

JUN 17 1988

official

Docket Nos. 50-325, 50-324
License Nos. DPR-71, DPR-62
EA 88-131

Carolina Power and Light Company
ATTN: Mr. E. E. Utley
Senior Executive Vice President
Power Supply and Engineering
and Construction
P. O. Box 1551
Raleigh, NC 27602

Gentlemen:

SUBJECT: ENFORCEMENT CONFERENCE SUMMARY
(NRC INSPECTION REPORT NOS. 50-325/88-15 AND 324/88-15)

This letter refers to the Enforcement Conference held at our request on May 27, 1988. This meeting concerned activities authorized for your Brunswick facility. The issues discussed at this conference related to recent examples of operator error and less than adequate attention to detail in performing shift duties. A conference summary, 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,

J. Nelson Grace
Regional Administrator

Enclosures:

1. Enforcement Conference Summary
2. List of Attendees
3. Handout

cc w/encls:

P. W. Howe, Vice President
Brunswick Nuclear Project
C. R. Dietz, Plant General Manager

bcc w/encls: (See page 2)

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Carolina Power and Light Company

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bcc w/encls:
J. Lieberman, DOE
G. R. Jenkins, EICS
NRC Resident Inspector
Document Control Desk
State of North Carolina

RII
tm
PFredrickson:tm
06/9/88

RII
DM
DMVerrelli
06/9/88

RII
LA
LAREyes
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RII
AF
AFGibson
06/9/88

RII
GR
GRJenkins
06/9/88

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MErnst
06/14/88

ENCLOSURE 1

ENFORCEMENT CONFERENCE SUMMARY

The Deputy Regional Administrator (DRA) opened the meeting by stating that although each of these issues may not appear to be significant, collectively, they show a pattern of operator error and lack of adequate attention to detail. CP&L then began their presentation with an overview by the Plant General Manager (PGM) who discussed the objectives of the presentation, which were to describe the circumstances of what happened, the root causes and the licensee's corrective actions. A copy of the slides used by the licensee is attached as Enclosure 3. The chronology for the first event, an improper change in operational mode, was delivered by the Brunswick Regulatory Compliance Project Specialist (RCPS). Subsequent to this presentation, the problems identified in the event and corrective actions were presented by the on-shift Shift Foreman (SF) and startup Senior Reactor Operator (SRO). Some discussion ensued as to the involvement with the NRC Resident Inspector in identifying: (1) whether or not the licensee was aware that the mode switch was still in startup after surveillance testing; and (2) the improper condition of the low pressure coolant injection system (LPCI) for the startup mode. The SF stated that he knew the mode switch was in the startup position, because test documentation had not been completed. He also stated that the startup SRO informed him about the system misalignment of LPCI. Discussion continued on the clarity of procedure GP-01 and the expected knowledge of personnel who repeatedly use the procedure. The PGM stated that Brunswick was now in verbatim compliance with the mode switch position for testing issue, but was concerned that this interpretation is more restrictive than that previously interpreted by the licensee. The DRA stated that the NRC is concerned more with safe operation, than just meeting requirements and that the Technical Specification issue needs to be evaluated. The PGM stated that, although the procedure needed improvements, errors had been made during the performance of GP-01.

The RCPS next discussed the withdrawn control rod event of March 8, 1988. Discussion centered on the computer runs conducted by different shifts. It is noted that shift changes had been made without identification of the withdrawn position of the control rod. The licensee acknowledged that the computer program which provides a display of control position had been changed during the outage with no training of the shift staff. The NRC stated that this is a weakness and that the licensee should assure that training is completed prior to implementing modifications.

The interruption of the shutdown cooling event which occurred on January 25, 1988, was discussed. The Director, Division of Reactor Project (DDRP) stated that this type of evolution needs to be carefully observed, and that CP&L should ensure that personnel attitudes do not relax when the unit is shutdown.

An additional shutdown cooling event occurred on May 11, 1988. Discussion was conducted on the shutting of the F003 valve. Maintenance personnel believed the control room had shut the valve, while the control room believed that the valve position was 15 percent open. This is another example of plant

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Enclosure 2

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deficiencies in which operator attention to detail, knowledge of plant conditions, and active pursuit of operational solutions was less than adequate.

The PGM then described operations performance factors, an assessment of Brunswick operations and presented several graphs on operations errors and events. He concluded by presenting four conclusions reached by CP&L on the events discussed at the conference.

The DRA concluded the meeting with several remarks. He thanked CP&L for providing an in-depth presentation of the events, with underlying basic problems. He also was pleased that CP&L had concerns on the broad area of performance, in addition to discussing the individual events. He thanked both the SF and Startup SRO for being at the conference and contributing valuable information. He stated that CP&L should strive for excellence, not just regulatory compliance. In that employees rise to the expectations of their management, CP&L should ensure that the plant staff understands that excellent performance is expected. He also expressed concern that plant personnel, especially operators, may relax during shutdown operations, and that the plant staff should ensure diligent attention to procedures and job performance during both shutdown and power operations.

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ENCLOSURE 2

LIST OF ATTENDEES

CAROLINA POWER & LIGHT COMPANY (CP&L)

M. A. McDuffie, Senior Vice President - Nuclear Generation
C. R. Dietz, General Manager, Brunswick Steam Electric Plant (BSEP)
L. Loflin, Manager, Licensing
R. M. Poulk, Project Specialist, Regulatory Compliance, BSEP
A. S. Hegler, Operations Superintendent, BSEP
D. Pate, Shift Foreman, BSEP
G. Johnson, Senior Control Operator, BSEP

NUCLEAR REGULATORY COMMISSION (NRC) REGION II

M. L. Ernst, Deputy Regional Administrator
L. A. Reyes, Director, Division of Reactor Projects (DRP)
E. W. Merschoff, Deputy Director, Division of Reactor Safety (DRS)
D. M. Verrelli, Chief, Branch 1, DRP
G. R. Jenkins, Director, Enforcement and Investigative Coordination Staff (EICS)
P. E. Fredrickson, Section Chief, DRP
W. H. Ruland, Brunswick Senior Resident Inspector (DRP)
W. Levis, Brunswick Resident Inspector (DRP)
R. Schin, Reactor Engineer, DRS
S. Schaeffer, Reactor Inspector, DRP
L. Slack, Technical Assistant, EICS

NRC-HEADQUARTERS

E. G. Adensam, Director, Project Directorate II-1, Office of Nuclear Reactor Regulation (NRR)
E. Sylvester, Brunswick Project Manager (NRR)
J. Stephano (By Telephone), Enforcement Specialist, Office of Enforcement

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ENCLOSURE 3

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY

MAY 27, 1988

○	OPENING REMARKS	C. R. DIETZ
○	OBJECTIVES	C. R. DIETZ
○	MODE SWITCH EVENT DESCRIPTION	R. M. POULK
○	SEQUENCE OF EVENTS	
○	MODE SWITCH EVENT FINDINGS AND RESPONSE	G. C. JOHNSON
○	PERFORMANCE FACTORS	AND
○	CORRECTIVE ACTIONS	D. T. PATE
○	HEATUP/CONTROL ROD EVENTS	R. M. POULK
○	EVENT DESCRIPTIONS AND ACTIONS	
○	OPERATIONS ASSESSMENT	C. R. DIETZ
○	CLOSING REMARKS	C. R. DIETZ

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

○ OBJECTIVES

- TO REVIEW THE SEQUENCE OF EVENTS ASSOCIATED WITH AN IMPROPER MODE CHANGE AT BSEP ON 4/26/88 INCLUDING AN INACCURATE DETERMINATION OF RHR SYSTEM ALIGNMENT TO SUPPORT STARTUP OF UNIT 2.
- TO REVIEW ALL FACTORS AND VARIABLES THAT WERE CONTRIBUTIVE TO THE ERRORS NOTED ABOVE.
- TO REVIEW OTHER EVENTS THAT MAY BE INDICATIVE OF AN ADVERSE TREND IN PLANT OPERATIONS PERFORMANCE.
- TO REVIEW A BROAD SCOPE OF RELATED CORRECTIVE ACTIONS WHICH HAVE BEEN IMPLEMENTED AS A RESULT OF THESE INVESTIGATIVE EFFORTS.
- TO PRESENT CONCLUSIONS RELATED TO THESE EVENTS AND OVERALL OPERATIONS PERFORMANCE.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

- 0435 (L) MODE SWITCH WAS PLACED IN THE STARTUP POSITION FOR THE PURPOSE OF PERFORMING THE ROD WORTH MINIMIZER SURVEILLANCE TEST, PT-01.6.2-2.
- 0700 (C) SHIFT TURNOVER; PT-01.6.2-2 STILL IN PROGRESS.
- 0912 (L) PT-01.6.2-2 IS COMPLETED BY THE OPERATOR.
- 0913 (C) DECISION WAS MADE BY THE SHIFT FOREMAN (SRO) TO LEAVE THE MODE SWITCH IN THE STARTUP POSITION AND TO INITIATE THE PERFORMANCE OF THE ROD SEQUENCE CONTROL SYSTEM SURVEILLANCE TEST, PT-01.6.1.
- 0945 (P) PT-01.6.1 IS COMPLETED
*THIS TEST DID NOT PROVIDE GUIDANCE ON THE PLACEMENT OF THE MODE SWITCH FOLLOWING THE COMPLETION OF THE PROCEDURE.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

FOOTNOTE FOR TECHNICAL SPECIFICATIONS 3.1.4.1 (3.1.4.2):

ENTRY INTO CONDITION 2 AND WITHDRAWAL OF SELECTED CONTROL RODS IS PERMITTED FOR THE PURPOSE OF DETERMINING THE OPERABILITY OF THE RWM (RSCS) PRIOR TO WITHDRAWAL OF CONTROL RODS FOR THE PURPOSE OF BRINGING THE REACTOR TO CRITICALITY.

