

NOV 15 1991

*Official  
copy*

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

Carolina Power and Light Company  
ATTN: Mr. Lynn W. Eury  
Executive Vice President  
Power Supply  
P. O. Box 1551  
Raleigh, NC 27602

Gentlemen:

SUBJECT: ENFORCEMENT CONFERENCE SUMMARY  
(NRC INSPECTION REPORT NO. 50-261/91-20)

This letter refers to the Enforcement Conference held at our request on November 6, 1991. This meeting concerned activities authorized for your H. B. Robinson facility. The issues discussed at this conference were design control measures related to the loss of coolant analyses and overtemperature delta temperature modifications. A list of attendees and a copy of your handout are enclosed. We are continuing our review of these issues to determine the appropriate enforcement action.

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:  
Ellis W. Merschoff

Ellis W. Merschoff, Acting Director  
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. Licensee Handout

cc w/encls:

C. R. Dietz, Manager  
Robinson Nuclear Project Department  
H. B. Robinson Steam Electric Plant  
P. O. Box 790  
Hartsville, SC 29550

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

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PDR ADOCK 05000261  
Q PDR

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(cc w/encs cont'd)  
R. H. Chambers, Plant General Manager  
H. B. Robinson Steam Electric Plant  
P. O. Box 790  
Hartsville, SC 29550

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Dayne H. Brown, Director  
Division of Radiation Protection  
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McCuen Morrell, Chairman  
Darlington County Board of Supervisors  
County Courthouse  
Darlington, SC 29535

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Manager - Legal Department  
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State of North Carolina  
P. O. Box 629  
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Robert Gruber  
Executive Director  
Public Staff - NCUC  
P. O. Box 29520  
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J. D. Kloosterman, Director  
Regulatory Compliance  
H. B. Robinson Steam  
Electric Plant  
P. O. Box 790  
Hartsville, SC 29550

bcc w/encs: (See page 3)

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

NRC Resident Inspector  
U.S. Nuclear Regulatory Commission  
Route 5, Box 413  
Hartsville, SC 29550

RII:DRP  
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MGlaserman:tj  
11/14/91

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HChristensen  
11/14/91

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DVerrelli  
11/15/91

RII:DRP  
*[Signature]*  
JJohnson  
11/ /91

ENCLOSURE 1

LIST OF ATTENDEES

Carolina Power and Light Company

R. A. Watson, Senior Vice President, Nuclear Operations  
C. R. Dietz, Vice President, Robinson Nuclear Project  
G. E. Vaughn, Vice President, Nuclear Services  
R. H. Chambers, General Manager, Robinson Nuclear Plant  
A. M. Lucas, Manager, Nuclear Engineering Department (NED)  
R. W. Prunty, Jr., Manager, Nuclear Licensing - Robinson  
T. Clements, Manager, Transient Analysis  
J. M. Curley, Manager, Special Projects, NED  
R. M. Parsons, Manager, Robinson Engineering Support  
M. F. Page, Manager, Technical Support

Nuclear Regulatory Commission

J. L. Milhoan, Deputy Regional Administrator, Region II (RII)  
E. W. Merschoff, Acting Director, Division of Reactor Projects (DRP), RII  
J. R. Johnson, Deputy Director, DRP, RII  
S. D. Rubin, Deputy Director, Division of Reactor Safety (DRS), RII  
E. G. Adensam, Director, Project Directorate II-1, Office of Nuclear Reactor  
Regulation (NRR)  
G. R. Jenkins, Director, Enforcement and Investigation Coordination Staff  
(EICS), RII  
D. M. Verrelli, Chief, Reactor Projects Branch 1, DRP, RII  
H. O. Christensen, Chief, Reactor Projects Section 1A, DRP, RII  
R. E. Carroll, Project Engineer, DRP, RII  
B. Uryc, Senior Enforcement Specialist, EICS, RII  
R. Lo, Project Manager, NRR  
M. Caruso, Section Chief, Reactor Systems, NRR  
J. G. Luehman, Office of Enforcement  
D. H. Dorman, Office of Enforcement  
C. Evans, Regional Counsel, RII  
M. Markley, Licensing Programs Evaluation Branch, NRR

