JUL 0 1 1992

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Docket Nos. 50-325, 50-324
License Nos. DPR-71, DPR-62

Carolina Power and Light Company
ATTN: Mr. R. A. Watson
Senior Vice President
Nuclear Generation
P. O. Box 1551
Raleigh, NC 27602

Gentlemen:

SUBJECT: MEETING SUMMARY - BRUNSWICK UNITS 1 AND 2

This letter refers to the meeting conducted at CP&L's request at the NRC Region II Office in Atlanta, Georgia, on June 25, 1992. The purpose of the meeting was to allow CP&L to make a presentation on its plans to resolve structural steel issues at Brunswick. A list of attendees, and a copy of your handouts are enclosed.

It is our opinion that this meeting was beneficial in that it provided insight into the actions you are planning for the coming months to resolve these issues. We understand that the NRC and CP&L will maintain an open dialogue on this subject as your steel verification program progresses. This dialogue will also include a clearer definition of your schedule for Phase II activities.

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,

Original signed by:
Jon R. Johnson

Jon R. Johnson, Acting Director
Division of Reactor Projects

Enclosures:
1. List of Attendees
2. Brunswick Steel Verification Program Handouts

cc w/encls: (See page 2)

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cc w/encls:
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bcc w/encls: (See page 3)

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bcc w/encls:
Document Control Desk
H. Christensen, RII
R. Lo, NRR

NRC Resident Inspector
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06/30/92

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HChristensen
06/30/92

RII: DRP
D. Verrelli
06/30/92

ENCLOSURE 1

LIST OF ATTENDEES

Licensee

A. M. Lucas, Vice President, Nuclear Engineering
J. M. Brown, Manager, Brunswick Engineering Support
D. C. McCarthy, Manager, Nuclear Licensing
E. W. Thomas, Bechtel Representative

Nuclear Regulatory Commission

S. D. Ebneter, Regional Administrator, Region II (RII)
L. A. Reyes, Deputy Regional Administrator, RII
J. R. Johnson, Deputy Director, Division of Reactor Projects (DRP), RII
E. W. Merschoff, Deputy Director, Division of Reactor Safety (DRS), RII
D. M. Verrelli, Chief, Reactor Projects Branch 1, DRP, RII
J. J. Blake, Chief, Materials and Processes Section, DRS, RII
R. H. Lo, Senior Project Manager, Project Directorate II-1, Office of Nuclear Reactor Regulation
R. L. Prevatte, Senior Resident Inspector - Brunswick, DRP, RII
J. J. Lenahan, Civil Engineer, DRS, RII
R. E. Carroll, Jr., Project Engineer, DRP, RII
D. J. Roberts, Project Engineer, DRP, RII

ENCLOSURE 2

BRUNSWICK
STEAM ELECTRIC PLANT

STEEL VERIFICATION PROGRAM

JUNE 25, 1992

..... AGENDA .....

BACKGROUND

PROGRAM OBJECTIVES

METHODOLOGY

SCHEDULE

BACKGROUND

- Miscellaneous Steel - provides support for pipe, electrical raceways, and HVAC duct wherever their components are not supported from building structures.

BACKGROUND

- Licensee Event Report 1-88-35
  - December 22, 1988
  - Unit 1 and Unit 2 standby gas treatment discharge not seismically qualified due to miscellaneous steel loading.
  - Designed per general criteria
    - American Iron & Steel Construction (AISC) Specification
    - Piping loads treated as concentrated load at midspan or as uniformly distributed load when specific reactions were not available.
    - Normal allowable stresses per AISC for OBE loads.
    - 1.5 X AISC allowable stresses for DBE loads.
  - A project was initiated to review miscellaneous steel.

BACKGROUND

- Issue was identified as an Unresolved Item (89-18-02) during NRC inspection on July 10-14, 1989.

