NOTICE OF VIOLATION

Carolina Power and Light Company
Shearon Harris Unit 1

Docket No.: 50-400
License No.: NPF-63
EA 96-261

During an NRC inspection conducted on June 9 through July 20, 1996, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions," (NUREG 1600), the violations are listed below:

A. 10 CFR 50.59, Changes, Tests, and Experiments, requires that licensees maintain records of changes in the facility and that these records must include a written safety evaluation which provides the bases for the determination that the change does not involve an unreviewed safety question.

The Final Safety Analysis Report (FSAR), Section 9.2.2.3, referred to interlocks that are provided to assure that a spare and a dedicated pump in the Component Cooling System are not started by an automatic signal such that the emergency power supply is overloaded. This design requirement was also specified in design basis document DBD-131, Revision 4, Component Cooling Water System.

Contrary to the above, as of July 3, 1996, interlocks were not installed for preventing emergency power supply overload as described in the FSAR and a written safety evaluation was not recorded. This condition existed since initial plant operation in 1987.

This is a Severity Level IV Violation (Supplement I).

B. 10 CFR 50, Appendix B, Criterion III, Design Control, requires that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. It further requires that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design.

1. Design basis document DBD-103, Revision 2, Chemical & Volume Control System/ Boron Thermal Regeneration System/ Boron Recycle System, specified that the spare charging/safety injection pump is interlocked with the dedicated charging/safety injection pump ("A" or "B" pump depending on physical placement of the spare pump's breaker) so that only one pump can be energized from only one emergency bus at a time.

Contrary to the above, as of July 3, 1996, the licensee had not correctly translated the design basis requirement for such an interlock into specifications, drawings, procedures, or instructions. As a result, no such interlock was installed for the charging/safety injection pump breakers. This condition existed since initial plant operation in 1987.

Enclosure 1

2. Safety-related plant drawings 1364-14970, Revision 3, Class 1E 6900V Emergency Bus 1A-SA; and 1364-15658, Revision 4, Class 1E-6900V Emergency Bus 1B-SB, both contain notes referring to key interlocks which prevent inserting breakers into the connected position unless key is in lock. These interlocks were designated for the spare charging/safety injection pump and the component cooling pump breaker cubicles in each emergency bus.

   Contrary to the above, in January 1995, the key interlocks were removed under maintenance work orders from both trains of safety-related 6900V emergency bus switchgear without appropriate design control measures. The interlocks were installed to provide redundancy and train separation protection. As of August 1996, these key interlocks were still referenced in the above plant drawings.

This is a Severity Level IV Violation (Supplement I)

Pursuant to the provisions of 10 CFR 2.201, Carolina Power and Light Company is hereby required to submit a written statement or explanation to the U. S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector, Harris Nuclear Plant, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If the correspondence adequately addresses the required response, your response may reference or include previous docketed correspondence. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information, so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

Dated at Atlanta, Georgia
This 6th day of September 1996

LIST OF ATTENDEES

NRC

L. Reyes, Deputy Regional Administrator, Region II (RII)
D. Verrelli, Acting Director, Division of Reactor Safety (DRS), RII
J. Johnson, Acting Director, Division of Reactor Projects (DRP), RII
B. Uryc, Director, Enforcement and Investigation Coordination Staff (EICS), RII
M. Shymlock, Chief, Reactor Projects Branch 4 (RPB4), DRP, RII
A. Boland, Senior Enforcement Specialist, EICS, RII
C. Evans, Regional Counsel, RII
J. Brady, Senior Resident Inspector, Harris, DRP, RII
D. Roberts, Resident Inspector, Harris, DRP, RII
G. MacDonald, Project Engineer, RPB4, DRP, RII

Carolina Power and Light Co.