**CAROLINA POWER AND LIGHT COMPANY**

**H. B. ROBINSON UNIT NO. 2**



**ENFORCEMENT CONFERENCE**

**ATLANTA, GEORGIA**

**NOVEMBER 6, 1991**

## **INTRODUCTION**

- **PURPOSE**
  - **TO RESPOND TO "RECENTLY IDENTIFIED EXAMPLES OF INADEQUATE ENGINEERING DESIGN CONTROLS AND INTERFACES"**
    - **APPARENT VIOLATION OF 10CFR50, APPENDIX B**
    - **NRC INSPECTION REPORT NO. 50-261/91-20**
  - **NOT TO RESPOND TO TECHNICAL ISSUES ASSOCIATED WITH H. B. ROBINSON'S POST-LOCA RESPONSE AND ITS RELATIONSHIP TO REQUIREMENTS OF 10CFR50.46(B) (5)**
    - **FOLLOWUP MEETING IS BEING SCHEDULED**

## INTRODUCTION

- **OBJECTIVES**
  - **TO PROVIDE INFORMATION FROM INTERNAL INVESTIGATION**
    - **CAUSAL FACTORS CONTRIBUTIVE TO PERFORMANCE**
  - **TO PROVIDE ASSURANCE THAT CP&L MANAGEMENT CONSIDERS PERFORMANCE TO BE OF SIGNIFICANT CONCERN**
    - **RESPONSE WAS TIMELY AND COMPREHENSIVE**
    - **ISSUES WERE NOT INDIVIDUALLY SAFETY SIGNIFICANT, BUT REPRESENTED AN ADVERSE PERFORMANCE TREND**
  - **TO PROVIDE INFORMATION THAT ILLUSTRATES SUBSTANTIVE PROCESSES, INTERFACE, AND TECHNICAL CAPABILITY WITHIN ALL ELEMENTS OF CP&L'S ENGINEERING ORGANIZATIONS**
    - **ACKNOWLEDGED DEFICIENCIES VERSUS "SIGNIFICANT DEFICIENCIES"**

# INTRODUCTION

## AGENDA

**OPENING REMARKS . . . . . C. R. DIETZ**

### **EVENTS REVIEW**

**OT DELTA T EVENT . . . . . M. F. PAGE**

**POST LOCA COOLING EVENT . . . . . T. B. CLEMENTS**

**MANAGEMENT OVERVIEW/EXPECTATIONS . . . . . R. H. CHAMBERS**

### **ENGINEERING INITIATIVES**

**NUCLEAR FUELS . . . . . T. B. CLEMENTS**

**TECHNICAL SUPPORT . . . . . M. F. PAGE**

**NUCLEAR ENGINEERING . . . . . R. M. PARSONS**

**CONCLUSION . . . . . C. R. DIETZ**



## MANAGEMENT OVERVIEW

- **CONCERNS**
  - **REPETITIVE PERFORMANCE ISSUES**
    - **FUEL ANALYSES**
    - **DESIGN CONTROLS**
  
- **ISSUES**
  - **UNDETECTED SIMILAR DEFICIENCIES**
  - **ENGINEERING PROCESS, CAPABILITY, AND CONTROL**
  - **TIMELINESS OF CORRECTIVE ACTIONS AND IMPROVEMENTS**

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# OT $\Delta$ T EVENT

## CHRONOLOGY

- VENDORS PROVIDE EXPERTISE FOR REFUELING RTD RESPONSE TIME TESTING 1988/1990
- REACTOR ENGINEER RTD RESPONSE TIME TESTING TRAINING AUG. 5-6, 1991
- REACTOR ENGINEER QUESTIONS PROCESS (SYSTEM ENGINEER INVOLVED) AUG. 14, 1991
- SYSTEM ENGINEER DISCOVERS/QUESTIONS FILTER CAPACITORS AUG. 15, 1991
- CONFIRMS FILTER CAPACITORS' POTENTIAL IMPACT ON SAFETY ANALYSES AUG. 16, 1991
- POTENTIAL UNANALYZED CONDITION - PLANT SHUTDOWN AUG. 16, 1991
- REVIEW OF OTHER CIRCUITS COMPLETE AUG. 17, 1991
- MODIFICATION REMOVED FILTER CAPACITORS AUG. 18, 1991
- UNIT RETURNED TO POWER AUG. 18, 1991

**OT<sub>Δ</sub>T EVENT**  
**INVESTIGATION**

- **SITE SENIOR MANAGEMENT**
  - **CONCERN WITH POTENTIAL SIGNIFICANCE OF EVENT**
  - **CONCERN WITH PREVIOUS EVENTS**
    - **OT<sub>Δ</sub>T ISSUES**
    - **MOD 959 (RTD BYPASS REMOVAL)**
  
