

August 29, 1996

MEMORANDUM TO: Thomas T. Martin, Director
Division of Reactor Program Management

FROM: Alfred E. Chaffee, Chief [Original signed by]
Events Assessment and
Generic Communications Branch
Division of Reactor Program Management

SUBJECT: OPERATING REACTORS EVENTS BRIEFING
AUGUST 28, 1996 - BRIEFING 96-10

On August 28, 1996, we conducted an Operating Reactors Events Briefing (96-10) to inform senior managers from offices of the Commission, ACRS, AEOD, NRR and regional offices of selected events that occurred since our last briefing on July 31, 1996. Attachment 1 lists the attendees. Attachment 2 presents the significant elements of the discussed events.

Attachment 3 contains reactor scram statistics for the weeks ending August 4, August 11, August 18, and August 25, 1996. No significant events were identified for input into the NRC Performance Indicator Program.

Attachments: As stated (3)

cc w/atts:
See next page

CONTACT: Kathy Gray, NRR
(301) 415-1166

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OFFICE	PECB	E	PECB	E	PECB	E	C/PECB	N
NAME	KGray:vsb		VHodge		RDennig		AChaffee	
DATE	08/28/96		08/29/96		08/29/96		08/29/96	

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License
X 04m-6 meeting

cc:

W. Russell, NRR (O-12G18)
F. Miraglia, NRR (O-12G18)
F. Gillespie, NRR (O-12G18)
B. Grimes, NRR (O-11H21)
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)
D. O'Neal, NRR (O-10E4)
B. Boger, NRR (O-10H5)
M. Markley, ACRS (T-2E26)
E. Jordan, AEOD (T-4D18)
C. Rossi, AEOD (T-4A9)
F. Congel, AEOD (T-4D28)
R. Barrett, AEOD (T-4A43)
S. Rubin, AEOD (T-4D28)
M. Harper, AEOD (T-4A9)
W. Leschek, AEOD (T-4A9)
V. McCree, EDO (O-17G21)
J. Gilliland, PA (O-2G4)
D. Morrison, RES (T-10F12)
W. Hill, SECY (O-16G15)
H. Miller, Region I
R. Cooper, Region I
S. Ebnetter, Region II
E. Merschhoff, Region II
S. Vias, Region II
A. Beach, Region III
W. Axelson, Region III
L. Callan, Region IV
J. Dyer, Region IV
K. Perkins, Region IV/WCFO
G. Fader, INPO
J. Zimmer, DOE

T. Kim, NRR (O-13D18)
J. Hannon, NRR (O-13D18)

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (96-10)

AUGUST 28, 1996

<u>NAME</u>	<u>OFFICE</u>	<u>NAME</u>	<u>OFFICE</u>
V. Hodge	NRR	M. Markley	ACRS
A. Chaffee	NRR	R. Emch	NRR
T. Koshy	NRR	M. Reinhart	NRR
K. Gray	NRR	T.J. Kim	NRR
N. Hunemuller	NRR	M. Snodderly	NRR
E. Goodwin	NRR	J. Carter	NRR
D. Desaulniers	NRR	C.E. Rossi	AEOD
R. Jones	NRR	C.G. Miller	OCM

TELEPHONE ATTENDANCE
(AT ROLL CALL)

Regions
Region I
Region II
Region IV

Resident Inspectors

Misc.

OPERATING REACTORS EVENTS BRIEFING 96-10

LOCATION: O-10B11, WHITE FLINT
WEDNESDAY, AUGUST 28, 1996 11:00 A.M.

MONTICELLO
1

AUTOMATIC ISOLATION OF
REACTOR WATER CLEANUP
(RWCU) PIPING

Attachment 2

PRESENTED BY:

EVENTS ASSESSMENT AND GENERIC COMMUNICATIONS BRANCH
DIVISION OF REACTOR PROGRAM MANAGEMENT, NRR

MONTICELLO
AUTOMATIC ISOLATION OF
REACTOR WATER CLEANUP (RWCU) PIPING
AUGUST 09, 1996

PROBLEM

TO SUPPORT THE MONTICELLO POWER UPGRADE PROJECT, MASS AND ENERGY RELEASE ASSUMPTIONS FOR ALL POSTULATED HIGH ENERGY LINE BREAKS (HELBs) WERE REVIEWED. THE LIMITING RELEASE IS FOUND TO BE LARGER THAN PREVIOUSLY ASSUMED.