TYPICAL FOOTNOTE ALLOWING THE MODE SWITCH TO BE REPOSITIONED:

THE REACTOR MODE SWITCH MAY BE PLACED IN THE RUN OR STARTUP/HOT STANDBY POSITION TO TEST THE SWITCH INTERLOCK FUNCTIONS PROVIDED THAT THE CONTROL RODS ARE VERIFIED TO REMAIN FULLY INSERTED BY A SECOND LICENSED OPERATOR OR OTHER TECHNICALLY QUALIFIED MEMBER OF THE UNIT TECHNICAL STAFF.

LIMITING CONDITIONS NOT MET WHEN THE MODE SWITCH WAS PLACED IN STARTUP:

3.6.1.1	PRI CONTAINMENT INTEGRITY	DW DOORS OPEN
3.6.1.2	PRI CONTAINMENT LEAKAGE	DW DOORS OPEN
3.6.1.3	PRI CONTAINMENT AIR LOCK	DW DOORS OPEN
3.5.3.2	LOW PRESSURE COOLANT INJECTION	S/D COOLING

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

1219 (P) TRACKING LCO T-2-88-0729 WAS CANCELED.

*THIS LCO WAS ESTABLISHED AT 2006 ON 4/25/88 TO TRACK THE OPENING OF BOTH DRYWELL AIRLOCK DOORS TO ALLOW THE RUNNING OF WELDING CABLES INTO THE DRYWELL.

1403 (P) INITIATED PROCEDURES FOR SECURING SHUTDOWN COOLING AND RESTORING THE LPCI SYSTEM TO THE STANDBY LINEUP.

1406 (L) SHUTDOWN COOLING SECURED ON THE "B" LOOP; "A" LOOP OF LPCI IS IN THE STANDBY LINEUP.

*THE PROCEDURE (OP-17) WHICH CONTROLLED THIS EVOLUTION AND THE RESTORATION OF LPCI TO THE STANDBY LINEUP IS STILL BEING PERFORMED.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

1419 (P) ACTIVE LCO ON THE SUPPRESSION POOL TO REACTOR
BUILDING VACUUM BREAKERS IS CANCELED.

*THIS LCO WAS ESTABLISHED AT 0325 ON 4/25/88 DUE
TO THE BACKUP NITROGEN PNEUMATIC SOURCE BEING
ISOLATED TO THE DRYWELL FOR PERSONNEL SAFETY WHILE
IN THE DRYWELL.

1453 (L) "B" RECIRCULATION PUMP IS STARTED AND NORMAL
RECIRCULATION FLOW IN BOTH LOOPS IS ESTABLISHED.

1503 (L) PRIMARY/SECONDARY CONTAINMENT IS ANNOUNCED AS
BEING IN EFFECT IN PREPARATION FOR A UNIT STARTUP.

1503 (P) GENERAL PROCEDURE (GP)-01, STARTUP CHECKLIST, IS
SIGNED OFF AS COMPLETE.

*THE PROCEDURE TO RESTORE LPCI (OP-17) TO THE
STANDBY LINEUP IS A PREREQUISITE TO SIGNING GP-01
(STEP 5.1.15). OP-17 WAS STILL BEING PERFORMED.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

1507 (L) VESSEL SHELL TEMPERATURE IS VERIFIED TO BE WITHIN LIMITS ESTABLISHED BY TECHNICAL SPECIFICATION FIGURE 3.4.6.1-2 IN ACCORDANCE WITH GP-02, APPROACH TO CRITICALITY AND PRESSURIZATION OF THE REACTOR.

1516 (L) COMMENCED REACTOR STARTUP WAS ANNOUNCED BY SHIFT FOREMAN.

*THE STARTUP SRO NOTIFIED THE SHIFT FOREMAN THAT THE LPCI SYSTEM HAD NOT BEEN RESTORED TO THE STANDBY LINMUP PER OP-17. THE STARTUP WAS HALTED BY SHIFT FOREMAN PRIOR TO THE CONTROL ROD SELECT SYSTEM BEING ENERGIZED AND THE CONTROL OPERATOR WAS NOTIFIED TO SECURE FROM THE STARTUP UNTIL DIRECTED BY THE SHIFT FOREMAN.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

SEQUENCE OF EVENTS

1546 (P) OP-17 IS SIGNED OFF AS COMPLETE, THUS RESTORING
THE LPCI "B" LOOP TO ITS STANDBY LINEUP.

1600 (P) THE TIME FOR COMPLETION OF GP-01 IS CHANGED TO
REFLECT A TIME OF 1600 VICE THE INITIAL ENTRY OF
1503.

*AT THIS TIME, THE STARTUP WAS RECOMMENDED IN
ACCORDANCE WITH GP-02.

- (C) COMMENT
- (L) OPERATIONS LOG ENTRY
- (P) PROCEDURE ENTRY
- (*) INVESTIGATOR COMMENT

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- MODE CHANGE FROM MODE 4 TO MODE 2, UNREALIZED

- MODE SWITCH WAS IN STARTUP/HOT STANDBY AT SHIFT TURNOVER FOR REQUIRED TESTING.

- WE DID NOT CONSIDER REACTOR TO BE IN MODE 2.
 - MODE CONSIDERED TO BE 4, COLD SHUTDOWN.
 - THIS IS LONG-TERM HISTORICAL PRACTICE.
 - PROCEDURES WERE COMPATIBLE AND CONSISTENT WITH THIS INTERPPETATION.
 - ROD WORTH MINIMIZER TESTING IN PROGRESS AT SHIFT TURNOVER.
 - WE WERE IN GP-01, STARTUP CHECKLIST; GP-02, APPROACH TO CRITICALITY AND PRESSURIZATION OF THE REACTOR, CONTROLLED THE MODE CHANGE.
 - STATUS OF TESTING REQUIRING MODE SWITCH TO BE IN STARTUP HAD NOT BEEN DETERMINED TO BE COMPLETE.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- MODE CHANGE FROM MODE 4 TO MODE 2, UNREALIZED
 - B LOOP RHR WAS IN SHUTDOWN COOLING, MAINTAINING COOLANT TEMPERATURE LESS THAN 212°F TO PRECLUDE ENTERING MODE 3, HOT SHUTDOWN.
 - PRIMARY CONTAINMENT WAS NOT IN EFFECT; DRYWELL WAS STILL ACCESSED.
- CORRECTIVE ACTIONS TO ENSURE REACTOR MODE IS CONSISTENT BETWEEN TECHNICAL SPECIFICATIONS AND PROCEDURES
 - GP REVISIONS.
 - CLASSROOM AND SIMULATOR TRAINING TO IMPROVE OPERATIONS CONTROL OF REACTOR MODE RELATIVE TO THIS EVENT (ROS AND SROS).
 - DETAILED REVIEW OF GP VS. TECHNICAL SPECIFICATIONS REQUIREMENTS TO VERIFY FULL COMPLIANCE DURING MAJOR PLANT EVOLUTIONS.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- MODE CHANGE FROM MODE 4 TO MODE 2, UNREALIZED
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 - PRIMARY CONTAINMENT WAS NOT IN EFFECT; DRYWELL WAS STILL ACCESSED.

