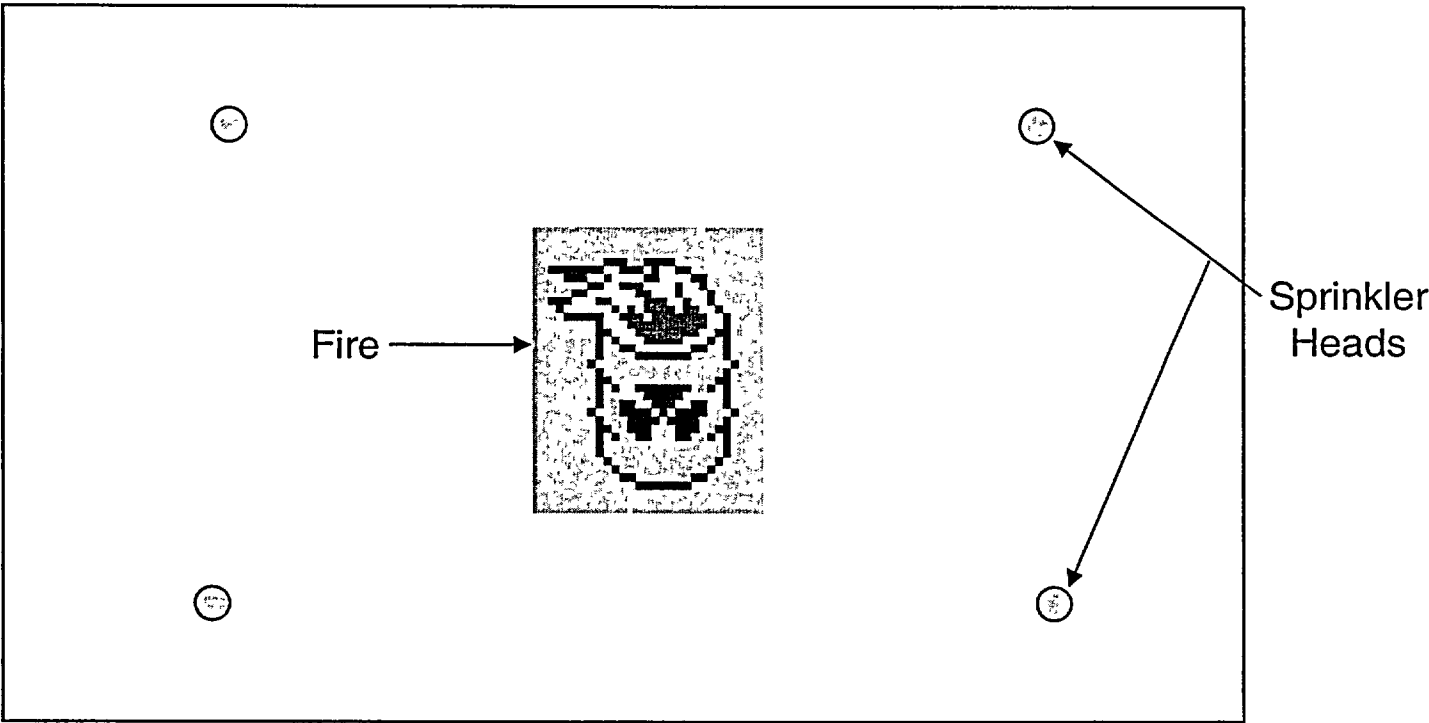
- Technical Study Performed

- ▶ Correlated Sprinkler Response Vs. Cable Damage Time

- ◆ Due to Lack of Validated Analysis Method Study Assumed Sprinkler System Would Not Actuate for Fire between Heads.