W. Orser, Executive Vice President Nuclear Generation, CP&L
W. Habermeyer, Vice President Nuclear Engineering Department
W. Robinson, Vice President Harris Plant
J. Donahue, Director Site Operations, Harris Plant
T. Walt, Manager, Performance Evaluation and Regulatory Affairs
G. Rolfson, Manager, Harris Engineering Support Services
S. Sewell, Manager, Operations
D. Alexander, Supervisor, Licensing and Regulatory Programs
T. Cockerill, Superintendent, I&C Electrical Systems
H. Avinger, Plant Engineer

Enclosure 2

Enclosure 3

PREDECISIONAL ENFORCEMENT CONFERENCE AGENDA

SHEARON HARRIS NUCLEAR POWER PLANT
AUGUST 22, 1996, AT 10:30 A.M.
NRC REGION II OFFICE, ATLANTA, GEORGIA

I. OPENING REMARKS AND INTRODUCTIONS
L. Reyes, Deputy Regional Administrator

II. NRC ENFORCEMENT POLICY
B. Uryc, Director
Enforcement and Investigation Coordination Staff

III. SUMMARY OF THE ISSUES
L. Reyes, Deputy Regional Administrator

IV. STATEMENT OF CONCERNS / APPARENT VIOLATIONS
J. Johnson, Acting Director
Division of Reactor Projects

V. LICENSEE PRESENTATION
W. Robinson, Vice President - Harris
Carolina Power & Light Company

VI. BREAK / NRC CAUCUS

VII. NRC FOLLOWUP QUESTIONS

VIII. CLOSING REMARKS
L. Reyes, Deputy Regional Administrator

The apparent violation involved:

10 CFR 50.59, Changes, tests and experiments, requires that the licensee shall maintain records of changes in the facility and of changes in procedures made pursuant to this section, to the extent that these changes constitute changes in the facility as described in the safety analysis report. These records must include a written safety evaluation which provides the bases for the determination that the change, test, or experiment does not involve an unreviewed safety question.

Final Safety Analysis Report, Section 9.2.2, Component Cooling Water System, indicate that interlocks are provided to assure that both pumps (spare pump and dedicated train pump) are not started by an automatic starting signal such that the emergency power supply is overloaded.

Design basis documents, DBD-103, Chemical & Volume Control System/ Boron Thermal Regeneration System/ Boron Recycle System, Revision 2, paragraph 2.3.1.2; and DBD-131, Component Cooling Water System, Revision 4, paragraph 2.3.10, make references to these interlocks. Both documents indicate that the spare component cooling water and charging/safety injection pumps are interlocked with the dedicated train pumps so that only one pump can be energized from only one bus at a time.

As of July 3, 1996, an unevaluated change in the facility existed regarding the licensee's failure to install diesel generator overload protection interlocks. This condition existed since original plant construction.

In January 1995, the licensee made a change to the facility by removing Kirk key interlocks from safety-related breaker cubicles, on the charging/safety injection and component cooling water pumps, with out performing an evaluation pursuant to 10 CFR 50.59.

NOTE: The apparent violations discussed in this predecisional enforcement conference are subject to further review and are subject to change prior to any resulting enforcement decision.

NRC Pre-decisional Enforcement Conference

August 22, 1996

CP&L

Enclosure 4

Agenda

- Introductory Remarks - W. R. Robinson
- Plant Design - G. A. Rolfson
- Plant Operation - S. H. Sewell
- Apparent Violation / FSAR Upgrade - T. D. Walt
- Closing Remarks - W. R. Robinson

