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ACCESSION NBR: 8706110223 DOC. DATE: 87/06/03 NOTARIZED: NO DOCKET #
FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
AUTH. NAME AUTHOR AFFILIATION
GRACE, J. N. Region 2, Office of Director
RECIP. NAME RECIPIENT AFFILIATION
TUCKER, H. B. Duke Power Co.

SUBJECT: Forwards summary of 870513 enforcement conference w/util in Region II ofc re sequence of events per Unit 3 heatup w/both trains of HPI inoperable & both trains of reactor bldg cooling units inoperable & corrective actions to be taken.

DISTRIBUTION CODE: IE45D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 21
TITLE: Summary of Significant Meeting with Licensee

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JUN 0 3 1987

Docket Nos. 50-269, 50-270, 50-287
License Nos. DPR-38, DPR-47, DPR-55

Duke Power Company
ATTN: Mr. H. B. Tucker, Vice President
Nuclear Production Department
422 South Church Street
Charlotte, NC 28242

Gentlemen:

SUBJECT: MEETING SUMMARY - REPORT NOS. 50-269/87-21, 50-270/87-21 AND 50-287/87-21)

This letter refers to the enforcement conference conducted, at our request, in the Region II Office on May 13, 1987. This meeting concerned activities authorized by NRC Operating License Nos. DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station. The meeting was held to brief the NRC on the sequence of events regarding Unit 3 heatup with both trains of High Pressure Injection (HPI) inoperable and both trains of the Reactor Building Cooling Units (RBCU) inoperable and corrective actions to be taken for all units as a result of this event.

Our concerns with the inoperability of the HPI system and the RBCUs were expressed to you at the meeting and your positive response to our concerns is appreciated.

It is our opinion that this meeting was beneficial and has provided for a better mutual understanding of the inspection findings and enforcement issues. We also found your description of the findings and your corrective actions to be beneficial in our evaluation of the issues. In accordance with Section 2.790 of NRC's "Rules of Practice", Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosures will be placed in NRC's Public Document Room.

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

Sincerely,

Original Signed by
M. L. Ernst/for

J. Nelson Grace
Regional Administrator

Enclosures: (See E. Christnot)
Meeting Summary w/attachments

cc w/encl:
M. S. Tuckman, Station Manager

1/1 IE45

bcc w/encl:
NRC Resident Inspector
H. Pastis, NRR
State of South Carolina
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5/7/87	5/7/87	5/12/87	5/13/87

ENCLOSURE

MEETING SUMMARY

On May 13, 1987, representatives of Duke Power Company (DPC) met with the NRC at the NRC's request in the Region II office in Atlanta, Georgia. The topics of discussion were the inoperability of the HPI system and RBCU's during heatup of Oconee Unit 3. The list of those attending the meeting is in Attachment 1.

Following opening remarks given by M. Ernst, NRC, RII Deputy Regional Administrator, DPC gave a presentation which addressed the specific concerns that the NRC had requested to be discussed. The presentation consisted of a description of the HPI system and RBCU's, a sequence of events, method of discovery, cause, consequences, corrective actions, and the safety significance of each issue.

The outline of the DPC presentation is contained herein as Attachment 2.

The NRC is presently considering enforcement action on these issues. This meeting served to enhance Region II's understanding of the issues and DPC's plans to prevent recurrence of similar problems

Attachments:
1. List of Attendees at the Oconee Enforcement Conference
2. Oconee Nuclear Station Unit 3 High Pressure Injection/Reactor Building Cooling Units - NRC Meeting May 13, 1987

