

OCT 18 1991

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment
FROM: Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operational Events Assessment
SUBJECT: OPERATING REACTORS EVENTS MEETING
OCTOBER 16, 1991 - MEETING 91-18

On October 16, 1991, we conducted an Operating Reactors Events meeting (91-18) to inform senior managers from SECY, NRC, AEOD, ACRS, and regional offices of selected events that occurred since our last briefing on September 25, 1991. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

In addition, a very recent event at Chernobyl, Unit 2, was discussed briefly. On October 11, 1991, one of the Unit 2 turbine-generator sets was being shut down for maintenance. Apparently a switching malfunction caused a reverse power situation on the turbine-generator, which caused damage to the turbine-generator isolated phase buses. The damaged isolated phase buses apparently released hydrogen from the turbine-generator cooling system which resulted in a fire. It was reported that the fire was extinguished within three to four hours. Also, it is our understanding that heavy damage was caused to the turbine building roof. There has not been any reported release of radiation or injury to station personnel. Investigation continues.

Enclosure 3 contains reactor scram statistics for the weeks ending 09/29/91, 10/06/91 and 10/13/91. Enclosure 4 tabulates three significant events which were identified for input into the NRC performance indicator program.

Original signed by

Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/enclosures:
See next page

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*SEE PREVIOUS CONCURRENCES

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cc:

T. Murley, NRR (12G18)
F. Miraglia, NRR (12G18)
W. Russell, NRR (12G18)
F. Gillespie, NRR (12G18)
J. Partlow, NRR (12G18)
S. Varga, NRR (14E4)
J. Calvo, NRR (14A4)
G. Lainas, NRR (14H3)
B. Boger, NRR (14A2)
J. Zwolinski, NRR (13H24)
M. Virgilio, NRR (13E4)
D. Crutchfield, NRR (11H21)
W. Travels, NRR (11B19)
J. Richardson, NRR (7D26)
A. Thadini, NRR (8E2)
B. Grims, NRR (9A2)
F. Congil, NRR (10E2)
J. Roe, NRR (10H5)
M. Pohio, NRR (10E4)
T. Martin, RI
W. Kane, RI
C. Hehl, RI
S. Ebnetter, RII
L. Reyes, RII
B. Davis, RIII
E. Greenman, RIII
R.D. Martin, RIV
B. Beach, RIV
J.B. Martin, RV
R. Zimmerman, RV
P. Boehmert, ACRS (P-315)
E. Jordan, AEOD (MN-3701)
T. Novak, AEOD (MN-3701)
L. Spessard, AEOD (MN-3701)
E. Weiss, AEOD (MN-3206)
S. Rubin, AEOD (MN-4106)
M. Harper, AEOD (MN-9112)
W. Bateman, EDO (17G21)
R. Newlin, GPA (2G5)
E. Beckford, RES (NLS-007)
A. Bates, SECY (16G15)

W. Reckley, NRR (13H15)
S. Black, NRR (13H15)

bcc: INPO

ATTN: J. Cowan
1100 Circle 75, Suite 1500
Atlanta, GA 30339

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (91-18)

OCTOBER 16, 1991

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
A. CHAFFEE	NRR/DOEA	W. RECKLEY	NRR/PD4-2
E. BENNER	NRR/DOEA	M. COLLINGFORD	NRR
K. BAUMANN	NRR/DOEA	C. THOMAS	NRR/DLPQ
D. FISCHER	NRR/DOEA	V. GUO	NRR/DST
R. BENEDICT	NRR/DOEA	P. BOEHNERT	ACRS
W. HAASS	NRR/DRIS	K. HART	SECY
J. DIXON	NRR/DRIS	V. BENAROYA	AEOD/DSP
G. IMBRO	NRR/DRIS		
B. GRIMES	NRR/DRIS		
D. MATTHEWS	NRR/DRIS		

OPERATING REACTORS EVENTS BRIEFING 91-18
EVENTS ASSESSMENT BRANCH

LOCATION: 10 B11, WHITE FLINT
WEDNESDAY, OCTOBER 16, 1991, 11:00 A.M.

WOLF CREEK, UNIT 1

SPENT FUEL POOL GATE
SEAL FAILURE
(AIT) (UPDATE)

WOLF CREEK, UNIT 1
SPENT FUEL POOL GATE SEAL FAILURE
SEPTEMBER 23, 1991

91-18

PROBLEM

LOSS OF SPENT FUEL POOL (SFP) INVENTORY AND TRIP OF SPENT FUEL POOL COOLING PUMP.