- Walkdown
  - Walkdown of 9 areas completed between July 1990 and November 1991
    - Unit 1 - 4 areas
    - Unit 2 - 5 areas
  - Walkdown Results
    - Found minor dimensional, welding, and bolting irregularities
  - Screening identified no operability issue.
  - Analysis completed for one area (50' East, Unit 2)
    - Long-term fixes were completed.

PROGRAM OBJECTIVES

- Establish a high confidence that miscellaneous steel is adequate for plant operation.

- Document the current design basis of the miscellaneous steel.

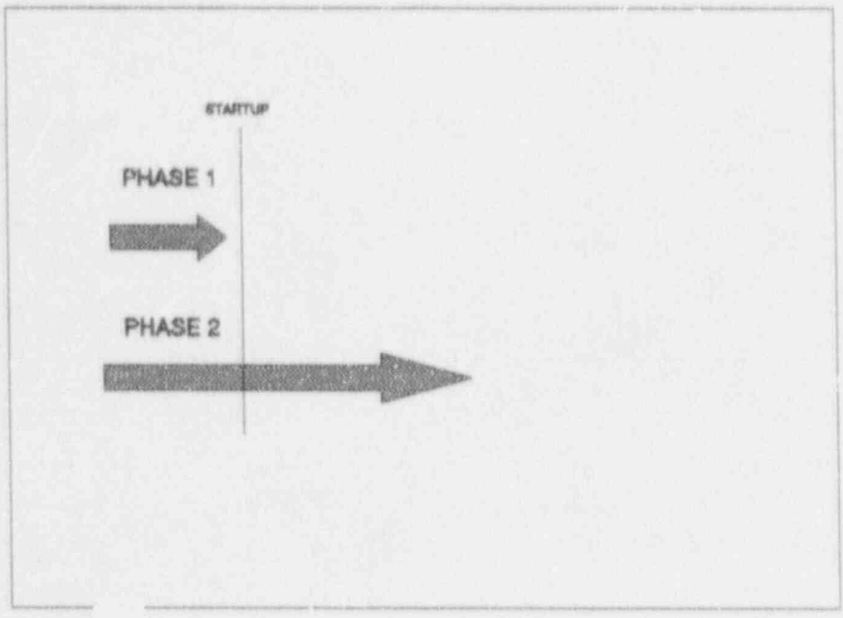
METHODOLOGY

OVERVIEW

- Two separate programs
  - Reactor building miscellaneous steel
  - Drywell support platform steel

OVERVIEW

- Reactor Building program
  - Two phases
    - both occur simultaneously



- Drywell has only Phase 2

OVERVIEW

- Reactor Building Program
  - Phase 1 will emphasize elimination of significant irregularities
    - *Primary goal* - eliminate significant construction irregularities
    - *Secondary goal* - identify and resolve potential significant design irregularities

OVERVIEW

- Reactor Building & Drywell Platform Steel Program
  - Phase 2 - verify design basis
    - Three parts
      - ▷ Increase level of confidence early in the program through analysis using enveloping techniques
      - ▷ Detailed documentation that the design basis is currently satisfied
        - Update design documents by field measurement
        - Structural analysis
      - ▷ Load tracking program

- Details of Methodology
  - Reactor Building

    PHASE 1

    - Engineering walkdown by selected teams of two experienced, qualified structural engineers each
      - Concept is patterned after SQUG
      - 100% of accessible steel reviewed
      - One engineer verifies the other
      - Identify construction and design significant irregularities rather than data collection
        - Significant Irregularities -affect load capacity
      - Approved procedures
      - Training

- Reactor Building Miscellaneous Steel

PHASE 1

- Basic steps in the review process
  - Each member and connection uniquely identified
  - Review existing walkdown data
  - Prepare walkdown procedure
  - Training sessions

- **Reactor Building Miscellaneous Steel (con't.)**

  PHASE 1

  - Assemble and review best available design information (calcs, design, fab, & erection dwgs)

  - Each team member shall independently observe each steel member and connection

  - Each steel member and connection will be classified into one of four categories:

    1. No evident irregularities
    2. Irregularity but no significant loss in load capacity
    3. Irregularity requires further evaluation
    4. Irregularity requires modification

