JUN 8 1987

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment

FROM: Wayne Lanning, Acting Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: THE OPERATING REACTORS EVENTS MEETING 87-17
JUNE 2, 1987

On June 2, 1987, an Operating Reactors Events meeting (87-17) was held to brief senior managers from NRR, RES, AEOD and Regional Offices on events which occurred since our last meeting on May 26, 1987. The list of attendees is included as Enclosure 1.

The results of the June 1, 1987 Monday meeting for the transfer of long-term eventa followup were reviewed. In addition, the format and content for reporting the weekly reactor scram summary and statistics were discussed.

The events discussed and the significant elements of these events are presented in Enclosure 2. Enclosure 3 provides a summary of reactor scrams and "significant events" that will be input to NRC's performance indicator program.

Original Signed by
Wayne D. Lanning

Wayne Lanning, Acting Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

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EAB Members

(SEE ATTACHED FOR PREVIOUS CONCURRENCE*)

PWR:EAB *	SL:PWR:EAB	SL:BWR:EAB	ACT.BC:EAB
WSWENSON:mk	RLOBEL	PBARANOWSKY	WLANNING
6 /04/87	6/5/87	6/8/87	6/8/87

I Dat R - 5-1
OPERATING
EXPERIENCE

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Wayne Lanning, Acting Chief
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WSWENSON:mk	RLOBEL	PBARANOWSKY	WLANNING
06/04/87	/ /87	/ /87	/ /87

cc: T. Murley
J. Sniezek
R. Starostecki
J. Taylor
E. Jordan
E. Beckjord
W. Russell, Reg. I
J. Nelson Grace, Reg. II
B. Davis, Reg. III
R. D. Martin, Reg. IV
J. B. Martin, Reg. V
W. Kane, Reg. I
L. Reyes, Reg. II
C. Norelius, Reg. III
E. Johnson, Reg. IV
D. Kirsch, Reg. V
S. Varga
D. Crutchfield
B. Boger
G. Lainas
G. Holahan
F. Schroeder
L. Shao
J. Partlow
B. Grimes
F. Congel
H. Miller
E. Weiss
S. Black
T. Martin, EDO
F. Miraglia
E. Merschoff
R. Hernan
L. Rubenstein
D. McDonald
C. Patel
R. Capra
M. Slosson

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS BRIEFING (87-17)

JUNE 2, 1987

NAME	DIVISION	NAME	DIVISION
C. Rossi	NRR	R. Lobel	NRR
W. Lanning	NRR	S. Rubin	AEOD
B. Grimes	NRR	J. Partlow	NRR
R. Bosnak	RES	J. Roe	NRR
F. Miraglia	NRR	S. Varga	NRR
R. Scholl	NRR	C. Patel	NRR
J. Smenta	ARM	S. Black	NRR
T. Novak	AEOD	W. Troskoski	DEDRO
J. Heltemes	AEOD	D. McDonald	NRR
F. Schroeder	NRR	R. W. Stevens, Jr.	NRR
P. Baranowsky	NRR		

ENCLOSURE 2

OPERATING REACTORS EVENTS BRIEFING 87-17

JUNE 2, 1987

TURKEY POINT 3/4	SAFETY SYSTEM REVIEW
WESTINGHOUSE	POST-LOCA ECCS SWITCHOVER PROCEDURES
SURRY 1	HOT LEG ISOLATION VALVE FAILURE - UPDATE
SURRY 1	BORON ACCUMULATION
INDIAN POINT 3	IRRADIATED FUEL PARTICLE

OTHER EVENT OF INTEREST

MULTIPLE	INATTENTIVE OPERATORS AND WATCHMEN

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SAFETY SYSTEM REVIEW

INITIATING EVENT

- SSFI AUXILIARY FEEDWATER SYSTEM SUMMER 1985

SELECTED SYSTEMS (14)

- INSTRUMENT AIR
- INTAKE COOLING WATER
- COMPONENT COOLING WATER
- SAFETY INJECTION
- CONTAINMENT SPRAY
- EMERGENCY CONTAINMENT COOLERS
- RESIDUAL HEAT REMOVAL
- CHEMICAL VOLUME CONTROL SYSTEM
- EMERGENCY POWER
- EMERGENCY FILTERS
- CONTAINMENT ISOLATION
- VITAL AC/DC
- REACTOR PROTECTION SYSTEM
- MAIN STEAM ISOLATION

