

October 20, 1994

MEMORANDUM TO: Brian K. Grimes, Director
 Division of Project Support

FROM: Alfred E. Chaffee, Chief (original signed by)
 Events Assessment
 and Generic Communications Branch
 Division of Project Support

SUBJECT: OPERATING REACTORS EVENTS BRIEFING
 OCTOBER 12, 1994 - BRIEFING 94-37

On October 12, 1994, we conducted an Operating Reactors Events Briefing (94-37) to inform senior managers from offices of the Commission, AEOD, NRR and regional offices of selected events that occurred since our last briefing on October 5, 1994. Attachment 1 lists the attendees. Attachment 2 presents the significant elements of the discussed events

Attachment 3 contains reactor scram statistics for the week ending October 9, 1994. No significant events were identified for input into the NRC Performance Indicator Program.

Attachments: As stated (3)

cc w/atts:
 See next page

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NAME	AByrdsong		EBenner <i>AB</i>		EGoodwin		TGreene <i>AB</i>	
DATE	10/17/94		10/17/94		10/18/94		10/18/94	

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NAME	RDennis		AChaffee	
DATE	10/18/94		10/20/94	

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 OPERATING EXPERIENCES

RETURN TO REGULATORY CENTRAL FILES

cc:

W. Russell, NRR (O-12G18)
F. Miraglia, NRR (O-12G18)
F. Gillespie, NRR (O-12G18)
R. Zimmerman, NRR (O-12G18)
A. Thadani, NRR (O-12G18)
S. Varga, NRR (O-14E4)
J. Zwolinski, NRR (O-14H3)
J. Roe, NRR (O-13E4)
E. Adensam, NRR (O-13E4)
B. Sheron, NRR (O-7D26)
G. Lainas, NRR (O-7D26)
G. Holahan, NRR (O-8E2)
M. Virgilio, NRR (O-8E2)
S. Rosenberg, NRR (O-10E4)
R. L. Spessard, NRR (O-9A2)
J. Calvo, NRR (O-10E2)
B. Boger, NRR (O-10H5)
C. Thomas, NRR (O-10H5)
B-D. Liaw, NRR (O-11E4)
D. Crutchfield, NRR (O-11H21)
W. Travers, NRR (O-11H21)
D. Coe, ACRS (T-2E26)
E. Jordan, AEOD (T-4D18)
C. Rossi, AEOD (T-4A9)
F. Congel, AEOD (T-4D28)
K. Brockman, AEOD (T-4A23)
S. Rubin, AEOD (T-4D28)
M. Harper, AEOD (T-4A9)
V. McCree, EDO (O-17G21)
F. Ingram, PA (O-2G5)
E. Beckjord, RES (T-10F12)
A. Bates, SECY (O-16G15)
T. Martin, Region I
R. Cooper, Region I
S. Ebnetter, Region II
E. Merschhoff, Region II
S. Vias, Region II
J. Martin, Region III
E. Greenman, Region III
L. Callan, Region IV
A. Beach, Region IV
K. Perkins, Region IV/WCFO

L. Raghavan (O-14H22)
D. Matthews (O-14H22)
T. Colburn (O-13D18)
J. Hannon (O-13D18)

bcc: Mr. Sam Newton, Manager
Events Analysis Department
Institute of Nuclear Power Operations
700 Galleria Parkway
Atlanta, GA 30339-5957



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

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Division of Project Support

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cc w/atts:
See next page

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (94-37)

OCTOBER 12, 1994

<u>NAME</u>	<u>OFFICE</u>	<u>NAME</u>	<u>OFFICE</u>
A. CHAFFEE	NRR	D. O'NEAL	NRR
R. DENNIG	NRR	L. RAGHAVAN	NRR
E. BENNER	NRR	C. GRIMES	NRR
E. GOODWIN	NRR	J. HANNON	NRR
T. GREENE	NRR	T. COLBURN	NRR
N. HUNEMULLER	NRR	J. ROE	NRR
A. BYRDSONG	NRR	W. BUTLER	NRR
S. SANCHEZ	NRR	B. D. LIAW	NRR
J. WERMIEL	NRR	W. JONES	OCM/IS
P. KANG	NRR	D. HICKMAN	AEOD
M. LABATUT	NRR		

TELEPHONE ATTENDANCE
(AT ROLL CALL)

Regions

Region II
Region III
Region IV

Resident Inspectors

IIT/AIT Team Leaders

Misc.