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ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- IMPRUDENT DECISION-MAKING
 - DECISION TO LEAVE MODE SWITCH IN STARTUP AFTER COMPLETION OF ROD WORTH MINIMIZER TESTING.
 - CONSIDERED REACTOR MODE TO BE CONDITION 4.
 - PT-01.6.2-2, RWM TEST, REQUIRED A DECISION TO BE MADE--EITHER PLACE REACTOR MODE SWITCH TO SHUTDOWN OR VERIFY THE PREREQUISITES ARE MET FOR LEAVING THE MODE SWITCH IN STARTUP PENDING REACTOR STARTUP.
 - CONSIDERING THE MODE TO BE CONDITION 4, THE ONLY LOGICAL DECISION WAS TO PLACE THE MODE SWITCH TO SHUTDOWN OR DO NOT.
 - SINCE RSCS TEST WAS REQUIRED, THE DECISION WAS MADE TO NOT PLACE THE MODE SWITCH TO SHUTDOWN.
 - THIS DECISION WAS SUPPORTED BY THE STARTUP SRO.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- IMPRUDENT DECISION-MAKING
 - DECISION TO LEAVE MODE SWITCH IN STARTUP AFTER COMPLETION OF RSCS TESTING.
 - PT-01.6.1, RSCS OPERABILITY TEST, DID NOT REQUIRE A DECISION BE MADE AT TEST COMPLETION CONCERNING THE REACTOR MODE SWITCH.
 - CONSIDERED REACTOR TO STILL BE IN MODE 4.
 - ROD WITHDRAWAL FOR THE PURPOSES OF MAKING THE REACTOR CRITICAL WAS THOUGHT TO BE IMMINENT.
 - REMAINING STARTUP ITEMS WERE FEW AND STATUS WAS VIRTUALLY COMPLETED.
 - HAD NOT VERIFIED THAT ALL REQUIRED TESTING WHICH REQUIRED THE MODE SWITCH TO BE IN STARTUP/HOT STANDBY WAS COMPLETED.
 - DID NOT DESIRE TO INSERT UNNECESSARY ACTUATION OF RPS LOGIC BY PLACING MODE SWITCH TO SHUTDOWN.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- IMPRUDENT DECISION-MAKING
 - DID NOT DESIRE TO SHOCK CRD SEALS BY AN UNNECESSARY DISCHARGE OF HCUS WITH RODS ALL FULL-IN.
- CORRECTIVE ACTIONS TO IMPROVE DECISION-MAKING ABILITY RELATIVE TO THE EVENT.
 - REVISIONS TO GP-01, GP-02, AND PTS.
 - STANDING INSTRUCTION 88-044.
 - CLASSROOM AND SIMULATOR TRAINING WITH EMPHASIS ON PROPER MODE SWITCH POSITION.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- PREMATURE SIGN-OFF OF GP-01 (SHUTDOWN COOLING SECURED PER OP-17)

- AMBIGUOUS WORDING OF STATEMENT IN GP-01.
 - NOT SPECIFIC ENOUGH--INCOMPLETE INTENT.
 - PLACEMENT OF THIS STEP IN GP-01 NOT COMPATIBLE WITH THE NECESSITY TO ENTER MODE 2 TO COMPLETE ROD WORTH MINIMIZER AND RSCS PTS.

- UNIT SRO INEXPERIENCED IN SRO ASPECTS OF SIGN-OFFS OF STEPS IN GP-01.
 - COUNTED ON RO'S STATEMENT, "SHUTDOWN COOLING SECURED," AS BENCHMARK TO INITIATE SIGN-OFF OF PROCEDURAL STEP INSTEAD OF AFTER-THE-FACT REVIEW OF THE COMPLETED PROCEDURES OR CO LOG ENTRY OF ATTAINING STANDBY LPCI LINEUP.
 - UNIT SRO USED RTGB INDICATION TO VERIFY LPCI IN STANDBY--AN ALLOWABLE STEP IN PREVIOUS PORTION OF GP-01 FOR THE OTHER LOOP.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- PREMATURE SIGN-OFF OF GP-01 (SHUTDOWN COOLING SECURED PER OP-17)

- GP-01, STARTUP CHECKLIST, WAS COMPLETED BASED ON THE REPORT AND THE SRO OBSERVANCE OF CONTROL ROOM INDICATION.

- GP-02, SOS AND SHIFT FOREMAN PERMISSION SIGN-OFFS, WAS VIEWED AS THE CONTROLLING POINT FOR ENTERING MODE 2.

- EXPLAIN CORRECTIVE ACTIONS, HOW THE ERROR WAS IDENTIFIED AND CORRECTED, AND ACTIONS TO PREVENT ROD PULL, INCLUDING INFORMING SOS OF PLANT STATUS.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

MODE SWITCH EVENT

- FURTHER IMPROVEMENTS TO ENSURE TECHNICAL SPECIFICATION COMPLIANCE

- ON-SHIFT TRAINING ON THIS EVENT.

- STREAMLINE GPS AND OTHER PERTINENT PROCEDURES TO IDENTIFY AMBIGUOUS STEPS, IMPROVE USABILITY, AND VERIFY FORMAT OF GPS IS CONSISTENT WITH REGULATION BUT NOT OVERLY RESTRICTIVE.

- THE OPERATIONS STAFF AT BRUNSWICK IS INTENT ON ELIMINATING NRC CONCERNS ABOUT OUR ABILITY TO CONTROL OUR PLANT AND IS DEDICATED TO DOING ALL THAT IS NECESSARY TO ENSURE THAT THESE CORRECTIVE ACTIONS ARE EFFECTIVELY IMPLEMENTED.

- EACH AND EVERY LICENSED OPERATOR ON OUR STAFF SHARES OUR DESIRE TO ENSURE REGULATORY REQUIREMENTS ARE MET, AND I THANK YOU FOR THIS OPPORTUNITY TO PRESENT THE FRONT-LINE TROOP'S REPORT ON THIS EVENT.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

CONTROL ROD 10-39 WITHDRAWN WITH THE SHORTING LINK INSTALLED

DESCRIPTION OF EVENT

FROM 0350 HOURS TO 2052 HOURS ON MARCH 8, 1988, CONTROL ROD 10-39 ON UNIT 2 WAS IN THE FULLY WITHDRAWN POSITION WITH THE SHORTING LINKS INSTALLED IN VIOLATION OF TECHNICAL SPECIFICATIONS. IT IS NOTED THAT THE "FULL-OUT" RED LIGHT FOR CONTROL ROD 10-39 WAS NOT WORKING.

CONTROL ROD 10-39 WAS WITHDRAWN IN ACCORDANCE WITH PLANT SURVEILLANCE TESTING TO VERIFY OPERABILITY BETWEEN 2025 HOURS ON MARCH 7 AND 0029 HOURS ON MARCH 8; HOWEVER, THE CONTROL ROD WAS NOT REINSERTED AS REQUIRED BY THE PROCEDURE. AT 0350 HOURS ON MARCH 8, THE SHORTING LINKS WERE INSTALLED, THUS PLACING THE PLANT IN VIOLATION OF TECHNICAL SPECIFICATIONS.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

CONTROL ROD 10-39 WITHDRAWN WITH THE SHORTING LINK INSTALLED

CHRONOLOGY

MARCH 7

1930 OD-7 OPTION 2 VERIFIES ALL RODS AT "0."
2025 SHORTING LINKS REMOVED IN PREPARATION FOR ROD TESTING.
2116 CONTROL ROD TESTING IS INITIATED.

MARCH 8

0029 CONTROL ROD MOVEMENT IS SECURED.
0037 OD-7 OPTION 2 INDICATES ALL CONTROL RODS AT "0" EXCEPT
THAT THE POSITION FOR 10-39 IS BLANK. THIS SAME
VERIFICATION WAS PERFORMED AT 0215, 0534, 0640, AND
0720 HOURS WITH THE SAME RESULTS.
0350 SHORTING LINKS WERE INSTALLED.
0600 OUTAGE SRO QUESTIONS WHY ROD DRIFT ALARM ON CONTROL ROD
10-39. THE ALARM IS RESET.
0700 SHIFT TURNOVER.
0900 A CLEARANCE IS PLACED ON THE ROD WORTH MINIMIZER SYSTEM
WHICH PREVENTS THE SELECTION OF ANY CONTROL ROD WITH
THE ROD SELECT SYSTEM.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

CONTROL ROD 10-39 WITHDRAWN WITH THE SHORTING LINK INSTALLED

CHRONOLOGY (CONTD)

MARCH 8 (CONTD)

1900 SHIFT TURNOVER

1948 THE CONTROL OPERATOR NOTICED THE BLANK INDICATION FOR
CONTROL ROD 10-39 WHILE PERFORMING AN OD-7 OPTION 2.
HE NOTIFIES THE SRO THAT CONTROL ROD 10-39 APPEARS TO
NOT BE FULLY INSERTED.