ATTACHMENT 1

ENFORCEMENT CONFERENCE
DPC - OCONEE
5-13-87

ATTENDEES

Leigh Trocine	Enforcement Specialist	NRC
Jack Bryant	Senior Resident, Oconee	NRC
Tom Peebles	Act Br. Chief Projects	NRC
Brian Bonser	Project Engineer	NRC
Virgil L. Brownlee	DRP, Acting Deputy Director	NRC
Malcolm Ernst	Dep. Regional Administrator	NRC
George Jenkins	Director, EICS	NRC
Albert Gibson	Director Reactor Safety Division	NRC
Helen N. Pastis	Oconee Projects Manager - NRR	NRC
William Troskoski	Region II Coordinator, EDO	NRC
Peter K. VanDoorn	Senior Resident Catawba	NRC
Paul Guill	License Engineer	Duke
Bruno Uryc	Enforcement Coordinator	NRC
Maurice McIntosh	General Manager, G. O.	Duke
Mike Tuckman	Station Manager, ONS	Duke
Richard Sweigart	Superintendent of OPS, ONS	Duke
Fred Owens	Regulatory Compliance, ONS	Duke
Ned Edwards	Operating Engineer, ONS	Duke
Paul White	Design Engineer G. O.	Duke
Norman Starbaugh	Nuclear Production Egr. G. O.	Duke
E. M. Weaver	DPCO Design Engineer, M&N Div.	Duke
Gregg B. Swindlehurst	DPCO Design Engineer, M&N Div.	Duke

ATTACHMENT 2

OCONEE NUCLEAR STATION

UNIT 3

HIGH PRESSURE INJECTION

REACTOR BUILDING COOLING UNITS

NRC MEETING MAY 13, 1987

AGENDA

HIGH PRESSURE INJECTION EVENT

- DESCRIPTION OF HIGH PRESSURE INJECTION SYSTEM
- SEQUENCE OF EVENTS
- METHOD OF DISCOVERY
- CAUSE
- CONSEQUENCES
- CORRECTIVE ACTIONS

REACTOR BUILDING COOLING UNITS

- DESCRIPTION OF REACTOR BUILDING COOLING UNITS
- SEQUENCE OF EVENTS
- METHOD OF DISCOVERY
- CAUSE
- CONSEQUENCES
- CORRECTIVE ACTIONS

DESCRIPTION OF HIGH PRESSURE INJECTION SYSTEM (HPI)