- **THREE PART INVESTIGATION**
  - **ROOT CAUSE/CORRECTIVE ACTIONS**
  - **DETERMINE LINKAGE WITH OTHER EVENTS**
  - **DETERMINE SAFETY SIGNIFICANCE**

**OTΔT EVENT**  
**INVESTIGATION**  
**(CONTINUED)**

- **TEAM MEMBERSHIP**
  - **NUCLEAR SERVICES DEPARTMENT (LEADER)**
  - **HARRIS PLANT - REACTOR ENGINEER**
  - **ROBINSON PLANT - REACTOR ENGINEER**
  - **ROBINSON PLANT - CORRECTIVE ACTION PROGRAM REPRESENTATIVE**
  - **NUCLEAR ASSESSMENT DEPARTMENT - ONSITE REPRESENTATIVE**
  - **NUCLEAR ASSESSMENT DEPARTMENT - HARRIS PLANT REPRESENTATIVE**
  
- **TEAM TRAINED IN ROOT CAUSE ANALYSIS**
  
- **6 MAN-MONTH EFFORT**
  - **INTERVIEWS**
  - **DOCUMENT SEARCHES**
  - **PROCESS REVIEWS**
  - **ORGANIZATION REVIEWS**

## OT<sub>Δ</sub>T EVENT

### RESULTS

- **NO DIRECT LINKAGE BETWEEN OT<sub>Δ</sub>T (CAPACITOR) EVENT AND PREVIOUS OT<sub>Δ</sub>T EVENTS, ALTHOUGH CAUSAL FACTORS SIMILAR**
  
- **DETERMINED 2 ROOT CAUSES WITH SEVERAL SECONDARY CAUSAL FACTORS**

## **OT<sub>Δ</sub>T EVENT**

### **ROOT CAUSES**

- **VENDOR FAILED TO INCLUDE DESIGN BASIS REQUIREMENT INTO FIELD DESIGN, INSTALLATION AND TESTING DOCUMENTS**
  
- **CP&L REVIEWS FAILED TO DETECT OMISSION**
  - **AREAS FOR IMPROVEMENT IDENTIFIED IN SYSTEM ENGINEERING**
  - **LEVEL OF SPECIFIC SYSTEM/COMPONENT SKILL**
  - **COMPLEXITY OF SYSTEM**
  - **LEVEL OF SYSTEM TRAINING**
  - **MOD EXPEDITED - SOME REVIEWS WAIVED**
  - **LEVEL OF REVIEWS**

## **OT $\Delta$ T EVENT**

### **CORRECTIVE ACTIONS**

- **PROVIDE EMPHASIS TO ASSURE IN-DEPTH/RIGOROUS TECHNICAL REVIEWS (COMPLETE)**
- **REINFORCE SUPERVISORY ASSIGNMENT OF PERSONNEL COMMENSURATE WITH JOB FUNCTION OR JOB SKILL (ONGOING)**
- **PROVIDE A SYSTEM ENGINEER FOR RPS (COMPLETE)**
- **DESIGNATE NED AS DESIGNER OF RECORD FOR RPS (COMPLETE)**
- **REQUIRE DBD FOR ALL RPS MODS (COMPLETE)**
- **DEVELOP OT $\Delta$ T PROCESS/INSTRUMENTATION SCALING CALCULATIONS (3/92)**
- **TRAINING ON SCALING DOCUMENT (6/92)**



**OT<sub>Δ</sub>T EVENT**

**SAFETY SIGNIFICANCE**

- **OT<sub>Δ</sub>T FUNCTION WOULD PROVIDE REACTOR TRIP TO MEET MDNBR REQUIREMENTS**
- **REANALYSIS OF CYCLES 13 AND 14 WITH LAG IN CIRCUIT DEMONSTRATED PARAMETERS REMAINED WITHIN APPLICABLE LIMITS**
- **THE TWO SECOND LAG IN CIRCUIT RESULTED IN NO SAFETY SIGNIFICANCE**

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**MANAGEMENT OVERVIEW/EXPECTATIONS . . . . . R. H. CHAMBERS**

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**CONCLUSION . . . . . C. R. DIETZ**

