

MAR 17 1994

Docket No.: 50-261  
License No.: DPR-23

Carolina Power and Light Company  
ATTN: Mr. C. S. Hinnant  
Vice President  
H. B. Robinson Steam Electric Plant  
Unit 2  
P. O. Box 790  
Hartsville, SC 29550-0790

Gentlemen:

SUBJECT: ENFORCEMENT CONFERENCE MEETING SUMMARY - ROBINSON UNIT 2

This refers to the enforcement conference conducted in the Region II Office on March 14, 1994. The purpose of the meeting was to discuss the status of apparent violations identified during the Augmented Inspection Team investigation from November 20 - December 6, 1993, following problems which occurred at Robinson Unit 2 during startup from refueling outage 15. A list of attendees and a copy of your slides are enclosed.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this matter, please contact us.

Sincerely,

  
Jon R. Johnson, Acting Director  
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. Licensee Slides

cc w/encls:

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Plant Manager  
H. B. Robinson Steam Electric Plant  
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Hartsville, SC 29550

(cc w/encls cont'd - See page 2)

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Carolina Power and Light Company

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bcc w/encls: (See page 3)

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Carolina Power and Light Company 3

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03/17/94

Carolina Power & Light Company  
H. B. Robinson Steam Electric Plant, Unit 2

NRC Enforcement Conference

March 14, 1994  
Atlanta, Georgia



# Introduction

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- Events reviewed previously with NRC
- Today's focus
  - Apparent violations
  - Lessons learned
  - Corrective actions
- Events were preventable

# Agenda

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Introduction

C. S. Hinnant

Procedure Issues/Exceeding 3% Per Hour Power  
Increase

M. P. Pearson

Oversight of Purchased Fuel and Fuel Services

S. R. Zimmerman

Safety Significance

C. S. Hinnant

Summary

C. S. Hinnant

# Procedure Issues/Exceeding 3% Per Hour Power Increase

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## Background

- Fundamental conservative operating practices were not followed
- Operators' focus was too narrow; did not compare available diverse indications
- Operators' mindset was to get through plant startup
- Excessive rate of power increase was a consequence of miscalibrated nuclear instrumentation
- Excessive rate of power increase was not intentional nor detected by Operators

# Procedure Issues/Exceeding 3% Per Hour Power Increase

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## Safety Significance

- The potential to place the plant in a safety significant condition existed but there were no actual adverse safety consequences
- The actual rate of power increase was analyzed and did not exceed any fuel safety limits
- Management fully understands that inadequate procedures/procedure non-adherence represent a safety concern



# Procedure Issue/Exceeding 3% Per Hour Power Increase

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## Causes/Corrective Actions

- Cause: Management's failure to properly communicate expectations regarding procedure content and adherence
  - Corrective Action: Extensive management intervention actions were initiated to ensure that expectations are understood and met
  
- Cause: Management's failure to properly monitor/self-assess Operator performance
  - Corrective Actions:
    - Plant startup training was improved
    - A structured self-assessment process specifically covering plant startup activities was implemented

# Procedure Issues/Exceeding 3% Per Hour Power Increase

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## Causes/Corrective Actions (Continued)

- Cause: Existing culture
  - Corrective Actions: Implementing Near Term Improvement Plan
    - Staffing assessment
    - Effective Performance Management
    - Employee communications
    - Effectively identify and correct problems
    - Self-assessment
    - Expectations/Standards

# Procedure Issue/Exceeding 3% Per Hour Power Increase

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## Causes/Corrective Actions (Continued)

- Cause: Procedure level of detail was not commensurate with task
  - Corrective Action: Procedures were upgraded

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# Inadequate Oversight of Fuel Vendor Design and Manufacturing Activities

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## Background

- Discussion covers the first two of four examples in apparent violation 3:
  - Gadolinia rods mis-loaded by fuel vendor (Siemens)
  - Design calculation output data errors
- Errors discovered during planned reactor startup testing program at the 30% power testing plateau

# Inadequate Oversight of Fuel Vendor Design and Manufacturing Activities

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## Safety Significance

- Operation with affected bundles did not pose any threat to fuel safety limits
- Fuel bundle performance and overall core operations were bounded by UFSAR Chapter 15 Bundle Misloading Event Safety Analysis

# Inadequate Oversight of Fuel Vendor Design and Manufacturing Activities

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## Causes/Corrective Actions

- Cause: CP&L review of vendor's design and manufacturing processes was inadequate
  - Corrective Actions:
    - All CP&L Self-Assessment Teams' recommendations were incorporated into a comprehensive Corrective Action List
    - Short term corrective actions were previously reviewed with NRC to support recent plant restart
    - Corrective Action List was validated by comparing to NRC findings in AIT Inspection Report
    - Programmatic corrective actions were institutionalized
    - Awareness of our responsibility for monitoring and control of non-NSSS fuel vendor has been heightened

# Inadequate Oversight of Fuel Vendor Design and Manufacturing Activities

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## Causes/Corrective Actions (Continued)

- Cause: Fuel vendor's design and manufacturing processes allowed design and bundle fabrication errors; vendor's QA/QC program failed to detect errors
  - Corrective Actions:
    - CP&L required that fuel vendor respond with corrective actions to all fuel vendor identified items in both the CP&L Self-Assessment Reports and fuel vendor's investigation findings
    - CP&L established a tracking system to confirm adequacy of CP&L and fuel vendor identified corrective actions
    - Fuel vendor demonstrated effectiveness of immediate corrective actions during fabrication of Harris Plant reload



# Inadequate Oversight of Fuel Vendor On-Site Fuel Inspection Activities

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## Background

- Discussion covers the last two of four examples in apparent violation 3:
  - Failure to control vendor on-site activities which led to introduction of foreign material into fuel bundle guide tube
  - Failure to review and approve fuel vendor supplied fuel inspection and handling procedures

# Inadequate Oversight of Fuel Vendor On-Site Fuel Inspection Activities

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## Safety Significance

- Vendor and independent CP&L analyses confirm no actual or potential adverse safety consequences from loose parts in guide tube

# Inadequate Oversight of Fuel Vendor On-Site Fuel Inspection Activities

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## Causes/Corrective Actions

- Cause: Management failed to adequately define and communicate roles and responsibilities to involved work groups for on-site vendor activities
  - Corrective Actions:
    - Short term corrective actions to control on-site fuel vendor activities were completed to support recent plant restart
    - Management established Interface Agreements to control fuel vendor on-site activities
      - Plant line management controls fuel vendor's on-site activities
      - Off-site Nuclear Fuels Section provides monitoring in support of plant line management
      - CP&L established a tracking system to confirm adequacy of CP&L and fuel vendor identified corrective actions
      - Programmatic corrective actions to prevent recurrence were institutionalized

# Inadequate Oversight of Fuel Vendor On-Site Fuel Inspection Activities

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## Additional Actions:

- Applied lessons learned to all CP&L nuclear units
- Shared lessons learned with industry

# Agenda

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# Safety Significance

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- Events were serious
- Plant design and operational data were reviewed and confirmed that there were no actual or potential adverse safety consequences
- Overpower Trip setpoint was conservatively set at 45%
- Fuel Safety Limits were not exceeded
- Fuel mis-fabrication was detected at earliest planned core flux map

# Summary

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- Events were self-identified
- Management has a clear understanding of causes
- Extensive corrective actions have been and continue to be taken
- Events did not result in actual or potential adverse safety consequences
- Assessment of performance is being conducted by external groups while self-assessment capability is being strengthened