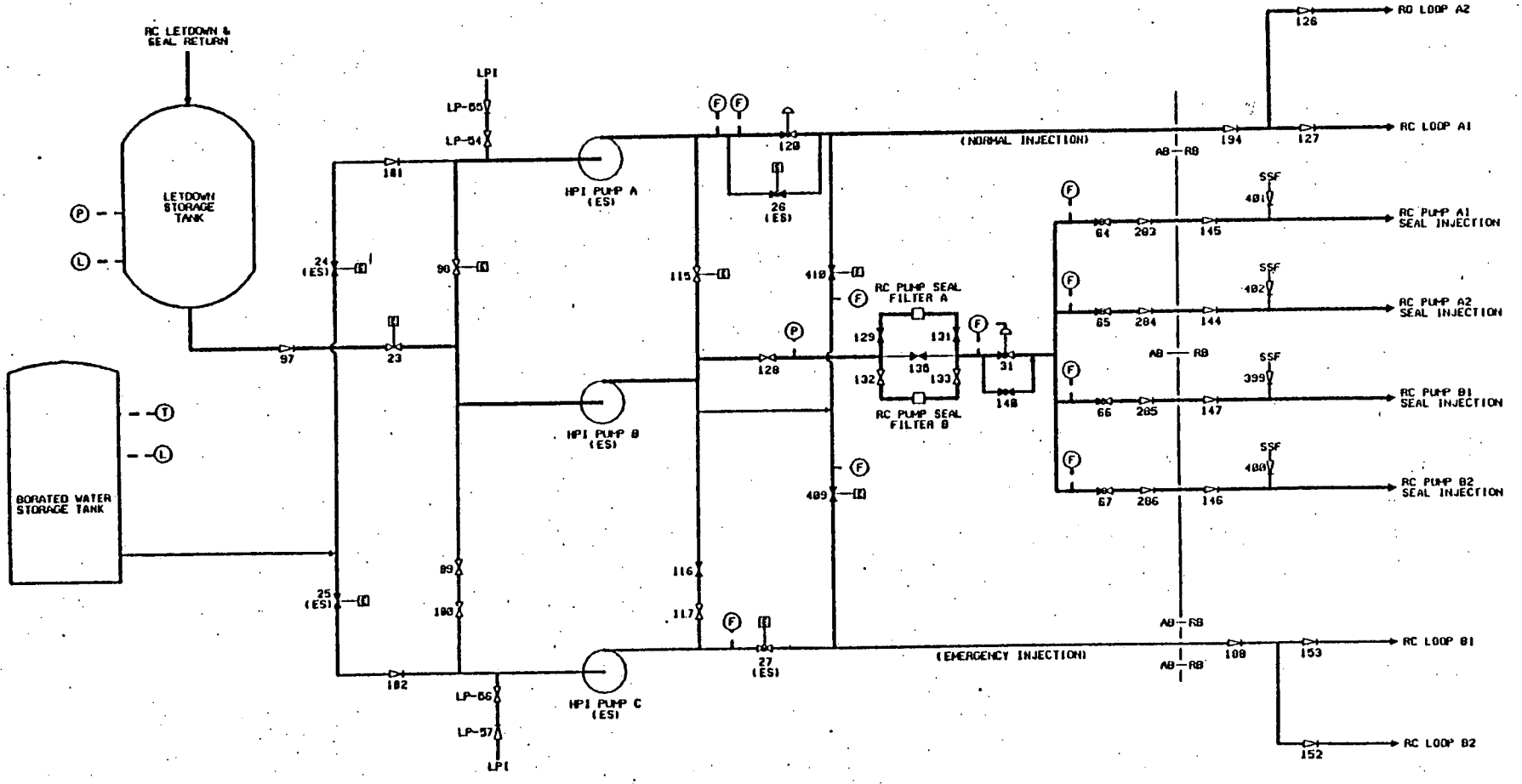
NORMAL OPERATIONS

- A OR B HPI PUMPS SUPPLY MAKEUP TO RC SYSTEM AND RCP SEALS
- SUCTION FOR PUMPS IS FROM LETDOWN STORAGE TANK
- SUCTION IS CROSS-CONNECTED
- SUCTION VALVES FROM BORATED WATER STORAGE TANK HP-24, 25 ARE CLOSED
- DISCHARGE VALVE HP-27 IS OPEN, HP-26 IS CLOSED

EMERGENCY OPERATION

- ENGINEERED SAFEGUARDS SYSTEM IS ACTUATED
  - LOW REACTOR COOLANT SYSTEM PRESSURE
  - HIGH REACTOR BUILDING PRESSURE
- A, B, AND C HPI PUMPS AUTOMATICALLY START
- SUCTION VALVES HP-24 AND 25 OPEN
- HP-26 OPENS ("A" HEADER INJECTION VALVES)
- WATER IS INJECTED FROM BWST TO REACTOR COOLANT SYSTEM

HIGH PRESSURE INJECTION SYSTEM



SEQUENCE OF EVENTS

3/26/87	- ALL UNIT 3 SYSTEM LINEUPS COMPLETE AFTER REFUELING SYSTEM HEATUP BEGINS
3/31/87 1612	- UNIT AT HOT SHUTDOWN SMALL NON-ISOLATABLE LEAK OCCURS UNIT COOLDOWN BEGINS
4/1/87 0730	- UNIT AT COLD SHUTDOWN
	- PLANT ANNOUNCEMENT MADE OF POSSIBLE DEFUELING
4/2/87 0715	- SHIFT MADE DECISION TO PREPARE FOR DEFUELING
	- SHUTDOWN TAGGING INITIATED FOR DEFUELING
	- HP-24 AND HP-25 BREAKERS OPENED AND REDTAGGED PER SHUTDOWN PROCEDURE FOR DEFUELING
4/5/87 0900	- UNIT 3 STARTUP BEGUN - DEFUELING DID NOT TAKE PLACE
4/10/87 1030	- UNIT 3 EXCEEDS 350 DEGREES WITH BREAKERS FOR HP-24 HP-25 OPEN
4/11/87 0715	- HP-24 HP-25 BREAKERS DIS-COVERED OPEN AND IMMEDIATELY CLOSED. UNIT WAS AT HOT SHUTDOWN (NOT CRITICAL)