2014 THE CONTROL OPERATOR PERFORMS AN OD-7 OPTION 3 AND
CONFIRMS THAT CONTROL ROD 10-39 IS FULLY WITHDRAWN.

2052 CONTROL ROD 10-39 IS FULLY INSERTED BY INDIVIDUALLY
SCRAMMING THE RCD.

FINDINGS/CONCLUSIONS

1. PROCEDURE WAS NOT FOLLOWED.

THE TEST PROCEDURES BEING USED TO TEST THE OPERABILITY
OF THE CONTROL RODS REQUIRE THAT THE CONTROL RODS BE
EITHER FULLY REINSERTED OR LEFT AT A POSITION AS
DIRECTED BY THE NUCLEAR ENGINEER IF THE TESTING IS
PERFORMED DURING POWER OPERATION.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

CONTROL ROD 10-39 WITHDRAWN WITH THE SHORTING LINK INSTALLED

FINDINGS/CONCLUSIONS (CONT'D)

2. OPERATIONS STAFF WAS NOT NOTIFIED OR TRAINED ON THE PROGRAM CHANGE PERFORMED ON OD-7 OPTION 2.

PRIOR TO THE SOFTWARE CHANGE ON OD-7 OPTION 2, THAT PROGRAM WOULD HAVE INDICATED ROD 10-39 AT "48." THE CHANGE REMOVED THE PRINTOUT FOR ANY ROD AT "43" AND LEFT A BLANK FOR THAT ROD. THIS WAS DONE TO MAKE THE PRINTOUT LESS CONGESTED DURING POWER OPERATION WHEN MANY RODS ARE LOCATED AT "48."

3. FAILURE OF THE "FULL-OUT" RED LIGHT.

THE "FULL-OUT" RED LIGHT HAD FAILED AT SOME TIME PRIOR TO THIS EVENT AND WAS ON THE OUTAGE SCHEDULE FOR REPAIR. IN ADDITION, THE FAILURE OF THIS INDICATOR WAS BEING TRACKED BY AN LCO. HAD THE LIGHT BEEN OPERABLE, THE OPERATIONS STAFF WOULD HAVE READILY IDENTIFIED THAT CONTROL ROD 10-39 WAS FULL OUT.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

CONTROL ROD 10-39 WITHDRAWN WITH THE SHORTING LINK INSTALLED

CORRECTIVE ACTIONS

1. THE CONTROL ROD WAS FULLY INSERTED.
2. INVOLVED PERSONNEL HAVE BEEN COUNSELED.
3. STANDING INSTRUCTIONS WERE ISSUED IDENTIFYING THE SOFTWARE CHANGE TO OD-7 OPTION 2.
4. THE PROCESS OF SOFTWARE MODIFICATIONS WILL BE REVIEWED TO EVALUATE ANY CHANGES NECESSARY TO ENSURE FORMAL OPERATOR TRAINING REQUIREMENTS ARE IDENTIFIED.
5. APPROPRIATE PROCEDURES ARE BEING REVISED TO REQUIRE VERIFICATION THAT CONTROL RODS ARE RESTORED TO THEIR REQUIRED POSITION.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

INTERRUPTION OF SHUTDOWN COOLING ON JANUARY 25, 1988

DESCRIPTION OF EVENT

WHILE ATTEMPTING TO STABILIZE THE UNIT 1 REACTOR COOLANT TEMPERATURE IN COLD SHUTDOWN, REACTOR COOLANT TEMPERATURE INCREASED FROM 120 DEGREES AT 2130 HOURS ON 1/25/88 TO 210 DEGREES AT 0430 HOURS ON 1/26/88.

DIFFICULTY HAD BEEN EXPERIENCED IN MAINTAINING THE DESIRED TEMPERATURE WHILE IN SHUTDOWN COOLING. AS COOLANT TEMPERATURE CONTINUED TO DECREASE, THE BYPASS AROUND THE HEAT EXCHANGER WAS FULLY OPENED, FOLLOWED BY THE THROTTLING OF THE RESIDUAL HEAT REMOVAL (RHR) HEAT EXCHANGER OUTLET VALVE, E11-F003. LATER IN THE SHIFT, THE F003 INADVERTENTLY WENT SHUT, THUS REMOVING SHUTDOWN COOLING CAPABILITY. THIS WAS NOT RECOGNIZED BY THE OPERATIONS STAFF FOR APPROXIMATELY 1 HOUR AND 45 MINUTES.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

INTERRUPTION OF SHUTDOWN COOLING ON JANUARY 25, 1988

CHRONOLOGY

JANUARY 23

REACTOR IS SHUT DOWN IN PREPARATIONS FOR A SCHEDULED
APPENDIX R MODIFICATION OUTAGE.

JANUARY 24

1623 COLD SHUTDOWN IS REACHED (REACTOR COOLANT TEMPERATURE
IS LESS THAN 212 DEGREES.

JANUARY 25

2000 REACTOR COOLANT TEMPERATURE IS 130 DEGREES BUT NOT
STABILIZED; THE HEAT EXCHANGER BYPASS VALVE IS
ADJUSTED IN AN ATTEMPT TO STABILIZE THE COOLDOWN. AS
THE TEMPERATURE DECREASES TO APPROXIMATELY 90 DEGREES
WITH THE BYPASS VALVE FULLY OPEN, THE OPERATOR BECAME
CONCERNED ABOUT COOLANT TEMPERATURE DECREASING TO THE
NDT LIMIT AND THE F003 WAS THROTTLED.

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CHRONOLOGY (CONTD)

2130 REACTOR COOLANT TEMPERATURE IS STABILIZED AT 120 DEGREES WITH THE BYPASS VALVE FULLY OPENED AND THE F003 THROTTLED.

- THE F003 IS DESIGNED AS AN OPEN OR CLOSE VALVE. THE CONTROL SWITCH FOR THIS VALVE HAS A "DEAD BAND" BETWEEN THE "OPEN " AND "CLOSE" POSITION WHICH WILL CAUSE THE VALVE TO STOP TRAVEL AS IS (THROTTLED). USE OF THIS METHOD OF VALVE CONTROL WAS ALLOWED BY PROCEDURE UP TO JUNE 1987. THIS METHODOLOGY OF VALVE CONTROL WAS DELETED AS A RESULT OF THE CONTROL ROOM HABITABILITY STUDY, WHICH IDENTIFIED THAT THE VALVE WAS NOT BEING OPERATED AS DESIGNED.

0245 ACCORDING TO TEMPERATURE RECORDER TRACES, REACTOR COOLANT TEMPERATURE BEGAN TO INCREASE, INDICATING THAT THE F003 VALVE HAD CLOSED. THIS WAS NOT IDENTIFIED BY THE OPERATIONS STAFF AT THIS TIME.

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CHRONOLOGY (CONTD)

- 0430 THE CONTROL OPERATOR NOTED THAT THE RECIRCULATION LOOP TEMPERATURE WAS 202 DEGREES. HE IMMEDIATELY CHECKED THE SHUTDOWN COOLING LINEUP AND FOUND THE F003 SHUT. THE F003 WAS REOPENED AND SHUTDOWN COOLING WAS REESTABLISHED.
- 0443 THE TEMPERATURE IS NOTED TO BE AT 170 DEGREES AND DECREASING. THE HIGHEST TEMPERATURE REACHED DURING THIS EVENT WAS 210 DEGREES.

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INTERRUPTION OF SHUTDOWN COOLING ON JANUARY 25, 1988

FINDINGS/CONCLUSIONS

1. PROCEDURE NOT FOLLOWED.

THE OPERATING PROCEDURE FOR ESTABLISHING AND MAINTAINING SHUTDOWN COOLING DOES NOT ADDRESS (AFTER 6/82) THE THROTTLING OF THE F003 VALVE FOR SHUTDOWN COOLING OPERATIONS. THE PROCEDURE DIRECTS THAT FOLLOWING THE OPENING OF THE BYPASS VALVE, THE OPERATOR SHOULD REDUCE SERVICE WATER FLOW AND THEN REDUCE RHR (REACTOR COOLANT) FLOW. IF THE COOLDOWN IS STILL EXCESSIVE, THE PROCEDURE DIRECTS THAT THE F003 BE SHUT. THE OPERATING PROCEDURE WAS NOT REVIEWED DURING THIS EVENT AS SHUTDOWN COOLING HAD BEEN ESTABLISHED USING THE GENERAL PROCEDURE FOR PLANT SHUTDOWN. IN ADDITION, BECAUSE THE THROTTLING OPERATION WAS CONSIDERED TO BE A "SIMPLE EVOLUTION," THIS STEP WOULD NOT NEED TO BE PROCEDURALIZED.