# POST LOCA COOLING EVENT

## CHRONOLOGY

- WESTINGHOUSE CORRESPONDENCE 1987
- SINGLE SI PUMP MODIFICATION 1988
- 19-CASE SBLOCA ANALYSES 1988
- DESIGN ACTIVITY 89-0001  
(EPP-9 REV.) 1989
  
- 1991
- IPE INQUIRY MAY 8
- ERROR CONFIRMED - POWER  
REDUCTION INITIATED MAY 14
- INTERIM ANALYSIS - RETURN TO 90%  
POWER (95% JUSTIFIED (ANS 1979)  
WITH 700°F PCT LIMIT) MAY 14
- REANALYSIS - ANS 1971  
(92.5% JUSTIFIED WITH 700°F PCT  
LIMIT) MAY 16
- REANALYSIS/RETURN TO 100% POWER MAY 29

# POST LOCA COOLING EVENT

## DEFICIENCY

INVESTIGATED BY MANAGEMENT INITIATED "ADVERSE  
CONDITION REPORT" (ACR)

PERSONNEL ERROR - FAILED TO CONSIDER ENTRAINMENT IN  
DESIGN ANALYSIS 89-0001

## CAUSES

### LIMITED DOCUMENT SEARCH

- PRIOR VENDOR CORRESPONDENCE OVERLOOKED
- DESIGN BASIS DOCUMENT (DBD) NOT INCORPORATED  
INTO REVIEW

### MISUNDERSTOOD USE OF TERM "NATURAL CIRCULATION"

- INADEQUATE FOLLOW-UP WITH VENDOR

## **POST LOCA COOLING EVENT**

### **CORRECTIVE ACTIONS**

- **EVENT TRAINING (7/91)**
  - **ADEQUATE DOCUMENT SEARCH**
  - **USE OF DBDs**
  - **APPROPRIATE USE OF ANS DECAY HEAT**
  
- **ELECTRONIC DATABASE SEARCH CAPABILITY (8/91)**

## POST LOCA COOLING EVENT

### SAFETY SIGNIFICANCE

- **CORRECTIVE ANALYSES CONFIRMED ERROR RESULTED IN NO SAFETY SIGNIFICANCE**
- **ADDITIONAL ANALYSES PERFORMED TO ANSWER NRC QUESTIONS CONFIRMED CP&L'S ENGINEERING JUDGEMENT**

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## **ENGINEERING INITIATIVES**

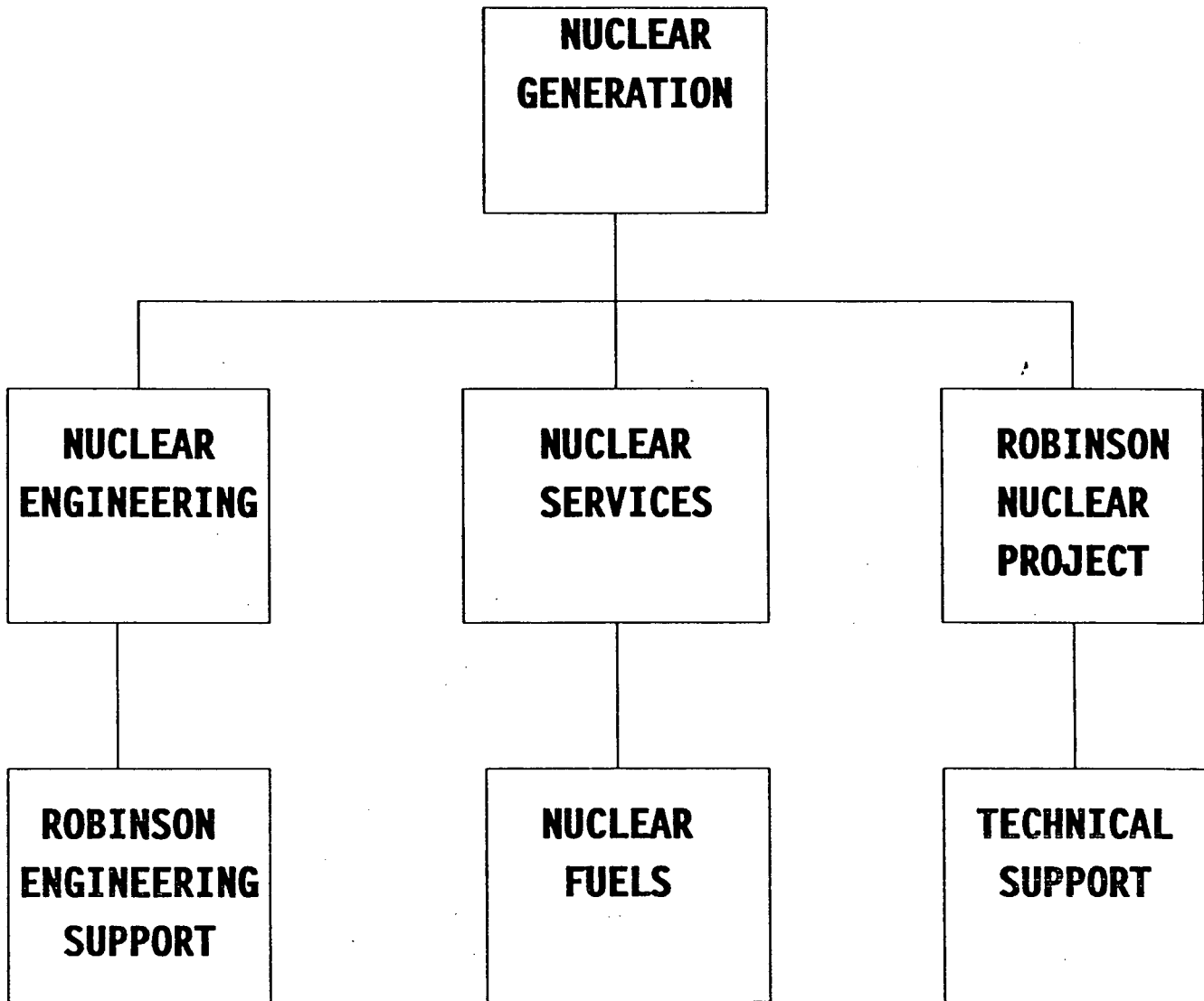
**NUCLEAR FUELS . . . . . T. B. CLEMENTS**