OPERATING REACTORS EVENTS BRIEFING 94-37

**LOCATION: 0-10B11, WHITE FLINT
WEDNESDAY, OCTOBER 12, 1994 11:00 A.M.**

CRYSTAL RIVER, UNIT 3

**FAILURE TO ADEQUATELY
MAINTAIN ATWS-AMSAC**

FERMI, UNIT 2

**INADEQUATE LOGIC
FUNCTIONAL TESTS**

PRESENTED BY:

**EVENTS ASSESSMENT AND GENERIC COMMUNICATIONS BRANCH
DIVISION OF PROJECT SUPPORT, NRR**

CRYSTAL RIVER, UNIT 3
FAILURE TO ADEQUATELY MAINTAIN ATWS-AMSAC
JULY 22, 1994

PROBLEM

FAILURE TO MAINTAIN ADEQUATELY THE ANTICIPATED TRANSIENT WITHOUT SCRAM-MITIGATION SYSTEM ACTUATION CIRCUITRY (ATWS-AMSAC).

CAUSE

MULTIPLE PERSONNEL ERRORS.

SAFETY SIGNIFICANCE

PERSONNEL ERRORS MAY BE INDICATIVE OF INATTENTION TO DETAIL AND LACK OF A QUESTIONING ATTITUDE.

BACKGROUND

ATWS-AMSAC ACTUATES EMERGENCY FEEDWATER INITIATION AND CONTROL (EFIC) AND TRIPS MAIN TURBINE ON A LOSS OF FEEDWATER FLOW ABOVE SPECIFIED REACTOR POWER.

SEQUENCE OF EVENTS

- MAY 19: MODIFICATION IMPLEMENTED RAISING AMSAC SETPOINTS FROM 25% TO 45% REACTOR POWER (BISTABLES CHANGED FROM 9.373 TO 4.743 V_{DC}).
- MAY 29: MODIFICATION FUNCTIONAL TEST PERFORMED VERIFYING CORRECT SETPOINTS.

CONTACT: E. BENNER, NRR/DOPS/OECB
REFERENCES: 10 CFR 50.72 #27565 AND
 LER 50-302/94-04

AIT: NO
SIGEVENT: TBD

JULY 1: (REACTOR AT 100% POWER) PROCEDURE SP-120B, "ATWS-AMSAC FUNCTIONAL TEST," PERFORMED. SP-120B HAD NOT BEEN REVISED TO REFLECT MODIFICATION AND CONTAINED INCORRECT SETPOINTS. BYPASS SETPOINT FOR AMSAC "A" WAS INADVERTENTLY RAISED TO 89%. AMSAC THEREFORE INOPERABLE, UNKNOWN TO OPERATORS.

POWER REDUCED TO \approx 70% FOR CONDENSATE PUMP REPAIRS. WHEN POWER DROPPED BELOW 89%, "AMSAC LOW FLUX BYPASS" ANNUNCIATOR ALARMED.

OPERATORS OPEN LINK TO DISABLE "AMSAC LOW FLUX BYPASS" ANNUNCIATOR. NO EVALUATION PERFORMED FOR OPENING OF LINK, NO WORK REQUEST INITIATED.

JULY 4: OPERATORS RECLOSE ANNUNCIATOR LINK AND WRITE WORK REQUEST.

JULY 5: USING WORK REQUEST, I&C IDENTIFIED THAT SETPOINTS HAD BEEN SET INCORRECTLY.

WHILE RETURNING TO 100% POWER FROM CONDENSATE PUMP REPAIR, AMSAC LOW FLUX BYPASS ANNUNCIATOR CLEARED AT 89%.

JULY 7: SETPOINTS RESET TO APPROPRIATE VALUES. SP-120B REVISED TO REFLECT PROPER SETPOINT VALUES.

DISCUSSION

- MODIFICATION/PROCEDURE REVIEW SHEET FOR MAY MODIFICATION SPECIFIED THAT ONLY GMMAMETRICS PROCEDURE REQUIRED CHANGE. THEREFORE, ATWS-AMSAC PROCEDURES SP-120B AND SP-121 NOT REVISED TO REFLECT MODIFICATION.
- SYSTEM ENGINEER NOTED IMPACT OF MODIFICATION ON SP-120B AND SP-121. REVISED SP-121 BUT DID NOT REVISE SP-120B DUE TO OVERSIGHT.
- I&C TECHNICIANS PERFORMING SP-120B NOTED THAT VOLTAGE OF MODULE WAS MUCH LOWER THAN DOCUMENTED IN PROCEDURE; ADJUSTED BISTABLE CORRESPONDED TO 175% REACTOR POWER. WHEN SYSTEM RESTORED, ANNUNCIATOR ALARMED. I&C TECHNICIANS ARBITRARILY ADJUSTED BISTABLE UNTIL ALARM CLEARED (CORRESPONDED TO 89% ON CHANNEL "A" AND 19% ON CHANNEL "B").
- OPERATORS CONSIDERED ANNUNCIATOR A NUISANCE ALARM AND DISABLED BY OPENING LINK IN ACCORDANCE WITH GUIDELINES, HOWEVER, WORK REQUEST NOT ISSUED DUE TO A MISCOMMUNICATION WITH THE I&C TECHNICIANS.
- EVENT INITIALLY IDENTIFIED AS NOT REPORTABLE (JULY 8). ISSUE DETERMINED TO BE 1-HOUR REPORTABLE ON JULY 22.