Plant Design

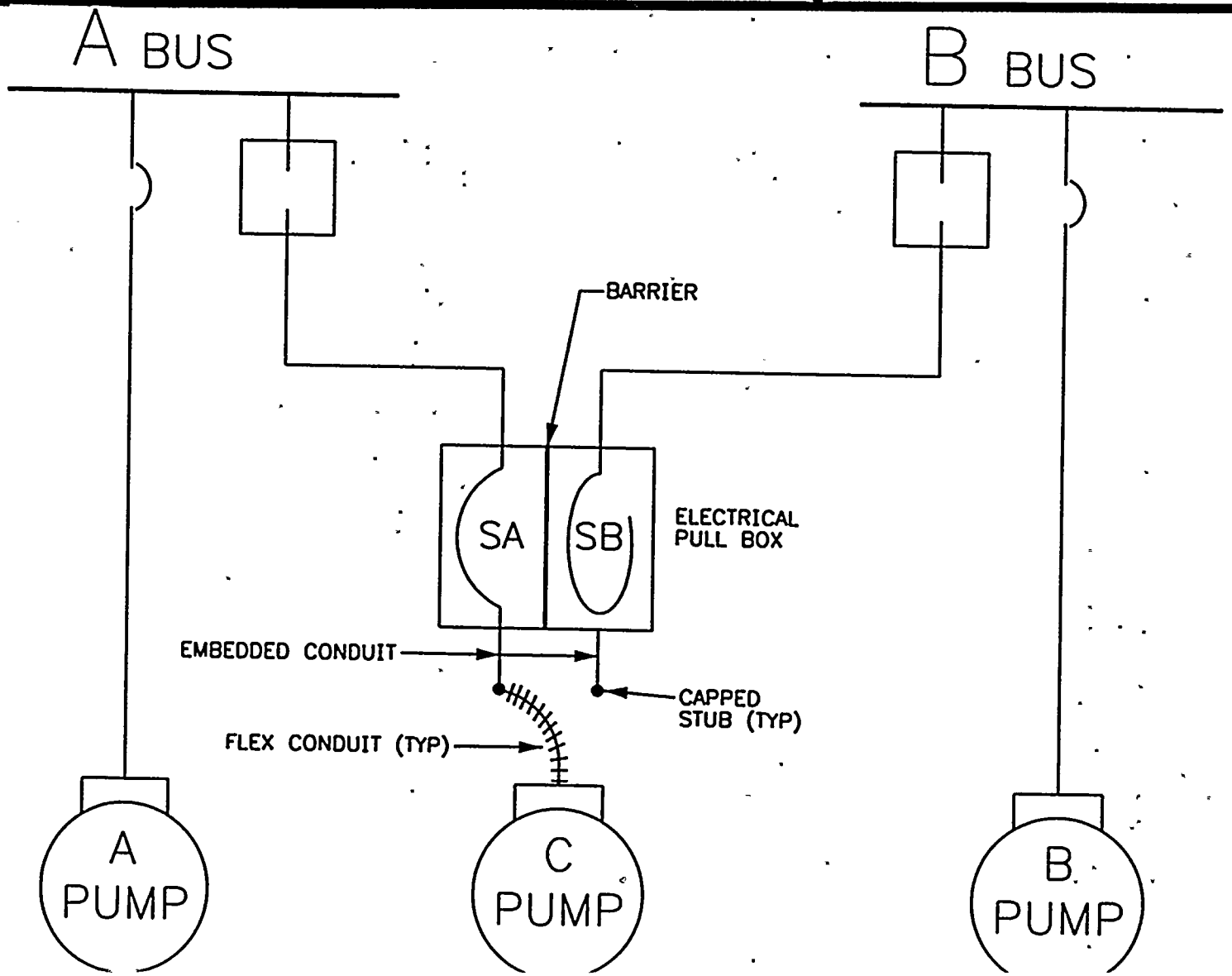
- Spare pumps installed for CCW and Charging/Safety Injection
- Spare pumps have independent power feeds from each electrical train
- One circuit breaker provided for each spare motor
- Spare pumps have independent auxiliary power and instrumentation power feeds from each electrical train

Design Considerations for Spare Pumps

- Electrical power supply overload
- Train separation

Plant Design

Electrical Connection Diagram



Overload Protection

Overload Protection

Design Features

- FSAR description of CCW describes an interlock which prevents two pumps from starting by an automatic starting signal
- FSAR description derived from Westinghouse standard system description for CCW
- Design Basis Documents for CSIP and CCW have similar descriptions of interlocks for overload protection
- Notes on electrical distribution drawings acknowledge potential for overload
- Main Control Board alarms provided for both component cooling water and charging/safety injection if two breakers are racked in on the same electrical bus