CAUSE

FEEDWATER CAPACITY CAN PREVENT AUTOMATIC REACTOR WATER CLEANUP (RWCU) SYSTEM BREAK ISOLATION AT 77 PERCENT POWER OR LESS. BREAK ISOLATION TIME IN THE RWCU HELB ANALYSIS, ASSUMING DOUBLE-ENDED GUILLOTINE BREAK, WAS INCREASED TO ACCOUNT FOR MANUAL OPERATOR ACTION THAT MAY BE NECESSARY TO CLOSE THE RWCU INLET ISOLATION VALVES.

SAFETY SIGNIFICANCE

RADIOLOGICAL CONSEQUENCES OF THIS HELB EXCEED THOSE OF MAIN STEAM LINE BREAK (MSLB) BUT NOT THOSE OF PART 100 OR GDC 19.

GENERIC IMPLICATIONS

- PROBLEM MAY AFFECT BWR-2, BWR-3 AND OLDER BWR-4 PLANTS.

DISCUSSION

- LICENSEE CONCLUSIONS:
 - SAFE SHUTDOWN CAPABILITY IS MAINTAINED.
 - REACTOR BUILDING STRUCTURAL INTEGRITY NOT ADVERSELY AFFECTED.

CONTACT: VERN HODGE, NRR/DRPM/PECB
REFERENCE: MONTICELLO 50.59 EVALUATION

AIT: TBD
SIGEVENT: TBD

- OFFSITE DOSE LESS THAN 10 CFR PART 100 LIMITS AND CONTROL ROOM DOSE LESS THAN GENERAL DESIGN CRITERION 19 LIMITS.

- CORRECTIVE ACTIONS:

MONTICELLO:

- RESTRICT REACTOR COOLANT ACTIVITY TO 0.25 MICRO CURIE/GRAM DOSE-EQUIVALENT I-131.
- INSTALL AUTOMATIC RWCU ISOLATION CIRCUITRY OVER LONG TERM (4-16 MO).

QUAD CITIES/DRESDEN:

- QUAD CITIES AND DRESDEN HAVE MADE SIMILAR COMMITMENTS. FOR THESE PLANTS THE REACTOR COOLANT ACTIVITY LIMIT IS SET TO 0.2 MICRO CURIE/GRAM DOSE-EQUIVALENT I-131.

- AEOD ENGINEERING EVALUATION REPORT, "RWCU SYSTEM AUTOMATIC ISOLATION AND SAFETY CONSIDERATIONS," MARCH 1987:
 - COMPILATION OF AUTOMATIC ISOLATION SIGNALS FOR ALL BWRs.
 - RWCU EVENT HISTORY.

FOLLOWUP

- NRC PREPARING INFORMATION NOTICE.
- MONTICELLO LICENSEE TO SUBMIT A VOLUNTARY LICENSEE EVENT REPORT.
- GENERAL ELECTRIC PREPARING SERVICE INFORMATION LETTER.

TABLE 1**

REACTOR WATER CLEANUP SYSTEM LDS ISOLATION SIGNALS

Plant	High System Flow	High System Differential Flow	High Area Temperature	High Differential Temperature
Oyster Creek	No	No	No	No
Nine Mile Point 1	No	No	Yes	No
Dresden 2/3	No	No	No	No
Millstone Point 1	No	No	No	No
Monticello	No	No	No	No
Quad Cities 1/2	No	No	No	No
Vermont Yankee	No	No	Yes	No
Pilgrim	Yes	No	Yes	No
Browns Ferry 1/2/3*	No	No	Yes	No
Peach Bottom 2/3	Yes	No	Yes	No
Cooper	Yes	No	Yes	No
Duane Arnold	No	Yes	Yes	Yes
Edwin I. Hatch 1/2	No	Yes	Yes	Yes
James A. FitzPatrick	No	No	Yes	No
Brunswick 1/2	No	Yes	Yes	Yes
LaSalle 1/2	No	Yes	Yes	Yes
Grand Gulf 1	No	Yes	Yes	Yes
Susquehanna 1/2	Yes	Yes	Yes	Yes
Washington Nuclear Pwr. 2	No	Yes	Yes	Yes
Limerick 1	No	Yes	Yes	Yes
Fermi 2	No	Yes	Yes	Yes
Shoreham	No	Yes	Yes	No
River Bend	No	Yes	Yes	Yes
Perry 1	No	Yes	Yes	Yes
Hope Creek	No	Yes	Yes	Yes

*Automatic isolation is also provided by high sump water level in RWCU equipment areas

**From "RWCU System Automatic Isolation and Safety Considerations," Engineering Evaluation Report AEOD-E705, NRC, March 1987.