METHOD OF DISCOVERY

- OCONEE OPERATORS PERFORM ALARM CHECK SUMMARY REVIEWS
- NUISANCE COMPUTER ALARMS ARE SUPPRESSED
- REVIEW OF SUPPRESSED ALARMS IS CONDUCTED EACH SHIFT
- OPERATOR RECOGNIZED HP-24 AND HP-25 "COIL BAD" ALARM
- IMMEDIATE CONFIRMATION THAT BREAKERS WERE OPEN

CAUSE OF EVENT

- INADEQUATE COMMUNICATIONS BETWEEN SHIFT STAFF AND SUPPORTING ENGINEERS
  - ENGINEERS SHOULD HAVE COMMUNICATED PLANT CONDITIONS DESIRED
  - INADEQUATE REVIEW OF SHUTDOWN PROCEDURE BY SUPPORTING ENGINEERS
  - NORMAL METHOD FOR REMOVAL AND RESTORATION OF EQUIPMENT NOT USED
- REVIEWS BY SHIFT OPERATIONS NOT SUFFICIENT
  - SAFETY TAG LOG REVIEW NOT ADEQUATE
  - OPERATOR BOARD WALKDOWNS NOT ADEQUATE
  - REVIEW OF COMPUTER "ALARM CHECK SUMMARY" NOT ADEQUATE

CONSEQUENCES OF EVENT

- ES ACTUATION STARTS ALL 3 PUMPS WITH SUCTION ON LDST
  - OPERATOR HAS 2 TO 3 MINUTES TO RECOGNIZE
  - EITHER RESTORE BWST SUCTION OR STOP PUMPS
- OPERATOR AIDS TO IDENTIFY THE PROBLEM
  - LDST LEVEL RECORDER STRATEGICALLY LOCATED
  - LDST LOW LEVEL ALARM
  - LDST LOW-LOW LEVEL ALARM
  - ES ACTUATION INDICATION PANEL
- TRAINING IS CONDUCTED ON THIS SCENARIO ON SIMULATOR
- EMERGENCY OPERATING PROCEDURES
  - VERIFIES VALVES GO TO ES POSITION
  - ADDRESSES FAILURE OF HPI SYSTEM
  - LARGE BREAK LOCA NOT A CONCERN
- BREAKERS MISPOSITIONED 21 HOURS
  - DECAY HEAT VERY LOW - UNIT SHUTDOWN FOR EXTENDED PERIOD
  - PROBABILITY OF SMALL BREAK IN THIS TIME SMALL

CORRECTIVE ACTIONS

IMMEDIATE

- BREAKERS FOR HP-24 AND HP-25 CLOSED
- REVIEW OF PLANT CONDITIONS CONDUCTED
- INVESTIGATION BEGUN TO UNDERSTAND EVENT

PLANNED

- A CASE STUDY TYPE TRAINING PROGRAM WILL BE CONDUCTED WITH ALL LICENSED OPERATORS
- ENHANCE STARTUP PROCEDURE BY INCLUDING ELECTRICAL BREAKER VERIFICATION OF ES COMPONENTS PRIOR TO EXCEEDING 250 DEGREES
- FORMALIZE ALARM CHECK SUMMARY REVIEW AS PART OF SHIFT T/O
- REWORD SHUTDOWN PROCEDURE REQUIRING SUPPORT ENGINEER DIRECTION FOR SHUTDOWN TAGGING
- CONDUCT ADDITIONAL TRAINING ON CONTROL BOARD WALKDOWNS FOR ALL LICENSED OPERATORS