PROCESS

- REVIEW SYSTEM BOUNDARIES
- KEY SYSTEM DOCUMENT APPLICABILITY EVALUATION
- REVIEW LICENSING CORRESPONDENCE AND COMMITMENTS
- REVIEW DESIGN AND ACCIDENT ANALYSES
- ESTABLISH SYSTEM PERFORMANCE CRITERIA USING DESIGN BASIS, AND COMMITMENTS
- EVALUATION SYSTEMS TESTING
- VERIFY CONSISTENCY BETWEEN SYSTEM DOCUMENTS AND THE DESIGN BASIS:
  - DRAWINGS
  - PROCEDURES
  - TECHNICAL SPECIFICATIONS
  - Q-LIST
  - VENDOR DOCUMENTS
- RESOLVE INCONSISTENCIES AND MODIFY SYSTEM AS REQUIRED

PRODUCT

- RECONSTITUTED DESIGN BASIS CONSISTENT WITH LICENSING COMMITMENTS AND ANALYSES
- CONSISTENCY BETWEEN DESIGN BASIS AND AS-BUILT-DRAWINGS
- VERIFICATION OF SYSTEM PERFORMANCE

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SAFETY SYSTEM REVIEW

STATUS

- SAFETY ENGINEERING GROUP COMPREHENSIVE REVIEW
  - COMPREHENSIVE REVIEW COMPLETE
  - U-3 CLOSEOUT IN PROGRESS (10%)
  - U-4 CLOSEOUT SCHEDULED 1988
- ISSUES IDENTIFIED (PUNCHLIST)
  - 2400 TOTAL
  - 53% RESOLVED
  - IN EXCESS OF 200,000 MANHOURS EXPENDED TO DATE
- SCHEDULED COMPLETION FALL 1988
- CONFIRMATORY ORDER OF 8/86 ADDED THREE SYSTEMS
  - NORMAL CONTAINMENT COOLERS
  - PROCESS RADIATION MONITORING
  - AREA RADIATION MONITORING

SIGNIFICANT FINDINGS

(1) COMPONENT COOLING WATER FLOW BALANCE NOT ADEQUATE

(2) INTAKE COOLING WATER TEMPERATURE CONTROL VALVES FAILED NONCONSERVATIVELY ON LOSS OF AIR

(3) POTENTIAL EXISTED FOR OVERLOADING EMERGENCY DIESEL GENERATORS UNDER CERTAIN ACCIDENT CONDITIONS

(4) MAIN STEAM ISOLATION VALVE OPERATIONAL TIME NOT ASSURED ON LOSS OF INSTRUMENT AIR

(5) CONTAINMENT SPRAY PUMP DISCHARGE COULD EXCEED PUMP RUNOUT LIMIT

(6) COMPONENT COOLING WATER FLOW EXCESS CAPABILITY IDENTIFIED

(7) ENVIRONMENTAL COOLING SYSTEM FOR INSTRUMENT INVERTERS NOT SAFETY RELATED AND MAY NOT BE AVAILABLE UNDER ALL ACCIDENT CONDITIONS

(8) SWITCHOVER FROM INJECTION TO RECIRCULATION COULD RESULT IN UNCOVERING CORE

WESTINGHOUSE - POST LOCA ECCS SWITCHOVER PROCEDURES

PROBLEM

PROCEDURES PERMIT ALL ECCS PUMPS TO BE STOPPED FOR UP TO 10 MINUTES FOR MANUAL SWITCHOVER FROM RWST TO THE CONTAINMENT SUMP. ONLY ABOUT 2 MINUTES MAY BE AVAILABLE.

CAUSE

NONCONSERVATIVE CORE BOILOFF CALCULATION WHICH DID NOT CONSIDER CONTINUED FLOW FROM BREAK.

SIGNIFICANCE

ECCS INTERRUPTION COULD LEAD TO CORE UNCOVERY.

DISCUSSION

- TURKEY POINT EMERGENCY LOCA PROCEDURES REVIEWED AS PART OF DESIGN BASIS RECONSTITUTION EFFORT (DBRE).
- PROCEDURES PERMITTED ECCS PUMPS TO BE SWITCHED OFF FOR UP TO 10 MINUTES FOR REALIGNMENT TO COLD LEG RECIRCULATION AND HOT LEG RECIRCULATION.
- APPROXIMATELY 18 MINUTES WAS THOUGHT TO BE AVAILABLE BEFORE CORE UNCOVERY BASED ON POT BOILING MODEL.
- FLOW OUT OF BREAK DUE TO DENSITY DIFFERENCES BETWEEN CORE AND DOWNCOMER WAS SHOWN TO OCCUR DURING POST REFLOOD AT LAPGE SCALE TESTS IN JAPAN. (CCTF)
- LICENSEE IS REVISING PROCEDURES SO THAT HPI REMAINS RUNNING WHILE LPI PUMPS ARE REALIGNED SO THAT ALL ECCS FLOW IS NOT LOST FOLLOWING LARGE BREAK LOCAS.
- WESTINGHOUSE SENT A NOTIFICATION LETTER TO CUSTOMERS.