Overload Protection

Main Control Board Alarms - CCW

RCP-A BEARING CCW HIGH FLOW	RCP-B BEARING CCW HIGH FLOW	RCP-C BEARING CCW HIGH FLOW			CCW SURGE TANK HIGH-LOW LEVEL	CCW PUMPS A DISCHARGE HIGH TEMP	CCW PUMPS B DISCHARGE HIGH TEMP
RCP-A BEARING CCW LOW FLOW	RCP-B BEARING CCW LOW FLOW	RCP-C BEARING CCW LOW FLOW					
RCP THERM BAR HDR HIGH FLOW	RCP BEARING OUT HIGH TEMP	RCDT HX CCW HIGH FLOW		CCW HEAT EXCHANGER A SERV WATER HI ΔP	CCW HEAT EXCHANGER B SERV WATER HI ΔP	CCW PUMPS A DISCH HEADER LOW PRESS	CCW PUMPS B DISCH HEADER LOW PRESS
RCP THERM BAR HDR LOW FLOW	RCP THERM BAR OUT HIGH TEMP	RCDT HX CCW LOW FLOW					
EXCESS LTDN HX CCW HIGH FLOW				CCW HEAT EXCHANGER A SERV WATER HIGH TEMP	CCW HEAT EXCHANGER B SERV WATER HIGH TEMP	CCW PUMPS A TROUBLE	CCW PUMPS B TROUBLE
EXCESS LTDN HX CCW LOW FLOW	RHR PUMP A CCW LOW FLOW	RHR PUMP B CCW LOW FLOW					
LTDN HX CCW HIGH FLOW	RHR HX A OUT HIGH TEMP	RHR HX B OUT HIGH TEMP		CCW HEAT EXCHANGER A HIGH FLOW	CCW HEAT EXCHANGER B HIGH FLOW	CCW PUMPS A TRIP OR CLOSE CKT TROUBLE	CCW PUMPS B TRIP OR CLOSE CKT TROUBLE
	RHR HX A CCW HI/LO FLOW	RHR HX B CCW HI/LO FLOW					
SEAL WATER HX CCW HIGH FLOW	SPENT FUEL HX A CCW HIGH FLOW	SPENT FUEL HX B CCW HIGH FLOW	RECYCLE EVAP CCW HIGH DIFF FLOW	CCW HEAT EXCHANGER A OUTLET HIGH TEMP	CCW HEAT EXCHANGER B OUTLET HIGH TEMP	CCW TRAIN A BOTH BKRS IN	COMPUTER ALARM CCW SYSTEMS
SEAL WATER HX CCW LOW FLOW	SPENT FUEL HX A CCW LOW FLOW	SPENT FUEL HX B CCW LOW FLOW				CCW TRAIN B BOTH BKRS IN	

Overload Protection

Main Control Board Alarms - CVCS

CHARGING PUMPS DISCH HEADER HIGH-LOW FLOW		CSIP RWST SUCTION LCV-115B PULL TO LOCK	CSIP RWST SUCTION LCV-115D PULL TO LOCK		BORIC ACID BATCHING TANK HIGH-LOW TEMP		
CHRG PUMPS A TROUBLE	CHRG PUMPS B TROUBLE				BORIC ACID BATCHING TANK LOW LEVEL		
CHRG PUMPS A TRIP OR CLOSE CKT TROUBLE	CHRG PUMPS B TRIP OR CLOSE CKT TROUBLE				BORIC ACID TANK HIGH-LOW LEVEL	TOTAL MAKE UP WATER FLOW DEVIATION	BORIC ACID AUTO MAKE-UP SIGNAL BLOCKED
CHRG PUMPS A BOTH BKRS IN	CHRG PUMPS B BOTH BKRS IN				BORIC ACID TANK LOW-LOW LEVEL		BORIC ACID FLOW DEVIATION
			PRESSURIZER AUX SPRAY VLV FULL OPEN		BORIC ACID TANK EMPTY		COMPUTER ALARM CHARGING SYSTEMS

Overload Protection

Operation

- Procedures correctly sequence installation of spare pumps to prevent simultaneous breaker racking
- Technical Specification prohibits racking in two CCW pump breakers to a single bus
- No known incidents involving CCW
- One incident involving CSIP occurred during 1989 but was promptly identified and corrected
- Operators aware of potential for overload
- Annunciator response procedures provide corrective action

Overload Protection

Missing Interlock

- Root Cause
  - Failure to reconcile plant design with FSAR
- Corrective Actions
  - 10CFR50.59 evaluation completed for plant without interlocks
  - Clearance tags installed for additional warning
  - Operating procedures enhanced to provide additional caution
  - Mechanical interlocks will be installed for CSIP and CCW prior to start up from Spring 1997 outage
  - Continue FSAR Improvement Plan

Overload Protection

Safety Significance

- No adverse effect on diesel
- No instances found where two CCW pumps were racked in on the same bus simultaneously
- One instance found where two CSIP pumps were racked in simultaneously
  - Alarm functioned, operators promptly recognized and corrected
  - Verified compliance with applicable Technical Specification action statement