CAUSE

LOSS OF SERVICE AIR TO THE GATE SEALS DUE TO LOSS OF THE NON-SAFETY RELATED PA01 ELECTRICAL BUS.

SAFETY SIGNIFICANCE

- o POTENTIAL FOR INCREASED RADIATION LEVELS IN FUEL BUILDING.
- o LOSS OF SPENT FUEL POOL COOLING.
- o POTENTIAL FOR UNCOVERING SPENT FUEL AND FAILING FUEL ASSEMBLY.

DISCUSSION

- o PLANT SHUTDOWN, MODE 5, 195°F/50 PSIG, RCS SOLID, 4 RCPS RUNNING.
- o SFP TRANSFER CANAL GATE WAS CLOSED WITH THE SEAL INFLATED.
- o BUS PA01 WAS LOST WHEN AN ELECTRICIAN CLOSED A BREAKER DOOR AND A RELAY TRIPPED. THIS RESULTED IN A LOSS OF SERVICE AIR AT 1032 CDT AND A LOSS OF SFP LEVEL INDICATION.
- o THE SEALS DEPRESSURIZED AS A RESULT OF INCORRECT AIR LINE FITTINGS AND LACK OF MAINTENANCE ON SERVICE AIR ISOLATION AND CHECK VALVES.
- o AT 1156 CDT THE LICENSEE IDENTIFIED A TRIPPED SPENT FUEL POOL COOLING PUMP. THE PUMP TRIPPED ON LOW LEVEL. NO LOW SPENT FUEL POOL LEVEL ALARM WAS RECEIVED BECAUSE THE ALARM WAS ALREADY LOCKED IN DUE TO A SLIGHTLY LOW SFP LEVEL.
- o AT 1240 CDT, THE LICENSEE PREMATURELY EXITED TS 3.9.11 ACTION STATEMENT BASED ON AN ERRONEOUS SFP LEVEL CALCULATION.

CONTACT: E. BENNER/D. GAMBERONI, NRR/EAB AIT: YES
REFERENCES: 10 CFR 50.72 # 21882, AND SIGEVENT: TBD
PNO-IV-91-28

- o FURTHER LICENSEE INVESTIGATION REVEALED AN APPARENT 44 INCH. DECREASE IN SPENT FUEL POOL LEVEL. LOWEST LEVEL WAS 21.8 FEET. LEVEL WAS BELOW TS FOR 3 HOURS AND 40 MINUTES.
- o SFP TEMPERATURE REMAINED STEADY AT ABOUT 83-86°F.
- o INITIALLY, THE LICENSEE STARTED REFILLING THE SPENT FUEL POOL FROM THE RWST. THEN, THE LICENSEE USED THE NORMAL BLENDED FLOW PATH. THEN, BECAUSE OF LOW FLOW RATE, THE LICENSEE RESUMED RWST INJECTION.
 - A. WORST CASE SCENARIO (FUEL TRANSFER TUNNEL OPEN AND REACTOR CAVITY SEAL NOT IN PLACE) WOULD DRAIN THE SFP TO ABOUT A FOOT ABOVE TOP OF FUEL ASSEMBLIES.
LICENSEE HAS COMMITTED TO:
 - o BACK UP GAS SUPPLY FOR SFP SEAL.
 - o OPERATOR IN PLACE AT SEAL GATE WHILE MAINTENANCE BEING PERFORMED IN TRANSFER CANAL.
 - o REACTOR VESSEL TO CAVITY SEAL AND REFUELING CAVITY DRAIN SEALS WILL BE IN PLACE WHILE MAINTENANCE BEING PERFORMED.
 - B. WERE FUEL RECONSTITUTION GOING ON, THE POTENTIAL EXISTS FOR A FUEL ASSEMBLY TO BECOME UNCOVERED.
LICENSEE HAS COMMITTED TO:
 - o HAVE SFP, FUEL TRANSFER CANAL, AND CASK LOADING POOL FULL, OR MANAGEMENT DIRECTED COMPENSATORY MEASURES.

FOLLOWUP

- o AIT WAS DISPATCHED TO THE SITE, REPORT IN DRAFT.
- o EVENTS ASSESSMENT BRANCH WILL DETERMINE IF AN INFORMATION NOTICE SUPPLEMENT TO IN 88-92, POTENTIAL FOR SPENT FUEL POOL DRAINDOWN IS WARRANTED.