FOLLOWUP

- REGION II ISSUED THREE SEVERITY LEVEL IV VIOLATIONS ON FAILURE TO REVISE PROCEDURE AND FAILURES TO FOLLOW PROCEDURES.
- EVENTS ASSESSMENT AND GENERIC COMMUNICATIONS BRANCH IS CONSIDERING AN INFORMATION NOTICE.

FERMI, UNIT 2
INADEQUATE LOGIC FUNCTIONAL TESTS
SEPTEMBER 27, 1994

PROBLEM

DURING A REVIEW OF SURVEILLANCE TEST PROCEDURES, THE LICENSEE DISCOVERED THAT NOT ALL OF THE LOSS OF OFFSITE POWER/LOSS-OF-COOLANT ACCIDENT (LOOP/LOCA) LOGIC CIRCUITRY FOR THE DIESEL GENERATORS (DGs) HAD BEEN TESTED. THIS RESULTED IN THE 4 DGs BEING TECHNICALLY INOPERABLE SINCE INITIAL PLANT STARTUP.

CAUSE

TESTING DID NOT PROPERLY VERIFY ALL PORTIONS OF THE LOOP/LOCA LOGIC CIRCUIT AND OTHER LOGIC CIRCUITS DUE TO INADEQUATE SURVEILLANCE TESTING PROCEDURES.

SAFETY SIGNIFICANCE

POTENTIAL FAILURE OF THE EMERGENCY DIESEL GENERATORS TO PERFORM THEIR SAFETY FUNCTION DURING A LOOP/LOCA. THE TECHNICAL SPECIFICATIONS REQUIREMENTS HAVE NOT BEEN PROPERLY INCORPORATED IN THE SURVEILLANCE TESTING PROGRAM.

DISCUSSION

- IN JULY 1994, LICENSEE DISCOVERED THAT THEIR LOGIC TESTING DID NOT HAVE APPROPRIATE OVERLAP TO COMPLETELY TEST THE CIRCUIT. A DEFICIENCY REPORT WAS WRITTEN BY THE LICENSEE.

CONTACT: T. GREENE, NRR/DOPS/OECB
REFERENCE: 10 CFR 50.72 #27829

AIT: NO
SIGEVENT: NO

- DURING THE LICENSEE REVIEW OF THE DEFICIENCY REPORT, NUMEROUS CASES WERE DISCOVERED WHERE ADEQUATE OVERLAP TESTING AND PARALLEL PATH AND CONTACT TESTING WERE NOT BEING PERFORMED. FOR EXAMPLE: CONTROL ROOM EMERGENCY LIGHTING, RHR EMERGENCY EQUIPMENT COOLER #2, LOAD SHED RHR PUMP START, IF A BREAKER IS OPEN AND NEEDS TO REMAIN OPEN IT WILL NOT CLOSE ON UNDERVOLTAGE, UNINTERRUPTIBLE AIR SUPPLY SYSTEM, AND ALTERNATE AUTOMATIC CLOSURE CIRCUITRY FOR DGs OUTPUT BREAKER.
- DURING THE CURRENT SHUTDOWN, THE LICENSEE DISCOVERED THAT THE LOOP/LOCA LOGIC HAD NOT BEEN PROPERLY TESTED.
- VARIOUS DG PROCEDURES WERE REWRITTEN AND TESTING OF THE 4 DGs INITIATED. NO FAILURES WERE NOTED DURING THE RETESTING.
- DURING MONTHLY SURVEILLANCE TESTING, BUT BEFORE THE LOOP/LOCA LOGIC TESTING WAS PERFORMED, THE OUTPUT BREAKER FOR DG 14 TRIPPED INADVERTENTLY.

FOLLOWUP

- THE OUTPUT BREAKER TRIP IS BELIEVED TO HAVE BEEN CAUSED BY A GROUND WIRE THAT WAS NOT WIRED TO THE DG UNDER FREQUENCY RELAY MAKING THE CONTROL CIRCUIT SUSCEPTIBLE TO NOISE. ALSO, DEFICIENCIES WERE DISCOVERED IN THE ELECTRICAL DESIGN DRAWINGS.

