

February 18, 1994

MEMORANDUM FOR: Brian K. Grimes, Director
Division of Operating Reactor Support
FROM: Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating Reactor Support
SUBJECT: OPERATING REACTORS EVENTS BRIEFING
FEBRUARY 16, 1994 - BRIEFING 94-07

On February 16, 1994, we conducted an Operating Reactors Events Briefing (94-07) to inform senior managers from offices of the Commission, EDO, AEOD, NRR, and regional offices of selected events that occurred since our last briefing on February 9, 1994. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

Enclosure 3 contains reactor scram statistics for the week ending February 13, 1994. No significant events were identified for input into the NRC Performance Indicator Program.

[original signed by Edward F. Goodwin for]
Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating
Reactor Support

Enclosures: As stated

cc w/enclosures:
See next page

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CC:

T. Murley, NRR (12G18)
F. Miraglia, NRR (12G18)
F. Gillespie, NRR (12G18)
Acting ADPR, NRR (12G18)
S. Varga, NRR (14E4)
J. Calvo, NRR (14A4)
G. Lainas, NRR (14H3)
J. Roe, NRR (13E4)
J. Zwolinski, NRR (13H24)
E. Adensam, NRR (13E4)
W. Russell, NRR (12G18)
M. Hodges (Acting), NRR (7D26)
A. Thadani, NRR (8E2)
S. Rosenberg, NRR (10E4)
C. Rossi, NRR (9A2)
B. Boger, NRR (10H3)
F. Congel, NRR (10E2)
D. Crutchfield, NRR (11H21)
W. Travers, NRR (11B19)
D. Coe, ACRS (P-315)
E. Jordan, AEOD (MN-3701)
G. Holahan, AEOD (MN-9112)
L. Spessard, AEOD (MN-3701)
K. Brockman, AEOD (MN-3206)
S. Rubin, AEOD (MN-5219)
M. Harper, AEOD (MN-9112)
W. Bateman, EDO (17G21)
F. Ingram, PA (2G5)
E. Beckjord, RES (NLS-007)
A. Bates, SECY (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 V
S. Richards, Region V

A. Wang (PDI-4)
J. Stolz (PDI-4)
V. Nerses (PDII-3)
L. Plisco (PDII-3)

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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A handwritten signature in cursive script, appearing to read "E. Chaffee".

Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating
Reactor Support

Enclosures: As stated

cc w/enclosures:
See next page

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (94-07)

FEBRUARY 16, 1994

<u>NAME</u>	<u>OFFICE</u>	<u>NAME</u>	<u>OFFICE</u>
R. BENEDICT	NRR	M. CARUSO	NRR
E. BENNER	NRR	B. AJI	NRR
R. DENNIG	NRR	C. THOMAS	NRR
E. GOODWIN	NRR	C. ROSSI	NRR
K. GRAY	NRR	G. LAINAS	NRR
B. GRIMES	NRR	M. CULLINGFORD	NRR
T. YAMADA	NRR	V. NERSES	NRR
J. MEDOFF	NRR	S. VARGA	NRR
D. O'NEAL	NRR	G. WUNDER	NRR
S. ROSENBERG	NRR	A. VIETTI-COOK	OCM/IS
L. CAMPBELL	NRR	V. BENAROYA	AEOD
E. HACKETT	NRR	B. HOLIAN	OEDO
J. DAVIS	NRR		

TELEPHONE ATTENDANCE
(AT ROLL CALL)

Regions

Region I
Region II
Region III
Region IV

Resident Inspectors

McGuire - G. Maxwell

IIT/AIT Team Leaders

Misc.

AEOD

OPERATING REACTORS EVENTS BRIEFING 94-07

LOCATION: 10 B11, WHITE FLINT
WEDNESDAY, FEBRUARY 16, 1994 11:00 A.M.