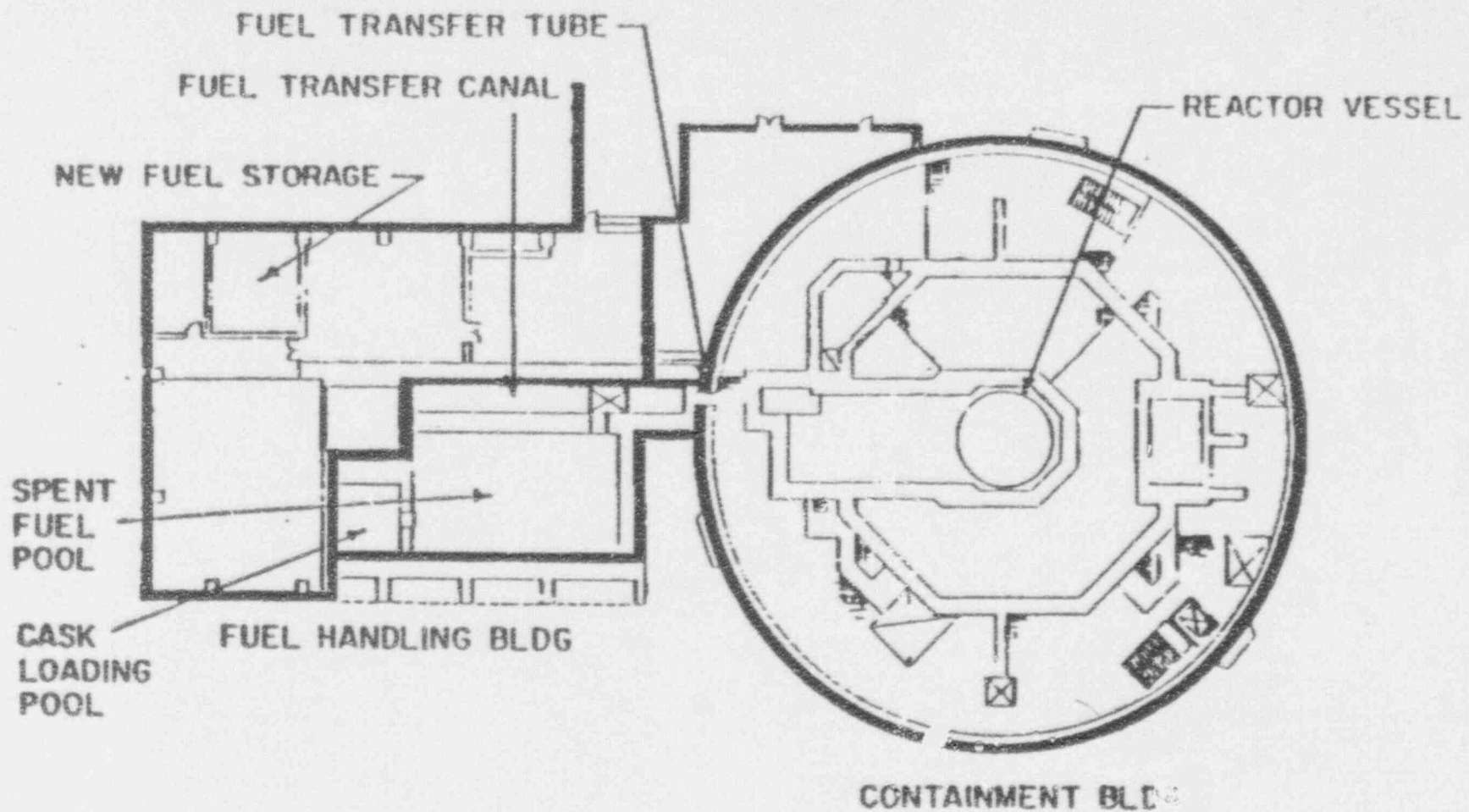


FIGURE 1
FUEL BUILDING ARRANGEMENT