REACTOR BUILDING COOLING UNITS

DESCRIPTION OF REACTOR BUILDING COOLING UNITS

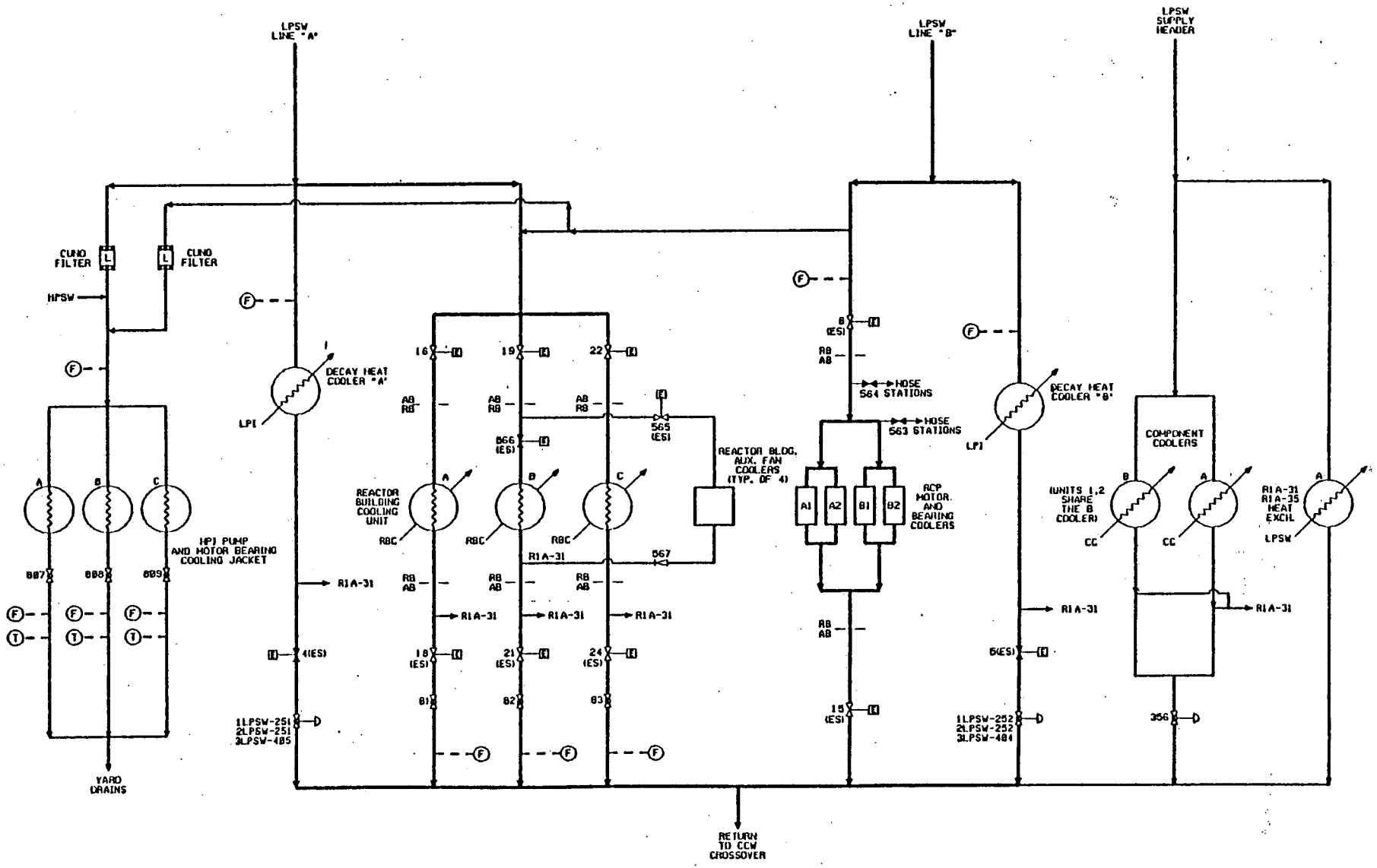
NORMAL OPERATION

- THREE COOLING UNITS AVAILABLE
- NORMALLY OPERATE WITH A AND C IN FAST SPEED
- COOLING WATER SUPPLIED BY LOW PRESSURE SERVICE WATER
- INLET ISOLATION VALVES NORMALLY OPEN LPSW 16, 19, 22
- OUTLET ISOLATION VALVES (ES) NORMALLY OPEN LPSW 18, 21, 24
- AUXILIARY COOLING UNITS NORMALLY IN SERVICE LPSW 565 OPEN LPSW 566 CLOSED