HADDAM NECK

DIESEL GENERATOR SERVICE WATER
PIPING DEGRADATION

MCGUIRE, UNIT 1

PRIMARY TO SECONDARY LEAKAGE
DURING POWER REDUCTION

PRESENTED BY: EVENTS ASSESSMENT BRANCH
DIVISION OF OPERATING REACTOR
SUPPORT, NRR

HADDAM NECK
DIESEL GENERATOR SERVICE WATER
PIPING DEGRADATION
FEBRUARY 4, 1994

PROBLEM

EMERGENCY DIESEL GENERATOR (EDG) SERVICE WATER PIPING SYSTEMS DECLARED INOPERABLE, REQUIRING PLANT SHUTDOWN.

CAUSE

PIPING WELDS WEAKENED DUE TO LACK OF PENETRATION (LOP) AND MICROBIOLOGICALLY-INFLUENCED CORROSION (MIC).

SAFETY SIGNIFICANCE

POSSIBLE LOSS OF BOTH EDGs.

DISCUSSION

- PIPE LEAK IN MARCH 1993 TEMPORARILY REPAIRED.
- IN MAY, DURING REFUELING OUTAGE, REPLACED PIPE SEGMENTS IN BOTH EDG SUCTIONS. ANALYSIS OF WELD SAMPLE SHOWED POOR WELD QUALITY AND POSSIBLE MIC.
- SUMMER/FALL 1993 LICENSEE DEVELOPING INSPECTION PLAN FOR SERVICE WATER SUB-SYSTEMS TO ESTABLISH OPERABILITY.
- DECEMBER 1993/JANUARY 1994 NRC VISUALLY INSPECTED SAMPLES, QUESTIONED CONSERVATISM OF LICENSEE'S CONCLUSIONS ON OPERABILITY. LICENSEE'S INITIAL STRESS ANALYSIS ASSUMED UNIFORM WALL THINNING BUT NO FRACTURE MECHANICS ANALYSIS WAS DONE.

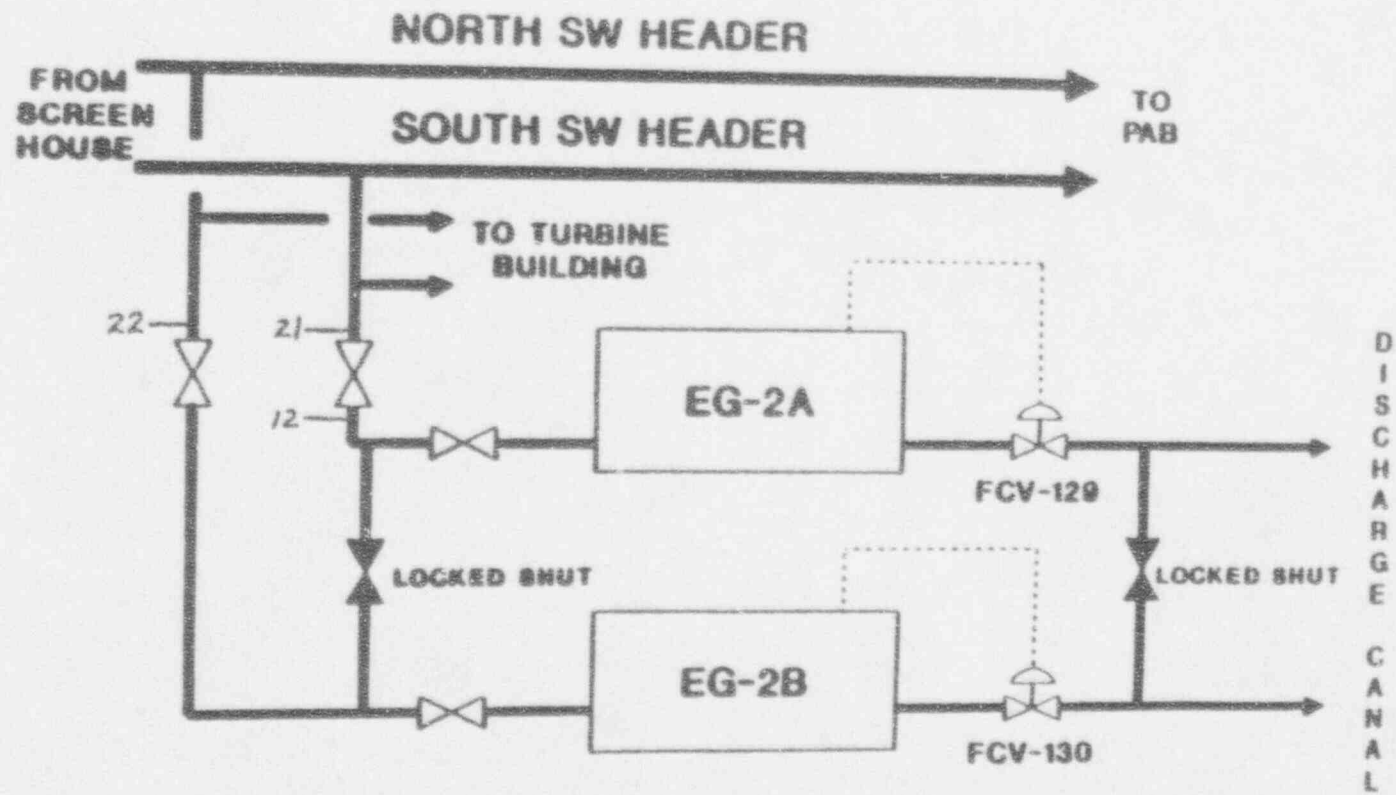
CONTACT: R. BENEDICT, NRR/DORS/EAB
REFERENCE: 10 CFR 50.72 #26779 AND
MORNING REPORT #1-94-0009