Train Separation

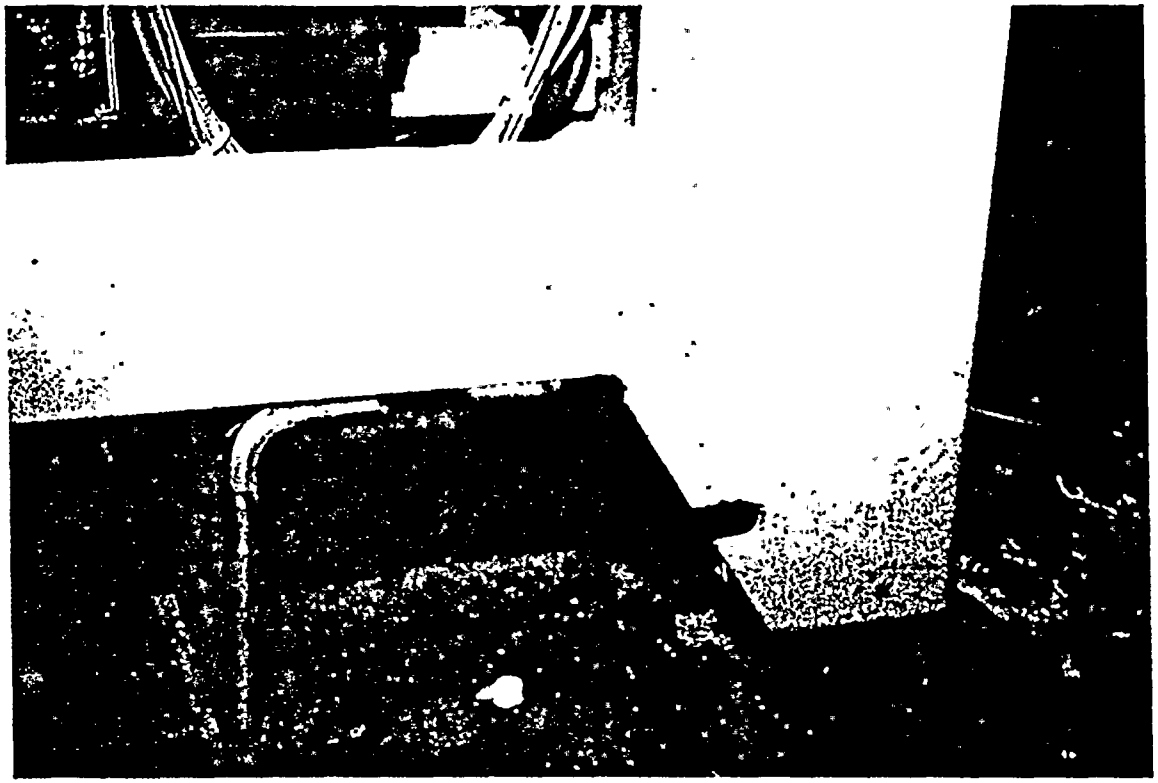
Train or Division Separation

Design Features

- Independent power supplies from each train
- Only one breaker provided for each spare pump motor
- Unique cubicle/breaker track arrangement
- Kirk key interlocks

Train Separation

Spare Cubicle/Breaker Track Arrangement



Train Separation

Kirk Key Interlocks

- 6.9KV breaker vendor drawings show kirk keys for spare cubicles only
- For dual breaker arrangement Kirk keys could have provided interlock to maintain train separation
- Kirk keys not properly installed
- Confusion regarding purpose of Kirk keys

Train or Division Separation

Kirk Key Interlocks continued

- 1986 PCR initiated to remove kirk keys from "C" breaker cubicles because mechanical provision on breaker modules prevented use of unauthorized breakers.
- PCR voided in 1993 because kirk keys had been abandoned in place
- 1994 ESR Engineering Reply recommended removal of kirk keys because no plant drawing or specification was located that described them.
- Kirk keys removed from 4 spare cubicles in 1995 by work order

Train Separation

Kirk Key removal without 50.59 evaluation

- Root Cause
  - Responsible engineer did not identify impacted design drawings
- Corrective Actions
  - 10CFR50.59 evaluation completed
  - Assessment of past Engineering Reply type ESRs to determine extent of inappropriate usage to be completed
  - Training of appropriate staff personnel to emphasize requirements of 10CFR50.59 evaluation and restrictions on use of engineering dispositions to be completed