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**H. B. ROBINSON UNIT 2  
ENGINEERING ORGANIZATIONS**





## DESIGN CONTROL IMPLICATIONS OF EVENTS

- **LEVEL OF ASSIGNMENT COMMENSURATE WITH COMPLEXITY OF TASK**
- **RELIANCE ON EXPERTISE OF VENDORS...RESULTED IN LACK OF RIGOROUS/INDEPTH IN-HOUSE REVIEWS**
- **PERSONNEL RELUCTANT TO "RAISE FLAG" WHEN JOB ASSIGNMENT MIGHT EXCEED WORK SKILLS OR PRESCRIBED SCHEDULE**
- **LEVEL OF TECHNICAL CAPABILITY/TOOLS**
- **OTHER AREAS RECOGNIZED**
  - **NEED FOR ADDITIONAL TRAINING**
  - **MORE CRITICAL SELF-ASSESSMENT**
  - **IMPROVED COMMUNICATIONS**
  - **IMPROVED INTERFACE**
- **CHRONOLOGY OF MAJOR EVENTS/CONTINUUM OF IMPROVEMENT**

# AGENDA

INTRODUCTION . . . . . C. R. DIETZ

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## NUCLEAR FUELS

### IMPROVEMENTS

- DESIGN BASIS REFERENCE PROCEDURE 1988
- ON DISTRIBUTION FOR KEY VENDOR DOCUMENTS 1989
- WOG ANALYSIS SUBCOMMITTEE 1989
- PLANT PARAMETER LIST 1989
- QUALIFIED SAFETY REVIEWER TRAINING 1990
- VERIFICATION RECORD PROCEDURE REVISION 1991
- NFS/NED INTERFACE AGREEMENT 1991
- DESIGN BASIS DOCUMENTATION ONGOING
- ROTATIONAL ASSIGNMENTS ONGOING
- PLANT RECORDS DATABASE ACCESS 1992

**NUCLEAR FUELS**  
**IMPROVEMENTS**

**SUMMARY**

- **DESIGN CONTROL PROCESS WORKS**
- **HIGHLY QUALIFIED PERSONNEL**
- **DESIGN PHILOSOPHY ENCOURAGES IMPROVEMENT/DEFICIENCY IDENTIFICATION**
- **CORRECTIVE ACTIONS PROMPTLY IMPLEMENTED UPON DEFICIENCY IDENTIFICATION**
- **PHILOSOPHY TO LEAVE MARGIN IN ANALYSIS**
- **WITH THE CONTINUALLY IMPROVING PROCESS MISTAKES WILL BE MINIMIZED**

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# TECHNICAL SUPPORT

## IMPROVEMENTS

### MISSION

PROVIDE TECHNICAL EXPERTISE AND MANAGEMENT TO ASSURE THAT THE TECHNICAL SUPPORT NECESSARY FOR SAFE, RELIABLE OPERATION OF H. B. ROBINSON UNIT 2 IS PROVIDED.