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CAROLINA POWER & LIGHT COMPANY
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INTERRUPTION OF SHUTDOWN COOLING ON JANUARY 25, 1988

FINDINGS/CONCLUSIONS (CONTD)

2. F003 WAS IMPROPERLY UTILIZED AS A THROTTLE VALVE.

THE F003 CONTROL SWITCH IS AN "OPEN/CLOSE" SNAP SWITCH WHICH DOES NOT HAVE A THROTTLING CAPABILITY. PREVIOUS OPERATOR EXPERIENCE HAD NOTED THAT THERE WAS A "DEAD" POSITION BETWEEN THE "OPEN" AND "CLOSE" SWITCH POSITIONS THAT WOULD STOP VALVE MOVEMENT WHEN THE SWITCH WAS PLACED IN THAT POSITION. THIS HAD BEEN THE PROCEDURALIZED METHOD TO CONTROL COOLDOWN WHEN SHUTDOWN COOLING WAS LOWERING THE TEMPERATURE BELOW THE DESIRED TEMPERATURE BAND AND THE HEAT EXCHANGER BYPASS VALVE WAS FULLY OPEN. THIS METHOD HAD BEEN DELETED IN JUNE 1987.

3. REACTOR COOLANT TEMPERATURE WAS NOT APPROPRIATELY MONITORED. TEMPERATURE RECORDERS INDICATE THAT THE REACTOR COOLANT TEMPERATURE BEGAN TO INCREASE AT APPROXIMATELY 0245; HOWEVER, IT WAS NOT IDENTIFIED UNTIL APPROXIMATELY 0430.

ENFORCEMENT MEETING
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MAY 27, 1988

INTERRUPTION OF SHUTDOWN COOLING ON JANUARY 25, 1988

CORRECTIVE ACTIONS

1. APPROPRIATE DISCIPLINARY ACTION HAS BEEN COMPLETED.
2. ON-SHIFT TRAINING ON THIS EVENT WAS CONDUCTED WITH EACH SHIFT EMPHASIZING PROCEDURAL REQUIREMENTS.
3. MAKING THE F003 A THROTTLE VALVE IS BEING EVALUATED TO PROVIDE BETTER COOLDOWN CONTROL.
4. ENHANCED METHODS OF MONITORING THE STATUS OF SHUTDOWN COOLING ARE BEING EVALUATED.

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BRUNSWICK STEAM ELECTRIC PLANT
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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

DESCRIPTION OF EVENT

WHILE PERFORMING MAINTENANCE ON THE E11-F003 VALVE, REACTOR COOLANT TEMPERATURE INCREASED FROM 165 DEGREES AT 1400 HOURS TO 205 DEGREES AT 2100 HOURS.

UNIT 2 WAS IN COLD SHUTDOWN MAINTAINING REACTOR COOLANT TEMPERATURE BETWEEN 160 AND 185 DEGREES WITH THE "A" LOOP OF THE RESIDUAL HEAT REMOVAL (RHR) SYSTEM IN ACCORDANCE WITH OP-17 (MINIMUM RHR AND SERVICE WATER FLOW, HEAT EXCHANGER BYPASS VALVE FULLY OPEN, AND TEMPERATURE BEING CONTROLLED BY OPENING AND CLOSING THE RHR HEAT EXCHANGER OUTLET VALVE F003). MAINTENANCE WORK WAS IN PROGRESS ON THE E11-F003A DUE TO AN IDENTIFIED PROBLEM WHICH PREVENTED OPENING THE VALVE FROM THE RTGB. DURING THIS MAINTENANCE, THE F003 WENT SHUT FROM THE THROTTLED POSITION, CAUSING A LOSS OF SHUTDOWN COOLING AND THE NOTED REACTOR COOLANT TEMPERATURE INCREASE.

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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

CHRONOLOGY

MAY 11, 1988

- 1255 PROBLEM IDENTIFIED WITH THE F003 VALVE; THE VALVE WILL
 CLOSE BUT WILL NOT OPEN FROM THE RTGB.
- 1400 WORK IS INITIATED BY MAINTENANCE TO TROUBLESHOOT AND
 REPAIR THE PROBLEM WITH THE F003 VALVE. REACTOR
 COOLANT TEMPERATURE IS 165 DEGREES.
- 1545 OPERATIONS STAFF DECIDES TO MANUALLY THROTTLE THE F003
 AND OPEN THE BREAKER (TO PREVENT INADVERTENT AUTOMATIC
 VALVE TRAVEL) TO ENSURE SHUTDOWN COOLING IS MAINTAINED
 AT AN APPROPRIATE LEVEL WHILE MAINTENANCE WAS BEING
 PERFORMED. THE VALVE WAS INITIALLY THROTTLED TO 25%
 OPEN AND WAS FINALLY THROTTLED TO 15% OPEN TO MATCH THE
 HEAT LOAD.

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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

CHRONOLOGY (CONTD)

MAY 11, 1988 (CONTD)

- 1630 THE F003 VALVE BREAKER IS CLOSED TO ALLOW MAINTENANCE PERSONNEL WORKING ON THE VALVE TO TAKE ELECTRICAL READINGS AND THEN REOPENED. CHART RECORDINGS INDICATE THAT THE F003 VALVE WENT CLOSED DURING THIS EVOLUTION; HOWEVER, THIS ACTION WAS NOT RECOGNIZED BY THE OPERATIONS STAFF, AS VALVE POSITION INDICATION IS LOST WHEN THE BREAKER IS OPEN. REACTOR COOLANT TEMPERATURE WAS 170 DEGREES AT THIS TIME.
- 1730 THE CONTROL OPERATOR NOTICES THAT THE RHR HEAT EXCHANGER INLET TEMPERATURE IS LOWER THAN THE OUTLET TEMPERATURE AND NOTIFIES THE SRO. THE SRO DECIDES THAT THE HEAT EXCHANGER IS STILL STABILIZING AND INSTRUCTS THE CONTROL OPERATOR TO MONITOR THE INLET AND OUTLET TEMPERATURES.
- 1900 SHIFT TURNOVER INCLUDES DISCUSSIONS ABOUT THE F003 PROBLEM AND THE UNUSUAL TEMPERATURE READING ON THE RECORDER.

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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

CHRONOLOGY (CONTD)

MAY 11, 1988 (CONTD)

- 2000 THE NIGHT SHIFT NOTICES A DISCREPANCY BETWEEN THE LOGGED REACTOR COOLANT TEMPERATURES AND THE INDICATED RECIRCULATION LOOP AND REACTOR WATER CLEANUP TEMPERATURES, WHICH WERE HIGHER.
- 2100 THE CONTROL OPERATOR OBSERVES THAT THE HEAT EXCHANGER OUTLET TEMPERATURE IS 205 DEGREES AND NOTIFIES THE SRO. THEY CONCLUDE THAT THE F003 VALVE MUST BE CLOSED. AN OPERATOR IS SENT TO MANUALLY OPEN THE F003 VALVE.
- 2115 THE F003 VALVE IS OPENED 25% AND FLOW IS ESTABLISHED THROUGH THE HEAT EXCHANGER, THUS REESTABLISHING SHUTDOWN COOLING.

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BRUNSWICK STEAM ELECTRIC PLANT
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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

FINDINGS/CONCLUSIONS

1. THE OPERATIONS STAFF WAS MAINTAINING THE REACTOR COOLANT TEMPERATURE IN ACCORDANCE WITH PLANT PROCEDURES WHEN A COMPONENT PROBLEM PREVENTED F003 REMOTE OPERATION. ACTIONS TAKEN BY THE OPERATIONS STAFF TO MAINTAIN REACTOR COOLANT TEMPERATURE (THROTTLE THE F003) WERE PRUDENT.
2. THE OPERATIONS STAFF RECOGNIZED EARLY IN THE HEATUP THAT THE TEMPERATURES BEING MONITORED WERE NOT FOLLOWING THE EXPECTED TREND. THESE TEMPERATURE TREND DEVIATIONS WERE MONITORED AND INVESTIGATED BY THE OPERATIONS STAFF UNTIL THE CAUSE WAS IDENTIFIED, AT WHICH TIME APPROPRIATE ACTION WAS TAKEN.

CORRECTIVE ACTIONS

1. THE F003 WAS MANUALLY THROTTLED APPROXIMATELY 25% OPEN, AND THE REACTOR COOLANT TEMPERATURE WAS LOWERED AND MAINTAINED AT 125 TO 150 DEGREES.