Train Separation

Safety Significance

- Multiple design provisions for train or division separation
- Design requirements for train separation preserved

Apparent Violation of 10CFR50.59

Two Examples

- Interlock to prevent overload of emergency power supply by an automatic starting signal for the spare and dedicated CCW pump is not installed as described in the FSAR

- Kirk key interlocks for safety-related breakers were removed without performing a 10CFR50.59 evaluation

Missed Opportunities

- Two pre-licensing systematic FSAR reviews
  - Interlock description not in electrical section of FSAR
- Start-up testing
  - Alarm tested as interlock
- IE Information Notice 86-79
- 1989 Operational Event
  - Inadequate review of FSAR
- Kirk Key Removal
  - Inadequate review of FSAR

Initials/Date

6.5.19 Verify that the following actions occur:

a. The red breaker status "CLOSE" light is EXTINGUISHED and the green breaker status "OPEN" light is lit on CS-941.2SA on the ACP. WRP 17-3-86

b. The mechanical indicator on the breaker indicates that the breaker is "OPEN". WRP 17-3-86

6.5.20 Actuate the following transfer switches to the "NORM" position, at Transfer Panel 1A. (See NOTE preceding Step 6.5.2).

a. 43T-31/SA WRP 17-3-86

b. 43T-5/NA WRP 17-3-86

6.5.21 Return the D.C. power supply to Transfer Panel 1A to the "AS FOUND" condition of Step 6.5.1.

a. CKT #37 at 125VDC Panel DP-1A-SA WRP 17-3-86

b. CKT #7 at 125VDC Panel DP-1A-1 WRP 17-3-86

NOTE: The following controls will be performed at the MCB.

6.6 The following steps verify the interlock that produces an alarm if two breakers are installed in the same Safety Train.

6.6.1 Actuate the "COMPONENT COOLING WATER PUMP 1A-SA" switch (CS-941.1SA) on the MCB to the "START" position. WRP 17-3-86

6.6.2 Verify that the action above closes the breaker. WRP 17-3-86

6.6.3 Remove the Truck Operated Cell (TOC) springs in the 6.9KV Emerg. Bus 1A-SA Cubicle 3 (i.e., the cubicle corresponding to the A-Train feed of CCWP 1C-SAB). WRP 17-3-86

6.6.4 Verify that the "CCW PUMPS A BOTH BKRS IN" ALB 5, window 7-5A, annunciates at the MCB. WRP 17-3-86

FSAR Improvement Program

Introduction

- Identified need for improvement in late 1995, early 1996
- Initiated improvement plan in early 1996
- Effort has been effective in finding issues requiring resolution
  - NRC investigation for apparent violation resulted from a condition report written by plant staff

FSAR Improvement Program

- Self-assessment showed need for improvement
- Presented to NRC on May 30, 1996
- Implemented prior to finding CCW and CSIP interlock deficiency
- Three part program:
  - Routine use expected
  - Initial review
  - Selected detailed reviews

FSAR Improvement Program

Routine Use Expected

- Reinforce staff's knowledge of purpose and content
- FSAR training for technical staff in progress
- FSAR to be incorporated into training programs
- Ownership of individual sections of FSAR
- Infrequent evolutions
- Outage planning

FSAR Improvement Program

Initial Review

- Performed by knowledgeable individuals, e.g.
  - System Engineers, E&RC, Nuclear Fuels
  - Operations, Training
- Resolve questionable information
  - Other documents as required
  - Field verification as required
  - Resolve in a timely manner
- Not a complete validation
- Scheduled for completion in mid-1997

FSAR Improvement Program

Selected Detailed Reviews

- Selected detailed reviews or validations will be performed
  - Intended to provide in-depth evaluation of selected system or section
- Reviews currently planned:
  - SSFI of Reactor Protection System in late 1996
  - Fire Protection in 1997

FSAR Improvement Program

Review Results

- As of August 20
  - approximately 45% complete
  - approximately 155 condition reports issued in 1996
- Examples identified
  - Pressurizer PORV Alarms
  - ESW Low-Level Alarms
  - Chlorine Detection Equipment
  - Large Break LOCA Analysis Changes
- Identified issues have been or are being resolved

Summary

- Minimal safety significance considering operational history
- FSAR review continuing
- Promptly address discrepancies identified by corrective action program and 10CFR50.59