FOLLOWUP

- RSB TO FOLLOWUP SAFETY ANALYSES SUPPORTING PROCEDURE REVISIONS.

SURRY 1-HOT LEG ISOLATION VALVE FAILURE
UPDATE

PROBLEM

FAILURE OF HOT LEG ISOLATION VALVE RESULTED IN LOW FLOW CONDITION AND SUBSEQUENT REACTOR TRIP.

CAUSE VALVE STEM SHEARED

SIGNIFICANCE REDUCED THERMAL MARGIN

DISCUSSION

- LICENSEE PERFORMED CONSERVATIVE CALCULATION OF MINIMUM DNBR AS A RESULT OF THIS TRANSIENT.
- STEADY STATE "SNAP SHOT" CALCULATION AT COMBINATION OF WORST CONDITIONS OF POWER, AXIAL POWER SHAPE, PRESSURE, COOLANT FLOW, TEMPERATURE, AND F-DELTA H.
- MINIMUM DNBR = 1.46
- THIS EVENT IS BOUNDED BY LOCKED ROTOR ACCIDENT EVEN FOR CASE OF COMPLETE BLOCKAGE OF ONE LOOP.

FOLLOWUP

REGION II PREPARING INFORMATION NOTICE.

SURRY 1 - BORON ACCUMULATION

PROBLEM LEAKAGE FROM HEAD VENT VALVES RESULTED IN BUILDUP OF BORIC ACID CRYSTALS ON TOP OF VESSEL HEAD

SAFETY SIGNIFICANCE POTENTIAL DEGRADATION OF PRESSURE BOUNDARY

CAUSE QUESTIONABLE TAILPIPE DESIGN FOR DIRECTING HEAD VENT LEAKAGE

SEQUENCE OF EVENTS

- CIRCUMSTANCES ARE SIMILAR TO THE MARCH 13, 1987 TURKEY POINT EVENT
- 0.5 GPM UNIDENTIFIED LEAKAGE OCCURRED BETWEEN SUMMER 1986 REFUELING OUTAGE AND DECEMBER 1986 PIPE INSPECTION
- EVIDENCE OF BORIC ACID COMING FROM HEAD VENT DRAIN LINE DURING DECEMBER PIPE INSPECTION OUTAGE
- RESULTED IN REPLACEMENT OF TARGET ROCK SOLENOID VENT VALVES
- REEXAMINED ACID PROBLEM IN MAY 1987 SHUTDOWN BECAUSE INFORMATION NOTICE SENSITIZED MANAGEMENT TO LOOK MORE CLOSELY
- BUILDUP FOUND AT SEAM OF HEAD FLANGE STUDS MIRROR INSULATION, INSULATION WAS REMOVED
  - ABOUT 70 POUNDS OF BORIC ACID (POWDER) FOUND, ENOUGH TO COVER A STANDARD DESK TOP 2-INCHES DEEP
  - PRELIMINARY EVIDENCE IS THAT ACID HAD NOT CONTACTED THE FLANGE AREA OR ITS SEALS
- TUBE HAS BEEN FITTED TO TAILPIPE TO REDIRECT FUTURE LEAKAGE BELOW VESSEL

FOLLOWUP

THE LICENSEE IS PREPARING A SEQUENCE OF EVENTS AND A ROOT CAUSE EVALUATION. SRI IS MONITORING SITUATION.

INDIAN POINT 3 - IRRADIATED FUEL PARTICLE

PROBLEM

EXPOSURE OF A MAINTENANCE FOREMAN.
4 REM DOSE TO NECK (5/23/87)

CAUSE

SMALL RADIOACTIVE PARTICLE

SIGNIFICANCE

POTENTIAL FOR PLANT WIDE DISPERSAL OF IRRADIATED FUEL PARTICLES

DISCUSSION

- MAINTENANCE FOREMAN WORKING IN STEAM GENERATOR MANWAY AREA
- PARTICLE FOUND DURING ROUTINE EXIT SURVEY
- PARTICLE COUNT RATE: 100,000 CPM
- PARTICLE THOUGHT TO BE ZIRCONIUM (FROM SPECTRUM ANALYSIS)
- RECENT FUEL PROBLEMS:
  5/26 YANKEE ROWE: ONE FUEL ASSEMBLY FROM BAFFLE JETTING
  5/27 MCGUIRE: THREE FUEL RODS FROM BAFFLE JETTING