  - Identify other items not in accord with conventional design/construction practices

- Reactor Building Miscellaneous Steel (con't)

PHASE 1

- After pilot walkdown, teams will recalibrate to assure effectiveness
- Analyze members and connections, as required
- Periodic review of work in progress and results by engineering supervision
- Report prepared on findings
- Independent review by Bechtel Technical Staff

- Reactor Building Miscellaneous Steel (con't)

PHASE 1

- A Technical Advisory Committee which includes nationally known experts will participate

- Result of Phase 1
  - All significant construction irregularities resolved
  - Significant design irregularities evaluated and resolved

- Reactor Building Miscellaneous Steel and Drywell Platform Steel

PHASE 2 - 3 PARTS

Part 1:

- Preliminary analysis
  - Three representative enveloping cases
    - ▷ Reactor Building Misc. Steel
      - Largest Loads
      - Most Loads
      - Most critical
    - ▷ Drywell Platform Steel
      - El 17 Platform
      - El 38 Platform
      - One of three upper platforms

- Reactor Building Miscellaneous Steel and Drywell Platform Steel

PHASE 2 - PART 1 (continued)

- Essential walkdown verification data
- Design criteria
- Loads
  - Controlling load case only
  - IEB 79-14 loads
  - Major non-79-14 attachment loads
- Increase confidence level

- Reactor Building Miscellaneous Steel and Drywell Platform Steel

PHASE 2 - PART 2

- Update design documents by field measurement
  - Procedures
  - Training
  - Limit to dimensions required for analysis
    - ▷ Tolerances consistent with analysis precision
- Random review of process by QA

- Reactor Building Miscellaneous Steel and Drywell Platform Steel (con't)

  PHASE 2 - PART 2 (con't)

  - Detailed calculations
    - FSAR commitments
      - ▷ Design Criteria to be reviewed
        - AISC 8th or 9th Edition
      - ▷ All load cases addressed
        - One horiz. + vert.
      - ▷ Loads
        - IE 79-14 Loads
        - Major attachment Loads
      - ▷ Analysis methods
    - Evaluate Results
    - Design Basis Restored

- **Reactor Building Miscellaneous Steel and Drywell Platform Steel**

PHASE 2 - PART 3

- Load accountability program
  - Database

- Personnel Qualification and Training (con't)
  - Engineering walkdown (Phase 1)
    - Qualifications:
      - Experienced, degreed structural engineers individually selected by chief civil engineer based on qualifications to perform this work
    - Training
      - QA training
      - General employee training (CP&L)
      - Procedures Training
      - Respirator Training (as required) (CP&L)

- Personnel Qualification and Training (con't)
  - Engineer (evaluation) (Phase 1 & 2)
    - Qualifications
      - ▷ Degreed civil engineer from accredited universities with formal structural engineering training
      - ▷ Previous experience in design/evaluation of structural steel
    - Training
      - ▷ General employee training (CP&L)
      - ▷ QA training
      - ▷ Procedures training
      - ▷ Respirator training (as required) (CP&L)
      - ▷ General weld inspection

- Personnel Qualification And Training
  - Walkdown Personnel (Phase 2)
    - Qualifications
      - ▷ Previous Walkdown or physical design/construction experience
    - Training
      - ▷ General employee training (CP&L)
      - ▷ QA Training
      - ▷ Procedures Training
      - ▷ Respirator Training (As required) (CP&L)
      - ▷ General Weld Inspection

- Deliverables

Reactor Building Miscellaneous Steel

PHASE 1:

- Walkdown packages on evaluation team findings
- Calculations for members/connections as required
- Modification packages, as required
- Technical Advisory Committee Report

Result:

- High level of confidence of no evident construction irregularities that affect plant safety

- Deliverables (con't)

  <u>Reactor Building Miscellaneous Steel and Drywell Platform Steel</u>

  PHASE 2:

  - Updated drawings
  - Calculations documenting the design basis
  - Modification packages, as required
  - Load Accountability Program