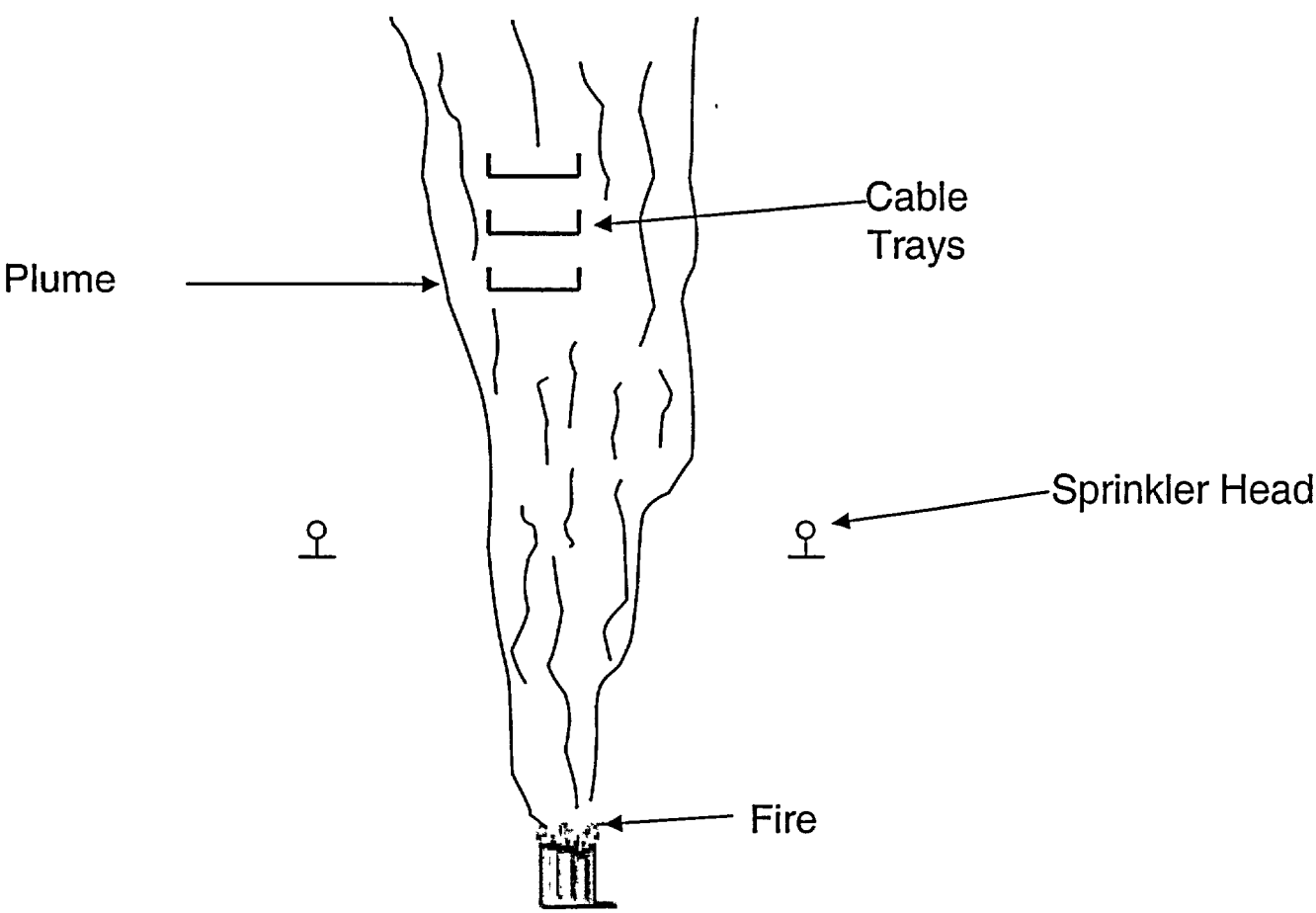
- ▶ Resident Inspector Provided a Draft Copy of Study

Plan View



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Section View



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Present Concern - Study Results

- 146 kW Fire
 - ▶ No Cable Damage in 30 Minutes
- 639 kW Fire
 - ▶ Cable Damage in 30 Minutes
- 783 kW Fire
 - ▶ Cable Damage in 20 Minutes
- In No Cases Were both Trains Damaged Due to a Single Fire

Present Concern

- 10/2/02 NRC Inspection Report 02-03

- ▶ The licensee failed to install fixed fire suppression systems that were capable of minimizing damage to safe shutdown cabling caused by floor level transient combustible fires in the Unit 1 and Unit 2 Cable Spreading Rooms (CSRs). The systems were determined to be unable to fulfill their intended function of limiting fire damage to the preferred trains of safe shutdown cables and safety-related cables in the CSRs.

Alternatives for Resolution

- Install Code Compliant Sprinkler System above and within Cable Trays
 - ▶ Sprinkler Contractor Stated Code Compliance May Not Be Possible
 - ▶ May Not Satisfy FSAR Commitment

Alternatives for Resolution

- Remove Sprinkler Links
 - ▶ System Will Not Support All Heads Flowing Hydraulically
 - ▶ Drainage Is a Problem

Alternatives for Resolution

- Strengthen Other Areas of Defense-In-Depth
 - ▶ Requires NRC Approval
 - ▶ No Physical Changes to Sprinkler System

Resolution

- Restrict Transient Combustibles below that Analyzed as Capable of Causing Cable Damage
- Install Incipient Fire Detection System
- Convert System from Manual to Automatic
- Submit Change to Licensing Basis to Remove Term “and Extinguish”

Conclusions

- Questions?

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