EMERGENCY OPERATION

- ENGINEERED SAFETY FEATURES ACTUATES ON
  - HIGH REACTOR BUILDING PRESSURE
- ALL THREE FANS RUN IN SLOW SPEED
- AUXILIARY COOLING UNIT ISOLATED, LPSW 565 CLOSES, LPSW 566 OPENS
- OUTLET VALVES OPEN (IF NOT ALREADY OPEN) LPSW 18, 21, 24
- REQUIRED TO BE OPERABLE PRIOR TO EXCEEDING 250 DEGREES 350 PSI (2 COOLERS)

LOW PRESSURE SERVICE WATER SYSTEM
(REACTOR BUILDING & AUXILIARY BUILDING)



SEQUENCE OF EVENTS

4/5/87	- UNIT STARTUP FROM COLD SHUTDOWN INITIATED
4/9/87 1700	- NORMAL STARTUP DIVERTED TO PERFORM HEAT LOAD TEST ON REACTOR BUILDING COOLING UNITS
4/9/87 1745	- REACTOR BUILDING COOLING UNITS SECURED, LPSW ISOLATED TO ALLOW REACTOR BUILDING TO HEAT UP FOR TEST
	- PROPERLY DOCUMENTED AND CONTROLLED
4/10/87 0600	- REACTOR TEMPERATURE EXCEEDS 250 DEGREES WITH REACTOR BUILDING COOLING UNITS ISOLATED
4/10/87 0700	- RBCU VALVES WERE DISCOVERED SHUT DURING SHIFT TURNOVER
4/10/87 0820	- LPSW INLET VALVES OPENED, REACTOR BUILDING COOLING UNITS MEET TECH SPECS

NOTE: - THE HP 24-25 EVENTS DID NOT OVERLAP THE RBCU EVENT

METHOD OF DISCOVERY

- REVIEW OF UNIT STATUS DURING TURNOVER
  - SHIFT RECOGNIZED 250 DEGREES HAD BEEN EXCEEDED
  - LINEUP WAS CORRECTED
  - REPORTABILITY EVALUATED
    - INITIAL REVIEW INDICATED OPERATORS WERE AWARE OF SITUATION AND COMPENSATORY MEASURES IN EFFECT
    - FURTHER REVIEW INDICATED NOT ALL OPERATORS WERE AWARE OF ABNORMAL LINEUP

CAUSE

- INADEQUATE COMMUNICATIONS BETWEEN SHIFT AND SUPPORTING ENGINEERS
- INADEQUATE CONTROL OF REACTOR BUILDING COOLING UNIT TEST
- INADEQUATE REVIEW OF PLANT STATUS PRIOR TO CHANGING MODES

CONSEQUENCES

- ES ACTUATION WOULD NOT HAVE HAD DESIRED REACTOR BUILDING COOLING FROM REACTOR BUILDING COOLING UNITS
  - SOME CONTROL ROOM PERSONNEL WERE AWARE INLET VALVES WERE CLOSED
- EMERGENCY OPERATING PROCEDURE REQUIRES VERIFICATION OF FLOW TO REACTOR BUILDING COOLING UNITS
  - VALVES COULD HAVE BEEN OPENED
- TECHNICAL SPECIFICATIONS FOR REACTOR BUILDING COOLING UNITS WERE EXCEEDED FOR 3 HOURS, MAXIMUM REACTOR COOLANT TEMPERATURE WAS 290 DEGREES
  - HEAT SOURCE WAS SMALL
  - REACTOR BUILDING SPRAY WAS AVAILABLE
  - CONTAINMENT WAS NOT THREATENED

CORRECTIVE ACTIONS

IMMEDIATE

- INLET VALVES LPSW 16, 19 and 22 WERE OPENED

PLANNED

- A CASE STUDY TYPE TRAINING PROGRAM WILL BE CONDUCTED WITH ALL LICENSED OPERATORS STRESSING COMMUNICATIONS
- THE STARTUP PROCEDURE WILL BE ENHANCED BY INCLUDING ELECTRICAL BREAKER VERIFICATION OF ES COMPONENTS PRIOR TO EXCEEDING 250 DEGREES
- THE ALARM CHECK SUMMARY REVIEW WILL BE FORMALIZED AS PART OF SHIFT T/O
- CONDUCT ADDITIONAL TRAINING ON CONTROL BOARD WALKDOWNS FOR ALL LICENSED OPERATORS