OUR MISSION IS ACCOMPLISHED THROUGH THE INTEGRATION OF PROACTIVE SYSTEM ENGINEERING INTO DAY TO DAY SITE ACTIVITIES; THE DEVELOPMENT, APPLICATION, ADMINISTRATION, AND MAINTENANCE OF PLANT PROGRAMS; THE APPLICATION OF COMPONENT AND TECHNICAL EXPERTISE; AND EFFECTIVE UTILIZATION OF COMPANY WIDE RESOURCES.

## **TECHNICAL SUPPORT**

### **IMPROVEMENTS**

#### **TECHNICAL SUPPORT FIRST/LAST LINE PLANT INTERFACE FOR MANY ORGANIZATIONS**

- **PROCUREMENT ENGINEERING**
- **OUTAGE AND MODS**
- **NUCLEAR FUELS**
- **NUCLEAR ENGINEERING DEPARTMENT**
- **NUCLEAR SERVICES DEPARTMENT**
- **MATERIALS LAB**
- **TRANSMISSION**
- **NDE SERVICES**
- **VENDORS**
- **TECH REPS**

## TECHNICAL SUPPORT

### IMPROVEMENTS

#### OBSERVATIONS PRIOR TO AUGUST 1989

- **UNDEFINED/AMBIGUOUS INTERFACES**
- **INSUFFICIENT RESOURCES VS DEMANDS**
- **SYSTEM ENGINEERS INEFFECTIVE**
- **HIGH PERSONNEL TURNOVER**
- **INADEQUATE TRAINING ON SPECIFIC FUNCTIONAL ACTIVITIES**
- **LACK OF CULTIVATION OF DESIGN QUESTIONING ATTITUDES**
- **ACCOUNTABILITIES/RESPONSIBILITIES/EXPECTATIONS NOT EFFECTIVELY DELINEATED**
- **REVIEW METHODS INCONSISTENT/UNDEFINED**



## TECHNICAL SUPPORT

### IMPROVEMENTS

- INCREASE AVAILABLE PERSONNEL RESOURCES
- REALIGN RESOURCES TO FOCUS ON FUNCTIONS
- DEFINE AND COMMUNICATE RESPONSIBILITIES
- INITIATE PROGRAMS TO ASSURE CONSISTENCY IN METHODOLOGY
- PROVIDE DEVELOPMENT OF SYSTEM ENGINEERS; ALLOW REMOVAL OF COLLATERAL DUTIES AND SYSTEM/COMPONENT/FUNCTION SPECIFIC TRAINING

## **TECHNICAL SUPPORT**

### **IMPROVEMENTS**

### **CHANGES/CAPABILITIES**

#### **RESOURCES INCREASED:**

- 34 FULL TIME (AUG. 1989)
- 50 FULL TIME (NOW)
- 25 NEW TO TECH SUPPORT SINCE AUG. 1989
- 6 EXPECTED BY 1992
- 19 CONTRACTOR SUPPORT PERSONNEL

#### **REALIGNED PERSONNEL:**

- MECHANICAL SYSTEMS
- ELECTRICAL SYSTEMS
- Rx ENG & BOP SYSTEMS
- PROGRAMS
- SUPPORT
- OUTAGE COORDINATOR

# **TECHNICAL SUPPORT**

## **IMPROVEMENTS**

### **CHANGES/CAPABILITIES (CONTINUED)**

**DEFINED, DOCUMENTED AND COMMUNICATED TECHNICAL SUPPORT  
MISSION AND VISION**

**DEFINED, DOCUMENTED AND COMMUNICATED ACCOUNTABILITIES,  
EXPECTATIONS, AND RESPONSIBILITIES IN A CONDUCT OF  
OPERATIONS DOCUMENT, THROUGH FORMAL TRAINING, AND ONE-  
ON-ONE COUNSELING**