REACTOR SCRAM

Reporting Period: 07/29/96 to 08/04/96

<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>
08/01/96	SUSQUEHANNA 1	98	SA	Equipment Failure	NO	1	0	1
08/03/96	SURRY 2	88	SM	Equipment Failure	NO	2	0	2

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

PERIOD ENDING
08/04/96

SCRAM CAUSE	NUMBER OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE	2	1.65	1.81	1.52	1.83	2.62
DESIGN/INSTALLATION ERROR	0	0.13	0.12	0.08	0.04	-
OPERATING ERROR	0	0.06	0.15	0.21	0.27	0.31
MAINTENANCE ERROR	0	0.58	0.38	0.54	0.52	0.50
EXTERNAL	0	0.10	0.21	0.17	0.13	-
OTHER	0	0.03	0.08	-	0.02	-
Subtotal	2	2.55	2.75	2.52	2.81	3.43
POWER LESS THAN 15%						
EQUIPMENT FAILURE	0	0.29	0.10	0.27	0.38	0.42
DESIGN/INSTALLATION ERROR	0	0.00	-	0.02	-	-
OPERATING ERROR	0	0.10	0.13	0.08	0.13	0.15
MAINTENANCE ERROR	0	0.06	0.08	-	0.02	0.08
EXTERNAL	0	0.00	-	-	0.04	-
OTHER	0	0.00	-	-	-	-
Subtotal	0	0.45	0.31	0.37	0.57	0.65
TOTAL	2	3.00	3.06	2.89	3.38	4.08

SCRAM TYPE	NO. OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	1	1.74	1.92	2.19	2.44	3.06
TOTAL MANUAL SCRAMS	1	1.26	1.13	0.69	0.94	1.02

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

REACTOR SCRAM

Reporting Period: 08/05/96 to 08/11/96

<u>DATE</u>	<u>PLANT & UNIT</u>	<u>POWER</u>	<u>TYPE</u>	<u>CAUSE</u>	<u>COMPLICATIONS</u>	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
08/09/96	COMANCHE PEAK 1	100	SA	Other	NO	3	1	4
08/10/96	PALO VERDE 1	100	SA	External	NO	1	0	1
08/10/96	PALO VERDE 3	100	SA	External	NO	1	0	1
08/10/96	DIABLO CANYON 1	100	SA	External	NO	2	0	2
08/10/96	DIABLO CANYON 2	100	SA	External	NO	1	0	1

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

PERIOD ENDING
08/11/96

SCRAM CAUSE	NUMBER OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE	0	1.59	1.81	1.52	1.83	2.62
DESIGN/INSTALLATION ERROR	0	0.13	0.12	0.08	0.04	-
OPERATING ERROR	0	0.06	0.15	0.21	0.27	0.31
MAINTENANCE ERROR	0	0.56	0.38	0.54	0.52	0.50
EXTERNAL	4	0.22	0.21	0.17	0.13	-
OTHER	1	0.06	0.08	-	0.02	-
Subtotal	5	2.62	2.75	2.52	2.81	3.43

POWER LESS THAN 15%

EQUIPMENT FAILURE	0	0.28	0.10	0.27	0.38	0.42
DESIGN/INSTALLATION ERROR	0	0.00	-	0.02	-	-
OPERATING ERROR	0	0.09	0.13	0.08	0.13	0.15
MAINTENANCE ERROR	0	0.06	0.08	-	0.02	0.08
EXTERNAL	0	0.00	-	-	0.04	-
OTHER	0	0.00	-	-	-	-
Subtotal	0	0.43	0.31	0.37	0.57	0.65
TOTAL	5	3.05	3.06	2.89	3.38	4.08