- THERE HAVE BEEN THREE INFORMATION NOTICES WRITTEN RELATED TO THIS ISSUE OF ADEQUATE TESTING OF LOGIC CIRCUITRY: IN 88-83, "INADEQUATE TESTING OF RELAY CONTACTS IN SAFETY-RELATED LOGIC SYSTEMS," IN 92-40, "INADEQUATE TESTING OF EMERGENCY BUS UNDERVOLTAGE LOGIC CIRCUITRY," AND IN 93-38, "INADEQUATE TESTING OF ENGINEERED SAFETY FEATURES ACTUATION SYSTEMS."
- IN THE SPRING OF 1994, COOPER REPORTED A SIMILAR DEFICIENCY WITH THEIR PROCEDURES FOR OVERLAP TESTING OF THEIR LOGIC CIRCUITY.
- AN INFORMATION NOTICE IS BEING CONSIDERED.

REACTOR SCRAM

Reporting Period: 10/03/94 to 10/09/94

<u>DATE</u>	<u>PLANT & UNIT</u>	<u>POWER</u>	<u>TYPE</u>	<u>CAUSE</u>	<u>COMPLICATIONS</u>	<u>YTD ABOVE 15%</u>	<u>YTD BELOW 15%</u>	<u>YTD TOTAL</u>
10/07/94	HOPE CREEK 1	16	SA	Equipment Failure	NO	5	0	5
10/07/94	COMANCHE PEAK 2	1	SM	Equipment Failure	NO	3	2	5

Attachment 3

Note: Year To Date (YTD) Totals Include Events Within The Calendar Year Indicated By The End Date Of The Specified Reporting Period

COMPARISON OF WEEKLY SCRAM STATISTICS WITH INDUSTRY AVERAGES

SCRAM CAUSE	NUMBER OF SCRAMS	PERIOD ENDING 10/09/94				
		1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991* WEEKLY AVERAGE	1990* WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE*	1	1.66	1.83	2.62	2.88	3.38
DESIGN/INSTALLATION ERROR*	0	0.07	0.04	-	-	-
OPERATING ERROR*	0	0.22	0.27	0.23	0.58	0.48
MAINTENANCE ERROR*	0	0.47	0.52	0.40	-	-
EXTERNAL*	0	0.12	0.13	-	-	-
OTHER*	0	0.02	0.02	0.23	-	-
Subtotal	1	2.56	2.81	3.48	3.46	3.86
POWER LESS THAN 15%						
EQUIPMENT FAILURE*	1	0.35	0.38	0.40	0.29	0.40
DESIGN/INSTALLATION ERROR*	0	0.02	-	-	-	-
OPERATING ERROR*	0	0.10	0.13	0.13	0.15	0.08
MAINTENANCE ERROR*	0	0.00	0.02	0.06	-	-
EXTERNAL*	0	0.00	0.04	-	-	-
OTHER*	0	0.00	-	0.06	-	-
Subtotal	1	0.47	0.57	0.65	0.44	0.48
TOTAL	2	3.07	3.38	4.13	3.90	4.34

SCRAM TYPE	NO. OF SCRAMS	1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	1	2.26	2.44	3.06	3.25	3.21
TOTAL MANUAL SCRAMS	1	0.79	0.94	1.02	0.65	1.19

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

* Detailed breakdown not in database for 1991 and earlier

- EXTERNAL cause included in EQUIPMENT FAILURE
- MAINTENANCE ERROR and DESIGN/INSTALLATION ERROR causes included in OPERATING ERROR
- OTHER cause included in EQUIPMENT FAILURE 1991 and 1990

NOTES

1. PLANT SPECIFIC DATA BASED ON INITIAL REVIEW OF 50.72 REPORTS FOR THE WEEK OF INTEREST. PERIOD IS MIDNIGHT SUNDAY THROUGH MIDNIGHT SUNDAY. SCRAMS ARE DEFINED AS REACTOR PROTECTIVE ACTUATIONS WHICH RESULT IN ROD MOTION, AND EXCLUDE PLANNED TESTS OR SCRAMS AS PART OF PLANNED SHUTDOWN IN ACCORDANCE WITH A PLANT PROCEDURE. THERE ARE 111 REACTORS HOLDING AN OPERATING LICENSE.
2. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.
3. COMPLICATIONS: RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.
4. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.

OEAB SCRAM DATA

Manual and Automatic Scrams for 1987	-----	435
Manual and Automatic Scrams for 1988	-----	291
Manual and Automatic Scrams for 1989	-----	252
Manual and Automatic Scrams for 1990	-----	226
Manual and Automatic Scrams for 1991	-----	206
Manual and Automatic Scrams for 1992	-----	212
Manual and Automatic Scrams for 1993	-----	175
Manual and Automatic Scrams for 1994	--(YTD 10/09/94)--	123