FOLLOWUP

- LICENSEE CONTINUING INVESTIGATION
- PRPB PREPARING INFORMATION NOTICE

ENCLOSURE 3

REACTOR SCRAM SUMMARY
WEEK ENDING 05/31/87

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	RPS	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
05/25/87	WATERFORD	3	100	A	EQUIPMENT/ELECT	NO	5	0	5
05/27/87	PERRY	1	60	A	EQUIPMENT/ELECT	NO	4	2	6
05/28/87	WOLF CREEK	1	100	A	EQUIPMENT/ELECT	NO	5	0	5
05/29/87	LASALLE	1	59	A	EQUIPMENT/MECH	NO	4	0	4
05/30/87	PALO VERDE	1	100	A	EQUIPMENT/ELECT	NO	2	0	2

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
05/31/87

SCRAM CAUSE	POWER	NUMBER OF SCRAMS(5)	1987 WEEKLY AVERAGE YTD	1986 WEEKLY AVERAGE (3)(4)	1985 WEEKLY AVERAGE (8)(9)
** POWER >15%					
EQUIP. RELATED	>15%	5	3.8	4.3	5.4
PERS. RELATED(6)	>15%	0	1.6	1.8	2.0
OTHER(7)	>15%	0	1.1	0.4	0.6
** Subtotal **		5	6.5	6.5	8.0
** POWER <15%					
EQUIP. RELATED	<15%	0	1.1	1.4	1.3
PERS. RELATED	<15%	0	0.7	0.8	0.9
OTHER	<15%	0	0.3	0.2	0.2
** Subtotal **		0	2.1	2.4	2.4
*** Total ***		5	8.6	8.9	10.4

MANUAL VS AUTO SCRAMS

TYPE	NUMBER OF SCRAMS	1987 WEEKLY AVERAGE YTD	1986 WEEKLY AVERAGE	1985 WEEKLY AVERAGE
MANUAL SCRAMS	0	1.6	1.0	1.0
AUTOMATIC SCRAMS	5	7.0	7.9	9.4

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.

2. RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.

3. 1986 INFORMATION DERIVED FROM ORAS STUDY OF UNPLANNED REACTOR TRIPS IN 1986. WEEKLY DATA DETERMINED BY TAKING TOTAL TRIPS IN A GIVEN CATEGORY AND DIVIDING BY 52 WEEKS/YEAR.

4. IN 1986, THERE WERE AN ESTIMATED TOTAL OF 461 AUTOMATIC AND MANUAL UNPLANNED REACTOR TRIPS AT 104 REACTORS (HOLDING OPERATING LICENSES). THIS YIELDS AN AVERAGE RATE OF 4.4 TRIPS PER REACTOR PER YEAR AND AN AVERAGE RATE OF 8.8 TRIPS PER WEEK FOR ALL REACTORS.

5. BASED ON 107 REACTORS HOLDING AN OPERATING LICENSE.

6. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.

7. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.

8. 1985 INFORMATION DERIVED FROM AN ORAS STUDY OF UNPLANNED REACTOR TRIPS IN 1985. WEEKLY DATA DETERMINED BY TAKING TOTAL TRIPS IN A GIVEN CATEGORY AND DIVIDING BY 52 WEEKS/YEAR.

9. IN 1985, THERE WERE AN ESTIMATED TOTAL OF 541 AUTOMATIC AND MANUAL UNPLANNED REACTOR TRIPS AT 93 REACTORS (HOLDING FULL POWER LICENSES). THIS YIELDS AN AVERAGE RATE OF 5.8 TRIPS PER REACTOR YEAR AND AN AVERAGE RATE OF 10.4 TRIPS PER WEEK FOR ALL REACTORS.

PERFORMANCE INDICATORS SIGNIFICANT EVENTS

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	QTR CAUSE
INDIAN POINT 3	05/23/87	EXPOSURE OF MAINTENANCE FOREMAN DUE TO RADIOACTIVE PARTICLE FOUND ON HIS CLOTHING.	1 INADEQUATE CONTAMINATION CONTROL
SURRY 1	05/23/87	BORIC ACID ACCUMULATION AT SEAM OF REACTOR VESSEL HEAD FLANGE STUDS AND MIRROR INSULATION.	2 EQUIPMENT FAILURE
TURKEY POINT 3	05/19/87	ORIFICES IN CONTAINMENT SPRAY WERE NEVER INSTALLED. COULD RESULT IN INADEQUATE NPSH TO CONTAINMENT SPRAY PUMPS.	1 DESIGN/CONSTRUCTION/INSTALLATION ERROR
TURKEY POINT 4	05/19/87	ORIFICES IN CONTAINMENT SPRAY WERE NEVER INSTALLED. COULD RESULT IN INADEQUATE NPSH TO CONTAINMENT SPRAY PUMPS.	1 DESIGN/CONSTRUCTION/INSTALLATION ERROR