SCRAM TYPE	NO. OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	5	1.84	1.92	2.19	2.44	3.06
TOTAL MANUAL SCRAMS	0	1.22	1.13	0.69	0.94	1.02

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

REACTOR SCRAM

Reporting Period: 08/12/96 to 08/18/96

<u>DATE</u>	<u>PLANT & UNIT</u>	<u>POWER</u>	<u>TYPE</u>	<u>CAUSE</u>	<u>COMPLICATIONS</u>	YTD ABOVE <u>15%</u>	YTD BELOW <u>15%</u>	YTD <u>TOTAL</u>
08/18/96	ZION 1	100	SA	Equipment Failure	NO	3	0	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

PERIOD ENDING
08/18/96

SCRAM CAUSE	NUMBER OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE	1	1.58	1.81	1.52	1.83	2.62
DESIGN/INSTALLATION ERROR	0	0.12	0.12	0.08	0.04	-
OPERATING ERROR	0	0.06	0.15	0.21	0.27	0.31
MAINTENANCE ERROR	0	0.55	0.38	0.54	0.52	0.50
EXTERNAL	0	0.21	0.21	0.17	0.13	-
OTHER	0	0.06	0.08	-	0.02	-
Subtotal	1	2.58	2.75	2.52	2.81	3.43
POWER LESS THAN 15%						
EQUIPMENT FAILURE	0	0.27	0.10	0.27	0.38	0.42
DESIGN/INSTALLATION ERROR	0	0.00	-	0.02	-	-
OPERATING ERROR	0	0.09	0.13	0.08	0.13	0.15
MAINTENANCE ERROR	0	0.06	0.08	-	0.02	0.08
EXTERNAL	0	0.00	-	-	0.04	-
OTHER	0	0.00	-	-	-	-
Subtotal	0	0.42	0.31	0.37	0.57	0.65
TOTAL	1	3.00	3.06	2.89	3.38	4.08

SCRAM TYPE	NO. OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	1	1.82	1.92	2.19	2.44	3.06
TOTAL MANUAL SCRAMS	0	1.18	1.13	0.69	0.94	1.02

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

REACTOR SCRAM

Reporting Period: 08/19/96 to 08/25/96

<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>
08/19/96	INDIAN POINT 2	100	SA	Equipment Failure	NO	3	0	3
08/20/96	GINNA 1	100	SA	Maintenance Error	NO	2	1	3
08/22/96	INDIAN POINT 2	20	SA	Maintenance Error	NO	4	0	4
08/25/96	QUAD CITIES 1	4	SM	Maintenance Error	NO	0	1	1

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

PERIOD ENDING
08/25/96

SCRAM CAUSE	NUMBER OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE	1	1.56	1.81	1.52	1.83	2.62
DESIGN/INSTALLATION ERROR	0	0.12	0.12	0.08	0.04	-
OPERATING ERROR	0	0.06	0.15	0.21	0.27	0.31
MAINTENANCE ERROR	2	0.59	0.38	0.54	0.52	0.50
EXTERNAL	0	0.21	0.21	0.17	0.13	-
OTHER	0	0.06	0.08	-	0.02	-
Subtotal	3	2.60	2.75	2.52	2.81	3.43
POWER LESS THAN 15%						
EQUIPMENT FAILURE	0	0.26	0.10	0.27	0.38	0.42
DESIGN/INSTALLATION ERROR	0	0.00	-	0.02	-	-
OPERATING ERROR	0	0.09	0.13	0.08	0.13	0.15
MAINTENANCE ERROR	1	0.09	0.08	-	0.02	0.08
EXTERNAL	0	0.00	-	-	0.04	-
OTHER	0	0.00	-	-	-	-
Subtotal	1	0.44	0.31	0.37	0.57	0.65
TOTAL	4	3.04	3.06	2.89	3.38	4.08

SCRAM TYPE	NO. OF SCRAMS	1996 WEEKLY AVERAGE (YTD)	1995 WEEKLY AVERAGE	1994 WEEKLY AVERAGE	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	3	1.85	1.92	2.19	2.44	3.06
TOTAL MANUAL SCRAMS	1	1.18	1.13	0.69	0.94	1.02

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

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	-----	150
Manual and Automatic Scrams for 1995	-----	159
Manual and Automatic Scrams for 1996	--(YTD 08/25/96)--	103