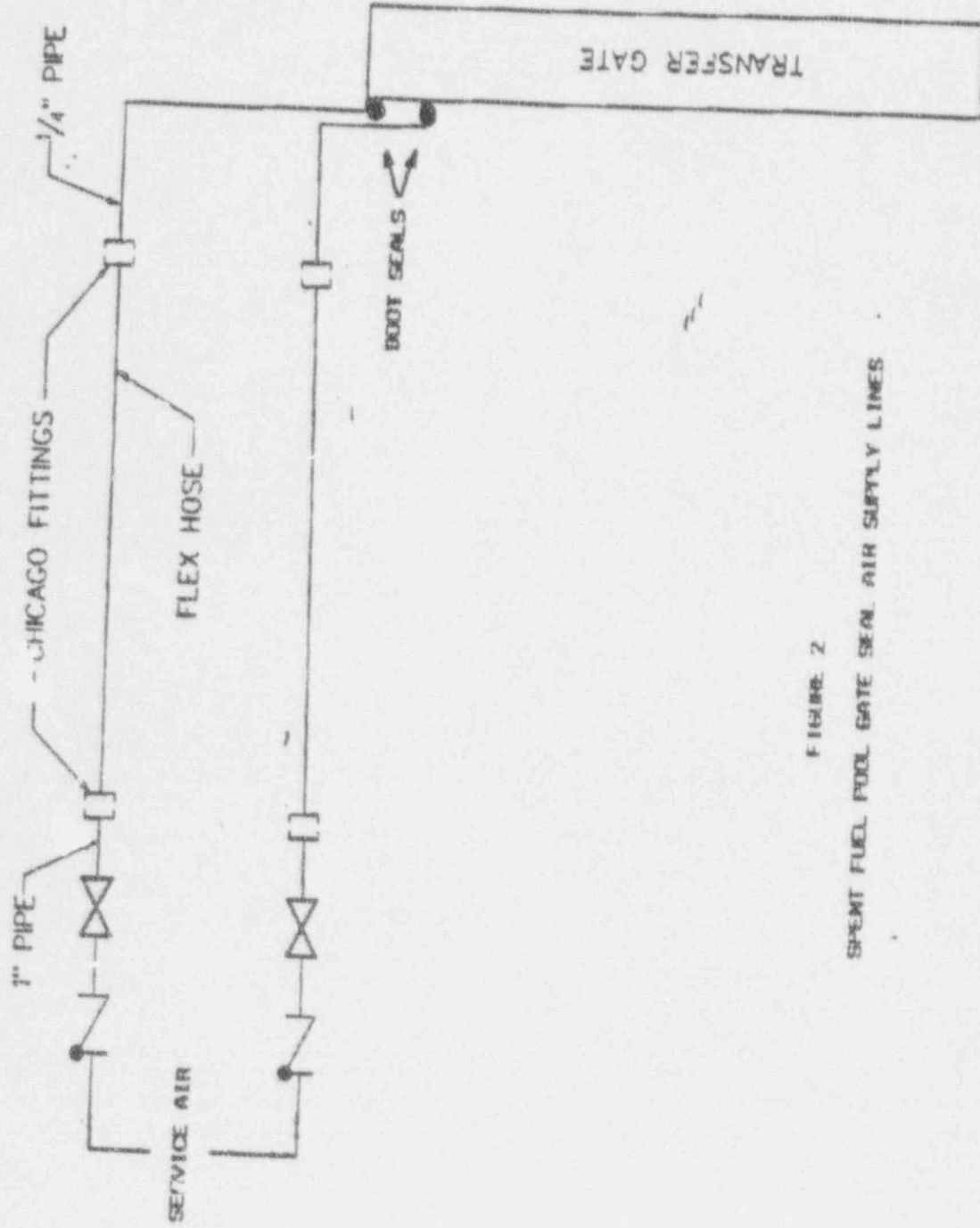
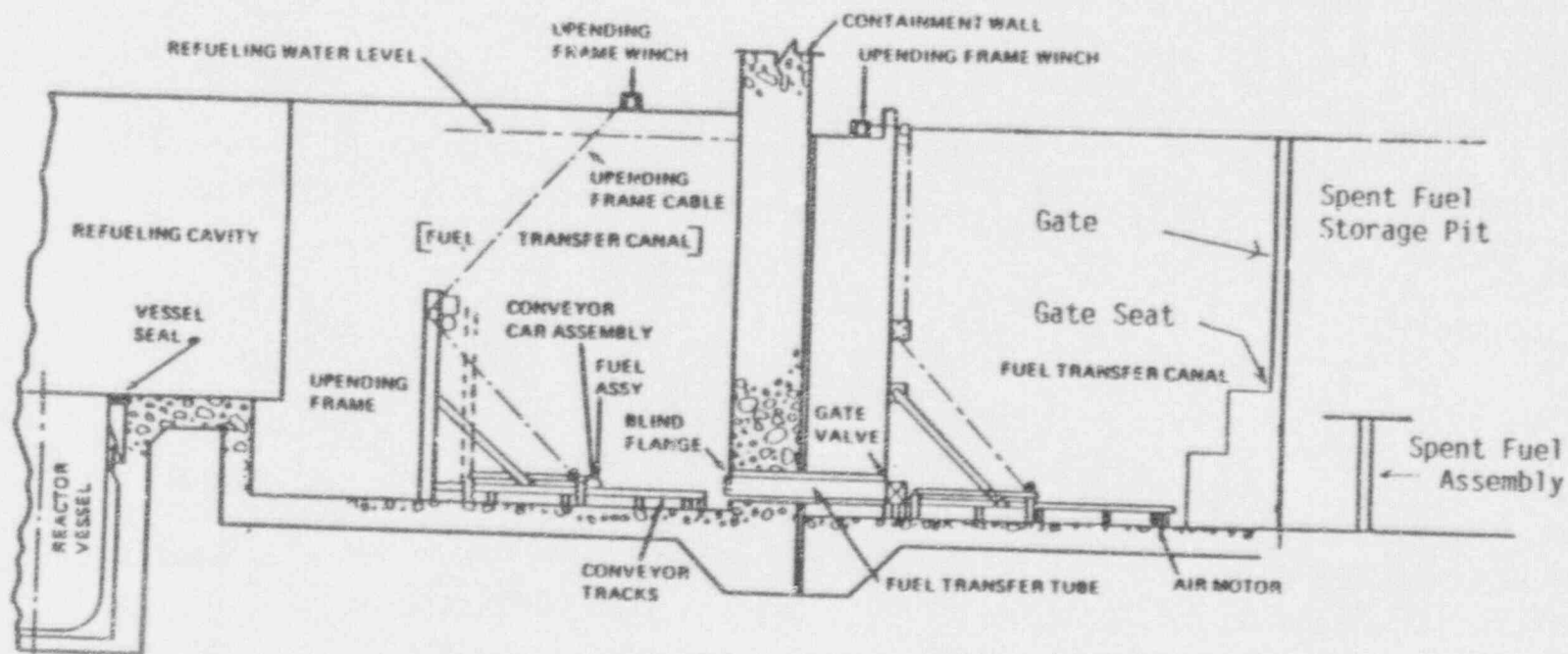