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INTERRUPTION OF SHUTDOWN COOLING ON MAY 11, 1988

CORRECTIVE ACTIONS (CONTD)

2. THE PLANT IS REVIEWING THE POSSIBILITY OF MODIFYING THE F003 VALVE AND LOGIC TO ALLOW THROTTLE OPERATION. THIS FEATURE IS NEEDED DURING TIMES OF LOW DECAY HEAT WHEN THE ONLY REMAINING CONTROL IS TO OPEN AND SHUT THE F003 FOR TEMPERATURE CONTROL.

3. THE PROCEDURE FOR CONTROLLING SHUTDOWN COOLING OPERATION (OP-17) IS BEING REVIEWED TO DETERMINE IF IT SHOULD BE REVISED TO ALLOW THROTTLING DURING LOW HEAT LOAD CONDITIONS. IF REVISED, PROPER PRECAUTIONS AND CONTROLS WILL BE ESTABLISHED TO ENSURE SHUTDOWN COOLING IS MAINTAINED.

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BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY

MAY 27, 1988

- OPERATIONS PERFORMANCE FACTORS
 - MANAGEMENT PROCESS
 - SCHEDULES AND RESOURCES
 - PROCEDURAL ADEQUACY
 - TRAINING
 - PERSONNEL
 - MOTIVATION AND COMMITMENT
 - DISCIPLINE OF OPERATIONS
 - EQUIPMENT
 - PERFORMANCE AND RELIABILITY
 - DESIGN ADEQUACY

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

- OPERATIONS PERFORMANCE FACTORS

- MANAGEMENT PROCESS

- SCHEDULES AND RESOURCES
 - INITIATED AN INDEPENDENT ASSESSMENT OF THE
BNP ROTATIONAL SCHEDULE (12-HOUR SHIFTS) TO
DETERMINE POTENTIAL FATIGUE FACTOR.
 - TO BE COMPLETED BY NSSS PERSONNEL BY
8/88.

 - ASSESSED MANNING LEVELS TO EFFECTIVELY CARRY
OUT ASSIGNED TASKS (INFORMAL).
 - ACTION COMPLETE WITH NO RECOMMENDED
CHANGES; UTILIZATION OF THE STARTUP SRO
IS EFFECTIVE.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

- OPERATIONS PERFORMANCE FACTORS

- MANAGEMENT PROCESS

- SCHEDULES AND RESOURCES

- ASSESSED SCHEDULED WORK ACTIVITIES TO ENSURE REALISM IN SCHEDULE DEMANDS.
 - ACTION IS COMPLETE WITH NO RECOMMENDED CHANGES; ONGOING EFFORT TO ENSURE THAT MANAGEMENT ATTITUDES DO NOT CREATE UNNECESSARY SCHEDULAR STRESS.

- PROCEDURAL ADEQUACY
 - INITIATED COMPLETE REVIEW OF GP-01 THROUGH GP-07 TO CLARIFY THE SCOPE OF PROCEDURAL ACTIONS, DOCUMENTATION OF PROCEDURAL SIGN-OFFS, AND IMPROVED SEQUENCE OF EVENTS.
 - TO BE COMPLETE BY 9/88.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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- OPERATIONS PERFORMANCE FACTORS

- MANAGEMENT PROCESS

- PROCEDURAL ADEQUACY
 - ISSUED MEMORANDUM OF INSTRUCTION RELATED TO MODE CHANGES; PROVIDED CLARIFICATION OF ALLOWABLE MODE SWITCH MANIPULATION TO SUPPORT RELATED SURVEILLANCE TESTING.
 - INTERIM ACTION IS COMPLETE.
 - PERMANENT ADMINISTRATIVE CHANGES TO BE COMPLETE BY 8/88.

- TRAINING
 - INITIATED REAL-TIME TRAINING FOR ALL OPERATIONS SHIFTS COVERING MODE SWITCH CHANGES AND HEATUP EVENTS.
 - ACTION IS COMPLETE.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

- OPERATIONS PERFORMANCE FACTORS

- MANAGEMENT PROCESS

- TRAINING
 - INITIATED REQUEST TO THE NUCLEAR TRAINING SECTION TO INCORPORATE LESSONS LEARNED FROM THESE EVENTS INTO INITIAL OPERATOR AND REQUALIFICATION TRAINING PROGRAMS.
 - TO BE COMPLETE BY 12/88.

 - INITIATED DEVELOPMENT OF AN INTERNAL TRAINING PROGRAM TO BE PROVIDED TO NEW SRO PERSONNEL FOCUSING ON THE ADDITIONAL MANAGEMENT RESPONSIBILITIES OF THAT LICENSE.
 - TO BE COMPLETE BY 11/88.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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○ OPERATIONS PERFORMANCE FACTORS

○ PERSONNEL

○ MOTIVATION AND COMMITMENT

○ OPERATIONS PERSONNEL ARE TOTALLY COMMITTED TO ATTEMPTING TO DO THEIR ASSIGNED TASKS WITHOUT ERROR.

○ EVIDENCE OF PRIDE IN THEIR JOBS AS MEASURED IN A VARIETY OF WAYS.

○ PERSONAL OPINION BASED UPON INTERACTION, OBSERVATION, AND EXPOSURE OVER THE PAST SEVEN YEARS.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
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○ OPERATIONS PERFORMANCE FACTORS

○ EQUIPMENT

○ PERFORMANCE AND RELIABILITY/DESIGN

○ FACTORS AFFECTED THE EVENTS BUT WERE NOT SIGNIFICANT IN INFLUENCING THE CONCLUSION.

○ EQUIPMENT FAILURES PROVIDED SOME LEVEL OF MITIGATION TO THE SEQUENCE OF EVENTS BUT DO NOT COMPENSATE FOR THE LACK OF ATTENTIVENESS TO PLANT AND EQUIPMENT CONDITIONS.

○ INITIATED AN ASSESSMENT OF DECAY HEAT REMOVAL PROCEDURES AND RELATED EQUIPMENT APPLICATIONS TO DETERMINE THE ADEQUACY OF PROCEDURAL CONTROLS AND RECOMMENDED VALVE MANIPULATIONS. THIS EFFORT WILL ALSO INCLUDE DETERMINING THE NEED FOR PRIMARY COOLANT TEMPERATURE ALARMS WHEN OPERATING IN MODES FOUR AND FIVE.

○ TO BE COMPLETE BY 11/88.

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BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
MAY 27, 1988

- OPERATIONS PERFORMANCE FACTORS
 - EQUIPMENT
 - PERFORMANCE AND RELIABILITY/DESIGN
 - FACTORS AFFECTED THE EVENTS BUT WERE NOT SIGNIFICANT IN INFLUENCING THE CONCLUSION.
 - EQUIPMENT FAILURES PROVIDED SOME LEVEL OF MITIGATION TO THE SEQUENCE OF EVENTS BUT DO NOT COMPENSATE FOR THE LACK OF ATTENTIVENESS TO PLANT AND EQUIPMENT CONDITIONS.
 - INITIATED AN ASSESSMENT OF DECAY HEAT REMOVAL PROCEDURES AND RELATED EQUIPMENT APPLICATIONS TO DETERMINE THE ADEQUACY OF PROCEDURAL CONTROLS AND RECOMMENDED VALVE MANIPULATIONS. THIS EFFORT WILL ALSO INCLUDE DETERMINING THE NEED FOR PRIMARY COOLANT TEMPERATURE ALARMS WHEN OPERATING IN MODES FOUR AND FIVE.
 - TO BE COMPLETE BY 11/88.

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○ OPERATIONS PERFORMANCE FACTORS

○ PERSONNEL

○ DISCIPLINE OF OPERATIONS

- SELF-INITIATED ACTION BY THE OPERATIONS
"ON-Q" PROJECT QUALITY TEAM TO DEVELOP
RECOMMENDATIONS THAT WILL MORE CLEARLY DEFINE
"SKILL OF THE CRAFT" RELATED TO ROUTINE
EVOLUTIONS SUCH AS VALVE THROTTLING.

○ ACTION TO BE COMPLETE BY 7/88.

- INITIATED DEVELOPMENT OF TRAINING PROGRAM
INSTRUCTIONS THAT WILL EMPHASIZE INCREASED
ACCOUNTABILITY TO OBTAIN GUIDANCE FROM
OPERATIONS MANAGEMENT IN APPROPRIATE
INTERPRETATION OF PROCEDURAL INTENT. THIS
ACTION IS INTENDED TO MINIMIZE PERSONAL
JUDGMENT.

○ ACTION TO BE COMPLETE BY 8/88.