#### **PROCEDURALIZED**

- **CONDUCT OF OPERATION**
- **REVIEW METHODOLOGY**
- **SYSTEM ENGINEER PROGRAM**
- **COMPONENT ENGINEER PROGRAM**
- **PERSONNEL CERTIFICATION PROCESS**
- **MOD WALKDOWNS/REVIEWS**

**TECHNICAL SUPPORT**

**IMPROVEMENTS**

**CHANGES/CAPABILITIES  
(CONTINUED)**

**TRAINING PLANS DEVELOPED FOR EACH PERSON**

**ATTENTION TO FUNCTIONAL SPECIFIC TRAINING INCREASED  
(8000 HOURS IN 1991)**

**3 CERTIFIED SYSTEM ENGINEERS**

**20 ACTIVE SYSTEM TEAMS**

**RESULTS HAVE DEMONSTRATED A SIGNIFICANT INCREASE IN  
SYSTEM/COMPONENT OWNERSHIP, INTERFACE BETWEEN GROUPS,  
TECHNICAL KNOWLEDGE OF PERSONNEL, ABILITY TO ASSIGN  
WORK/REVIEWS TO QUALIFIED PERSONNEL, AND ABILITY TO  
PERFORM REVIEWS.**

## TECHNICAL SUPPORT

### IMPROVEMENTS

#### SUMMARY

- RESULTS OF OUR PROGRESS TO DATE IS PARTIALLY WHY WE ARE HERE...CONTINUED PROGRESS IS WHY WE WON'T BE BACK.
- PROBLEMS IDENTIFIED-REINFORCED THAT OUR CURRENT IMPROVEMENT PLANS AND ACTIVITIES ARE APPROPRIATE.
- CONTINUED ATTENTION TO INTERFACE DEVELOPMENT AND ONGOING TRAINING MUST BE MAINTAINED.
- DEMONSTRATION OF AN IMPROVING PROCESS INDICATES THE BUILDING OF AN INFRASTRUCTURE WHERE MISTAKES WILL BE MINIMIZED.

# AGENDA

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← AGASTAT

← LBLOCA

← APW ISSUES

← OTAT

### ENGINEERING IMPROVEMENTS

1988

1989

1990

1991

1992

### MANAGEMENT INITIATIVES

CDO-ENGINEER OF RECORD

MORE FORMAL WALKDOWNS

INSTILL OWNERSHIP OF  
VENDOR PRODUCTS

REINFORCE OWNERSHIP OF  
VENDOR DESIGNS

CDO - 150 FTE,  
DEDICATED TO RNP

ESTABLISHED GUIDELINE ON  
DURATIONS FOR MOD DESIGNS

STRICTER ADMIN. CHECK LIST

ADDITIONAL DISCIPLINE TO  
ASSIGNING OF WORK

CDO - SPECIALIZED SUPPORT

STRICTER REVIEWER  
CHECK LISTS

FUELS PLANT PARAMETERS  
DOCUMENT

BEGAN ASSESSING  
FIELD REVISIONS

ON - SITE NED

MOD OVERVIEWS  
INITIATED

NED/FUELS INTERFACE  
DOCUMENT

### TOOLS

3 DBD<sub>s</sub> WRITTEN

3 DBD<sub>s</sub> WRITTEN  
(4 VALIDATED)

5 DBD<sub>s</sub> WRITTEN  
(4 VALIDATED)

3 DBD<sub>s</sub> WRITTEN  
(4 VALIDATED)

2 DBD VALIDATIONS  
PLUS CLOSEOUTS

CAD CAPABILITY  
(INTERFERENCE CHECKS)

FUELS PLANT  
PARAMETERS

ECCS SINGLE  
FAILURE ANALYSIS

EDG ELECTRICAL  
CALCULATIONS

DC ELECTRICAL  
CALCULATIONS

STARTED PRA

480v VOLTAGE  
DROP CALCULATIONS

BOP DBD<sub>s</sub>

DESIGN GUIDE FOR CHECKING  
PIPE DOCUMENTS

SUBMIT PRA

SURROGATE VIDEO TOUR

### SKILLS

NCSU IN-HOUSE CIVIL  
SEISMIC TRAINING

PROFESSIONAL ENGINEER  
PUSH (25 IN RESS)

ADDED 30  
INFRASTRUCTURE SLOTS

SYSTEMS TRAINING  
(16 ENGINEERS)

INSTITUTED REAL TIME  
TRAINING

33,000 HOURS IN  
TRAINING (YTD)