FIGURE 2
SPENT FUEL POOL GATE SEAL AIR SUPPLY LINES



WOLF CREEK, UNIT 1
 FUEL TRANSFER SYSTEM

BRIEFING 91-18

REACTOR SCRAM SUMMARY
WEEK ENDING 09/29/91

I. PLANT SPECIFIC DATA (1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI- CATIONS	(3) YTD		YTD TOTAL
							ABOVE	BELOW	
						15%	15%		
09/24/91	LASALLE	2	100	A	EQUIPMENT	NO	2	0	2
09/25/91	MCGUIRE	2	100	M	EQUIPMENT	NO	2	0	2
09/26/91	NINE MILE POINT	1	98	A	EQUIPMENT	NO	2	1	3
09/27/91	THREE MILE ISLAND	1	14	A	PERSONNEL	NO	1	1	2

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING 09/29/91

SCRAM CAUSE	NUMBER OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
POWER GREATER THAN 15%						
EQUIPMENT RELATED	3	2.9	3.4	3.1	3.0	3.9
PERSONNEL RELATED (2)	0	0.6	0.5	1.0	1.0	1.3
OTHER (4)	0	0.0	0.0	0.1	0.4	1.1
Subtotal	3	3.5	3.9	4.2	4.4	6.3
POWER LESS THAN 15%						
EQUIPMENT RELATED	0	0.3	0.4	0.3	0.6	1.2
PERSONNEL RELATED (2)	1	0.2	0.1	0.3	0.4	0.6
OTHER (4)	0	0.0	0.0	0.0	0.2	0.3
Subtotal	1	0.5	0.5	0.6	1.2	2.1
TOTAL	4	4.0	4.4	4.8	5.6	8.4

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
MANUAL SCRAMS	1	0.7	1.2	0.9	1.1	1.4
AUTOMATIC SCRAMS	3	3.3	3.2	3.9	4.5	7.0

