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**Do not include proprietary materials.***

DATE OF MEETING

12/8/99

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s) 50-348, 50-364, 50-333, 50-416, 50-395

Plant/Facility Name FARLEY, FITZPATRICK, GRAND GULF, SUMMER

TAC Number(s) (if available) MAG031

Reference Meeting Notice NOVEMBER 12, 1999

Purpose of Meeting  
(copy from meeting notice) TO DISCUSS THE POSSIBILITY OF RESOLVING  
THE ISSUE OF KANWOOD AND FP-60 FIRE  
BARRIERS THROUGH A VOLUNTARY  
INDUSTRY INITIATIVE.

NAME OF PERSON WHO ISSUED MEETING NOTICE

L. OLSHAN

TITLE

PROJECT MANAGER

OFFICE

NRR

DIVISION

DLPM

BRANCH

PD B-1

Distribution of this form and attachments:

Docket File/Central File

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PDR ADOCK

DF01

**MEETING AGENDA**

**Meeting Between the NRC and  
Southern Nuclear Operating Company (Farley Nuclear Plant)  
New York Power Authority (FitzPatrick Nuclear Plant)  
Entergy Operations (Grand Gulf Nuclear Plant)  
Southern Carolina Electric and Gas Company (Summer Nuclear Plant)  
To Discuss Kaowool and FP-60 Fire Barriers**

**December 8, 1999**

**PURPOSE**

The purpose of this meeting is to discuss the possibility of resolving issues associated with Kaowool and FP-60 fire barriers through a voluntary industry initiative. The meeting will be attended by the licensees that operate plants that use Kaowool or FP-60 fire barriers to meet regulatory requirements for protecting post-fire safe shutdown equipment. The NRC and the four licensees will discuss (1) the technical issues, (2) the applicability of the issues to the affected plants, (3) the need for compensatory measures, and (4) options for resolving the issues.

**AGENDA**

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|--|------------|
| <b>Introduction and Remarks (L. Olshan, NRC)</b>   | 9:00 a.m.  |
| <ul style="list-style-type: none"><li>● Introduction of meeting participants and attendees</li><li>● Purpose of the meeting</li></ul>                        |            |
| <b>NRC Management Overview (J. Hannon, NRC)</b>  | 9:05 a.m.  |
| <b>NRC Technical Evaluation (S. West, M. Salley, J. Hyslop, NRC)</b>   | 9:15 a.m.  |
| <ul style="list-style-type: none"><li>● Technical concern</li><li>● Results of Kaowool fire barrier review</li><li>● Potential safety significance</li></ul> |            |
| <b>New York Power Authority (A. Ettlenger)</b>   | 9:45 a.m.  |
| <ul style="list-style-type: none"><li>● Applicability of issues to Fitzpatrick Nuclear Plant</li><li>● Need for compensatory measures</li></ul>              |            |
| <b>Entergy Operations (J. Roberts)</b>   | 10:00 a.m. |
| <ul style="list-style-type: none"><li>● Applicability of issues to Grand Gulf Nuclear Plant</li><li>● Need for compensatory measures</li></ul>               |            |
| <b>Southern Carolina Electric and Gas Company (T. Keckeisen)</b>   | 10:15 a.m. |

- Applicability of issues to Summer Nuclear Plant
- Need for compensatory measures

**Southern Nuclear Operating Company (R. Hill)**

10:30 a.m.

- Applicability of issues to Farley Nuclear Plant
- Need for compensatory measures

**Issue Resolution (all participants)**

10:45 a.m.

- Options
- Future plans/interactions/meetings
- Schedule

**Adjourn**

12:00 p.m.

# Industry Status of Plants Using Kaowool/FP-60 for Appendix R

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- Plants that have removed/replaced Kaowool:
  - ▶ Hatch 1 & 2
  - ▶ Prairie Island 1 & 2
  - ▶ Salem 1 & 2
  - ▶ Sequoyah 1 & 2
  - ▶ Susquehanna 1 & 2
  
- Plants still using Kaowool/FP-60:
  - ▶ Farley 1 & 2
  - ▶ FitzPatrick
  - ▶ Grand Gulf 1
  - ▶ Summer

# **NRC/Industry Kaowool/FP-60 Fire Barrier Meeting December 8, 1999**

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K. Steven West  
Mark Henry Salley NRC/NRR

# Issue

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- The fire rating of the Kaowool fire barriers reviewed by the staff is indeterminate, but less than 1-hour.
- The ability of the barriers to maintain the protected component free of fire damage is indeterminate.
- These conclusions may apply to other Kaowool and FP-60 barriers.
- Need to establish the worth of the barriers to bring this issue to closure.

# Generic Communications

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- Generic Letters, 86-10, 92-08
- Information Notices: 93-40, 93-41
- TIA 96-023 “Adequacy of Kaowool Fire Barriers”
- SECY-99-204 “Kaowool and FP-60 Fire Barriers”

## THERMO-LAG 330-1 VS. KAOWOOL THERMAL COMPARISON

Time (Minutes)	Kaowool Temp. (°F)	Thermo-Lag Temp. (°F)
00:10	120	104
00:20	200	205
00:30	390	305
00:40	550	427
00:50	700	506 <sup>1</sup>
00:60	850	

<sup>1</sup>NEI test terminated at 48 minutes.

- Kaowool results from 10/24/78 B&W test. Temperature recorded on cables at the cable tray rail interface.
- Thermo-Lag 330-1 results from NEI base-line test 2-7. Maximum temperatures recorded on cable tray rail.



# Elements for a successful closure

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- Establish the actual fire rating and fire resistive performance for Kaowool and FP-60 Fire Barriers.
- Determine whether plant specific barriers provide an adequate level of fire protection.

# ***POTENTIAL RISK SIGNIFICANCE OF KAOWOOL***

J.S. Hyslop, Risk and Reliability Analyst  
Probabilistic Safety Assessment Branch  
Office of Nuclear Reactor Regulation

December 8, 1999

# POTENTIAL RISK SIGNIFICANCE OF KAOWOOL

- Demonstrate an Illustrative Example
- Subject to Verification
  - Inconsistencies between IPEEE, and Raceway Fire Barrier Information for some fire areas
- Utilizing Fire Protection Risk Significance Screening Process
  - Determines potential risk significance of fire protection inspection findings - conservative
  - Fits into plant oversight assessment process, thus recommending a regulatory response due to the potential risk significance of inspection findings

## **FIRE ZONE (CCW HEAT EXCHANGER / PUMPROOM)**

- SSD functions/equipment associated with Kaowool:
  - Train A and Swing CCW pumps (H = 1 layer of 1"),
  - Train B MDAFW pump, Train B CCW pump, Swing Charging pump (R = 2 layers of 1")
  - Without credit for Kaowool, these functions are assumed to fail.
- Other equipment/cables in zone:
  - TDAFW pump, MCC A (Train A of HHI, RHR, AFW, etc.) etc.
- No credit taken for MFW in IPEEE.
- Assume significant fire which can challenge Kaowool barriers exists
- Assume full credit for auto-suppression system, and fire brigade
- Treat R as a medium degradation of a 1 hr. fire barrier; H as a high degradation

# EVALUATION

- With degradation of Kaowool in fire zone, AFW and CCW threatened. Therefore decay heat removal threatened.
- Ignition frequency for fire area is significant. ( $7E-3/yr$ )
- Fire protection significance screening methodology produces a result which is potentially significant (non-Green).
- Additional analysis necessary to refine results

(Note: Fire zone is significant in IPEEE)