16,000 HOURS IN  
TRAINING

# **NUCLEAR ENGINEERING**

## **IMPROVEMENTS**

### **SUMMARY**

**EVENTS CITED SHOW THAT OUR EMPHASIS ON ENGINEERING IMPROVEMENT IS APPROPRIATE. WE INTEND TO CONTINUE TO IMPROVE THE TOOLS, SKILLS AND PROCESSES THAT SHAPE THE DESIGN OUTPUTS.**

**ROBINSON ENGINEERING SUPPORT IS CONTINUING TO SEEK OPPORTUNITIES TO IMPROVE OUR PRODUCTS BY:**

- **REINFORCING OWNERSHIP OF VENDOR DESIGNS**
- **ADDITIONAL DISCIPLINE TO THE PROCESS OF ASSIGNING WORK**
- **COMPLETING DBDs**
- **ROBINSON SPECIFIC PRA**
- **TRAINING (SYSTEMS, REAL TIME, TOPICAL)**

**CONTINUING IMPROVEMENT IS RESULTING, AND HAS RESULTED, IN A MORE COMPETENT ENGINEERING STAFF WHERE MISTAKES WILL BE MINIMIZED.**



# AGENDA

**OPENING REMARKS . . . . . C. R. DIETZ**

## **EVENTS REVIEW**

**OT DELTA T EVENT . . . . . M. F. PAGE**

**POST LOCA COOLING EVENT . . . . . T. B. CLEMENTS**

**MANAGEMENT OVERVIEW/EXPECTATIONS . . . . . R. H. CHAMBERS**

## **ENGINEERING INITIATIVES**

**NUCLEAR FUELS . . . . . T. B. CLEMENTS**

**TECHNICAL SUPPORT . . . . . M. F. PAGE**

**NUCLEAR ENGINEERING . . . . . R. M. PARSONS**

**CONCLUSION . . . . . C. R. DIETZ**

## **CONCLUSIONS**

- **SIGNIFICANCE**

- **EVENTS, WHEN ANALYZED, REPRESENTED NO SAFETY SIGNIFICANCE IN AND OF THEMSELVES**

- **EVENTS, IN AGGREGATE, CAUSED SIGNIFICANT MANAGEMENT CONCERN RELATED TO ABILITY TO EFFECTIVELY CONTROL THE ROBINSON DESIGN BASIS WITH THE ELEMENTS OF CONCERN FOCUSING ON:**

- **DESIGN PROCESS AND RELATED TECHNICAL REVIEW FUNCTION**

- **TECHNICAL CAPABILITY OF VENDORS, STAFF, AND TECHNICAL REVIEWERS**

- **ADEQUACY AND TIMELINESS OF PERFORMANCE IMPROVEMENTS**

## **CONCLUSIONS**

- **SUMMARY**

- **DISCOVERY WAS PRODUCT OF PHILOSOPHY AND MANAGEMENT PRINCIPLES THAT SERVE AS CORNERSTONE OF ENGINEERING AND DESIGN ACCOUNTABILITIES. THAT IS:**

- **SELF-ASSESSMENT**

- **SELF-DISCLOSURE**
- **OPERATIONAL SKEPTICISM**

- **CONSERVATIVE DECISIONS**

- **PROTECT THE CORE**
- **"WALK THE TALK"**

## CONCLUSIONS

- **THERE ARE NOT SIGNIFICANT DEFICIENCIES IN H. B. ROBINSON'S DESIGN CONTROL PROCESS**
  - **DESIGN CONTROL RESULTED IN IDENTIFICATION OF ERROR**
  
- **ACTIONS WERE PROACTIVE, CONSERVATIVE, AND COMPREHENSIVE TO ASSURE:**
  - **MINIMAL SAFETY SIGNIFICANCE**
  - **DESIGN BASIS FOR H. B. ROBINSON IS SOUND TODAY**
  - **EFFECTIVE INTER/INTRA-DEPARTMENTAL COMMUNICATIONS**
  - **CAPABLE AND IMPROVING ENGINEERING**
  - **WELL STRUCTURED AND DISCIPLINED ENGINEERING PROCESS**
  
- **ESCALATED ENFORCEMENT IS NOT WARRANTED FOR THE ISSUES DISCUSSED TODAY**
  - **SELF IDENTIFICATION**
  - **TIMELY AND CONSERVATIVE RESPONSE TO ISSUES**
  - **MINIMAL SAFETY SIGNIFICANCE**