REACTOR SCRAM SUMMARY
WEEK ENDING 10/06/91

1. PLANT SPECIFIC DATA(1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI- CATIDNS	(3)YTD		YTD TOTAL
							ABOVE 15%	BELOW 15%	
10/01/91	CALVERT CLIFFS	1	93	A	EQUIPMENT	NO	1	0	1
10/02/91	CATAWBA	1	100	A	EQUIPMENT	NO	4	0	4
10/02/91	DCONEE	1	73	A	EQUIPMENT	NO	2	0	2
10/03/91	FARLEY	1	100	M	EQUIPMENT	NO	6	0	6
10/03/91	TURKEY POINT	3	50	M	EQUIPMENT	NO	1	0	1
10/03/91	COMANCHE PEAK	1	30	M	EQUIPMENT	NO	5	0	5
10/05/91	MAINE YANKEE	1	100	A	EQUIPMENT	NO	2	1	3

11. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
10/06/91

SCRAM CAUSE	NUMBER OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
POWER GREATER THAN 15%						
EQUIPMENT RELATED	7	3.0	3.4	3.1	3.0	3.9
PERSONNEL RELATED (2)	0	0.6	0.5	1.0	1.0	1.3
OTHER (4)	0	0.0	0.0	0.1	0.4	1.1
Subtotal	7	3.6	3.9	4.2	4.4	6.3
POWER LESS THAN 15%						
EQUIPMENT RELATED	0	0.3	0.4	0.3	0.6	1.2
PERSONNEL RELATED (2)	0	0.2	0.1	0.3	0.4	0.6
OTHER (4)	0	0.0	0.0	0.0	0.2	0.3
Subtotal	0	0.5	0.5	0.6	1.2	2.1
TOTAL	7	4.1	4.4	4.8	5.6	8.4

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
MANUAL SCRAMS	3	0.8	1.2	0.9	1.1	1.4
AUTOMATIC SCRAMS	4	3.3	3.2	3.9	4.5	7.0

REACTOR SCRAM SUMMARY
 WEEK ENDING 10/13/91

1. PLANT SPECIFIC DATA (1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI- CATIONS	(3) YTD		YTD TOTAL	
							ABOVE 15%	BELOW 15%		
10/07/91	QUAD CITIES	2		1	M	EQUIPMENT	NO	0	1	1
10/10/91	SOUTH TEXAS	1		100	A	PERSONNEL	NO	2	0	2
10/12/91	Kewaunee	1		99	A	EQUIPMENT	NO	1	0	1

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING 10/13/91

SCRAM CAUSE	NUMBER OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
POWER GREATER THAN 15%						
EQUIPMENT RELATED	1	3.0*	3.4	3.1	3.0	3.9
PERSONNEL RELATED (2)	1	0.6	0.5	1.0	1.0	1.3
OTHER (4)	0	0.0	0.0	0.1	0.4	1.1
Subtotal	2	3.6*	3.9	4.2	4.4	6.3
POWER LESS THAN 15%						
EQUIPMENT RELATED	1	0.3	0.4	0.3	0.6	1.2
PERSONNEL RELATED (2)	0	0.2	0.1	0.3	0.4	0.6
OTHER (4)	0	0.0	0.0	0.0	0.2	0.3
Subtotal	1	0.5	0.5	0.6	1.2	2.1
TOTAL	3	4.1*	4.4	4.8	5.6	8.4

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1991 WEEKLY AVERAGE (YTD)	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
MANUAL SCRAMS	1	0.8	1.2	0.9	1.1	1.4
AUTOMATIC SCRAMS	2	3.3	3.2	3.9	4.5	7.0

*Corrected to accommodate 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	--(YTD 10/13/91)--	166

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PERFORMANCE INDICATORS SIGNIFICANT EVENTS

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	DTR SIGNIFICANCE
DRESDEN 3	08/17/91	FOLLOWING TURBINE TRIP/REACTOR TRIP THE #160 BUS WAS DEGRADED AND DIESEL SERVICE WATER PUMP MIGHT NOT AUTOMATICALLY START, THEREBY LEADING TO LOSS OF DIESELS	1 UNEXPECTED PLANT PERFORMANCE
FITZPATRICK 1	06/25/91	FIRE MANUAL REVIEW IDENTIFIED A FIRE SCENARIO THAT COULD RENDER EDG _B INOPERABLE	1 OTHER
NINE MILE POINT 2	08/13/91	FAILURE OF THE MAIN TRANSFORMER RESULTED IN REACTOR SCRAM, COMMON MODE FAILURE OF UNINTERRUPTIBLE POWER SUPPLIES, LOSS OF CONTROL ROOM ANNUNCIATORS, AND DECLARATION OF A SITE AREA EMERGENCY.	1 UNEXPECTED PLANT PERFORMANCE