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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○ ASSESSMENT OF BNP OPERATIONS

○ PRECURSORS

○ EVENTS INDIVIDUALLY DO NOT REPRESENT A SERIOUS
COMPROMISE OF PLANT SAFETY OR EVIDENCE OF A
DETERIORATING OPERATIONAL COMPETENCE.

○ EVENTS IN SUMMATION CREATE BASES FOR CONCERN THAT
BNP IS DEVELOPING AN UNFAVORABLE PERFORMANCE
TREND.

○ INDEPENDENT AND INTERNAL ASSESSMENTS

○ QA/QC

○ INTERNAL PERFORMANCE ANALYSIS

○ INPO

ENFORCEMENT MEETING
BRASSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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○ ASSESSMENT OF BNP OPERATIONS

○ QA ASSESSMENT OF OPERATIONS

○ REQUESTED BY THE PLANT GENERAL MANAGER AS A RESULT OF POTENTIAL DEVELOPMENT OF A NEGATIVE PERFORMANCE TREND INDICATIVE OF DETERIORATING OPERATIONAL COMPETENCE.

○ FINDINGS: (MEMORANDUM: BNP/QA/QC-88-139 JONES TO DIETZ)

○ "WE HAVE COMPLETED OUR OVERALL ASSESSMENT OF THE OPERATIONS SUBUNIT AS REQUESTED. THIS ASSESSMENT INCLUDED:

- REVIEW OF QA SURVEILLANCE REPORTS PERTAINING TO OPERATIONS ACTIVITIES.
- REVIEW OF NCRS, FIELD REPORTS, ITEMS OF CONCERN, QA AUDIT DEFICIENCIES, OERS, NRC VIOLATIONS, AND LERS.
- OPERATIONS PRACTICES.

THE REVIEW FOCUS WAS TO DETERMINE IF THERE IS AN APPARENT OR REAL TREND RELATIVE TO OPERATIONS-CAUSED ERRORS. WE CONCLUDE THERE IS INSUFFICIENT EVIDENCE TO INDICATE THERE IS A TREND TO SUPPORT 'OPERATIONS IS WEAK.'"

ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
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○ ASSESSMENT OF BNP OPERATIONS

○ INTERNAL PERFORMANCE ANALYSIS

- ATTEMPTED TO IDENTIFY PERFORMANCE TREND BY EXAMINING PREVIOUS PERSONNEL ERROR EXPERIENCE. FOUR CATEGORIES WERE UTILIZED AS FOLLOWS:

I. INATTENTION TO DETAIL

- ERROR PERFORMING TASKS DUE TO OVER-CONFIDENCE, RUSHING, OR MENTAL LAPSE.

II. PROCEDURE NONCOMPLIANCE

- PERFORMANCE OF TASKS GOVERNED BY PROCEDURE BUT SEQUENCE/INSTRUCTIONS WERE NOT FOLLOWED.

III. EXPERIENCE

- ERRORS MADE BASED ON THE KNOWLEDGE OF THE INDIVIDUAL RELATED TO TIME IN POSITION AND PREVIOUS WORK EXPERIENCE.

IV. ACCEPTED PRACTICE IN PAST

- ERRORS PERFORMING TASKS USING GUIDELINES OR PRACTICES ACCEPTED AS ADEQUATE IN THE PAST WHICH HAVE BEEN IDENTIFIED TO BE INADEQUATE DUE TO CHANGING PHILOSOPHY.

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○ ASSESSMENT OF BNP OPERATIONS

○ INPO

- REVIEWED HISTORICAL DATA TO DETERMINE THE EXTENT OF PREVIOUS INPO FINDINGS AS ILLUSTRATED BY FIGURE 2.
- REVIEWED INPO EVALUATION RESULTS COMPLETED IN DECEMBER 1987 RELATIVE TO PERFORMANCE OBJECTIVE: OPERATIONS' ORGANIZATION SHOULD ENSURE EFFECTIVE IMPLEMENTATION AND CONTROL OF OPERATIONS ACTIVITIES.

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BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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O ASSESSMENT OF BNP OPERATIONS

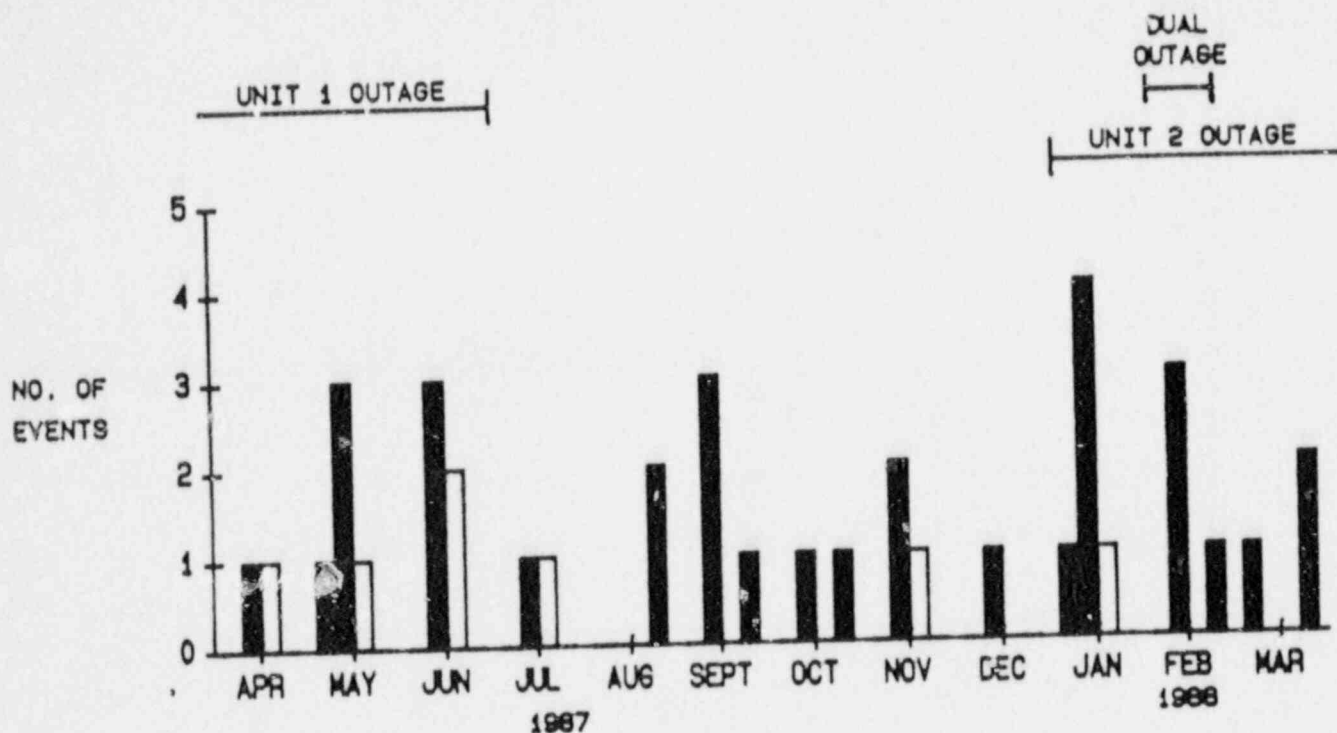
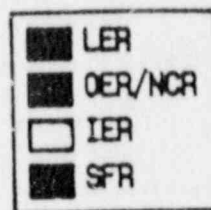
O INPO

O INPO FINDING (OP.1-1)

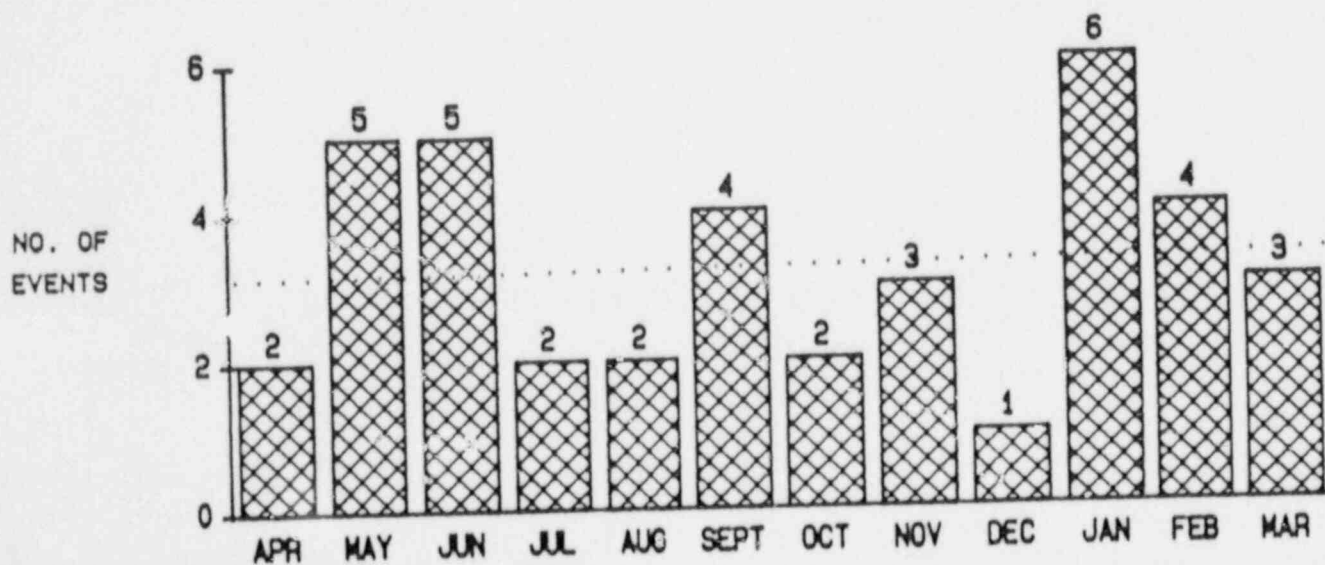
"INITIATIVES TO PROMOTE EXCELLENCE IN OPERATIONS HAVE BEEN DEVELOPED USING OPERATOR INVOLVEMENT IN A WELL-FOCUSED MANNER. FOR EXAMPLE, THE OPERATIONS MISSION STATEMENT, WHICH BROADLY DEFINES THE OPERATIONS DEPARTMENT'S GOAL FOR ACHIEVING EXCELLENCE, WAS THE PRODUCT OF AN OPERATIONS IMPROVEMENT WORKSHOP ATTENDED BY STATION SHIFT OPERATING SUPERVISORS AND FOREMEN. BREAKOUT SESSIONS WERE USED TO LAY THE GROUNDWORK FOR A COMPREHENSIVE ACTION PLAN FOR ACCOMPLISHING THE MISSION. IN ADDITION, THE "AWARD FOR EXCELLENCE IN OPERATIONS" WAS DEVELOPED BY REPRESENTATIVES FROM ALL OPERATING CREWS. THE OBJECTIVE OF THIS AWARD IS TO PROMOTE ACHIEVEMENT OF KEY GOALS DEFINED BY THE OPERATORS BY RECOGNIZING OUTSTANDING CREW PERFORMANCE. MEASURABLE OBJECTIVES SUCH AS PERSONNEL ERROR REDUCTION, SAFETY AWARENESS, AND REQUALIFICATION EXAM PERFORMANCE ARE USED TO MEASURE PROGRESS TOWARD THE GOALS. INDIVIDUAL CREW BRAINSTORMING SESSIONS HELD DURING THE REQUALIFICATION TRAINING CYCLE ARE FOCUSED ON IDENTIFYING METHODS THAT EACH CREW WILL USE TO ACHIEVE THE GOALS."

OPERATIONS ERROR ASSESSMENT

EVENT BY SOURCE TYPE

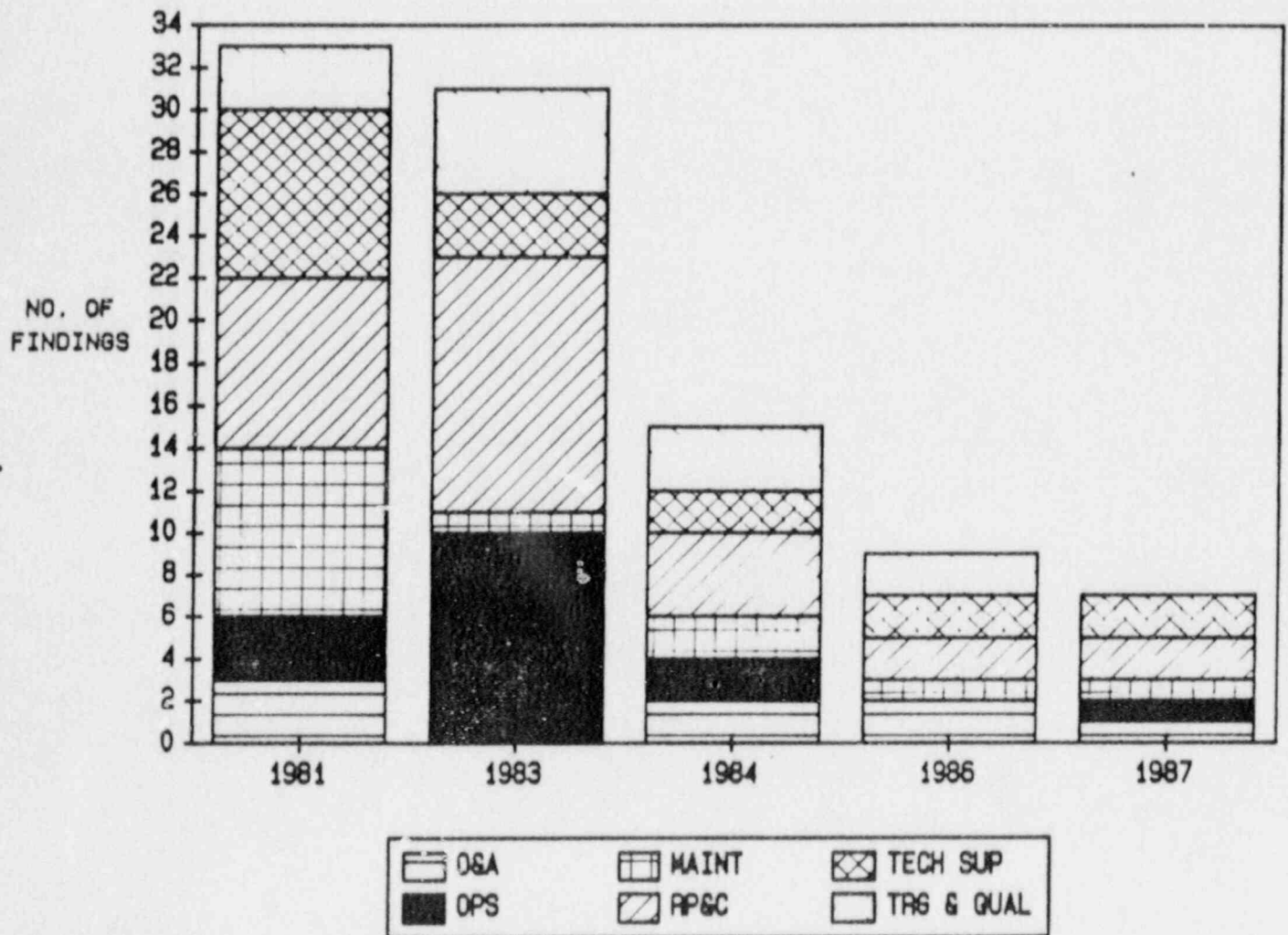


TOTAL NUMBER OF EVENTS



INPO FINDING PER CATEGORY

1981-1987



ENFORCEMENT MEETING
BRUNSWICK STEAM ELECTRIC PLANT
CAROLINA POWER & LIGHT COMPANY
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○ CONCLUSIONS

- EVENTS DISCUSSED TODAY ARE CONSIDERED TO BE SIGNIFICANT DEFICIENCIES IN BNP OPERATIONS QUEST FOR EXCELLENCE.
- NEITHER INTERNAL NOR INDEPENDENT ASSESSMENTS OF THESE EVENTS INTEGRATED WITH PREVIOUS YEARS' EXPERIENCE SUPPORTS A DETERMINATION THAT PLANT OPERATIONS HAVE INCURRED SIGNIFICANT DETERIORATION.
- THE SEQUENCE OF EVENTS REFLECT OPERATIONAL DEFICIENCIES RELATED TO PROCEDURAL ADEQUACY, STRICT PROCEDURAL ADHERENCE, INATTENTIVENESS TO DETAIL, AND INADEQUATE TRAINING RELATED TO MODE SWITCH EVOLUTIONS.
- INVESTIGATIVE EFFORTS HAVE BEEN TIMELY AND AGGRESSIVE; OPERATIONS STAFF INPUT HAS BEEN SELF-CRITICAL WITHOUT DEFENSIVENESS.
- CORRECTIVE ACTIONS TO PRECLUDE RECURRENCE HAVE BEEN OR ARE BEING PURSUED AGGRESSIVELY.