AIT: NO
SIGEVENT: TBD

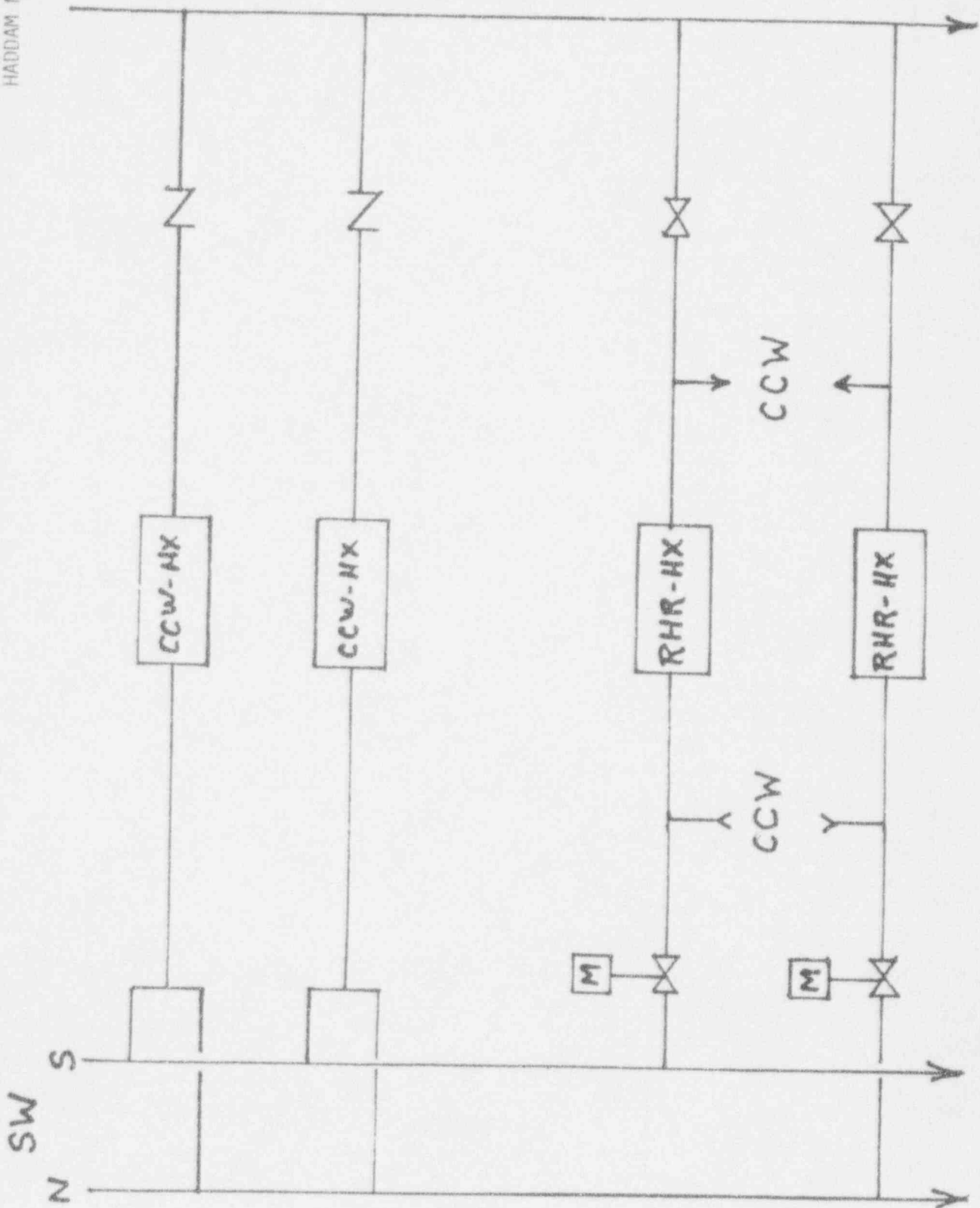
- LICENSEE EXPANDED VOLUMETRIC EXAMINATIONS, INCLUDING REMOVING ELBOW TO LOOK FOR MIC.
 - SIX WELDS IN SCREEN WASH PIPING OK (WITH BACKING RINGS).
 - 19 WELDS IN EDG PIPING, MOST HAD INDICATIONS REQUIRING DISPOSITIONING (NO BACKING RINGS). THREE EXHIBITED EXTENSIVE MIC.
- ON FEBRUARY 12, 1994, PREPARATION OF WELD FOR ULTRASONIC (UT) EXAMINATION PRODUCED PINHOLE LEAK NOT ISOLABLE FROM EITHER SERVICE WATER HEADER. PLANT WAS SHUT DOWN.
- LICENSEE INSPECTED ACCESSIBLE WELDS IN EDG PIPING AND HAS DECIDED TO REPLACE ALL SUPPLY PIPING (300 FEET OF 6 INCH).
- SEVEN OF 14 WELDS IN SERVICE WATER PIPING TO RHR HEAT EXCHANGERS REQUIRE DISPOSITIONING. 150 FEET OF 12 INCH PIPE WILL BE REPLACED.
- HADDAM NECK MANIFESTATION OF MIC NOT RANDOM AS IS TYPICAL; MAY BE INFLUENCED BY POOR WELD FIT-UP LEAVING CREVICES FOR MICROBE GROWTH.

FOLLOWUP

- NRR AND REGION FOLLOWING LICENSEE'S ACTIVITIES.
- REGION CONSIDERING PRODUCING INFORMATION NOTICE.



BRIEFING 94-07
HADDAM NECK



MCGUIRE, UNIT 1
PRIMARY TO SECONDARY LEAKAGE
DURING POWER REDUCTION
JANUARY 23, 1994

PROBLEM

LICENSEE DETECTED 104 GPD PRIMARY TO SECONDARY LEAKAGE AT 25% REACTOR POWER DURING A SHUTDOWN.

CAUSE

PRIMARY TO SECONDARY LEAKAGE DUE TO A STEAM GENERATOR (SG) TUBE LEAK; DEFINITIVE CAUSE OF TUBE LEAK IS CURRENTLY UNKNOWN.

SAFETY SIGNIFICANCE

POTENTIAL PRECURSOR TO SG TUBE RUPTURE.

DESCRIPTION OF EVENT

- AT 2:00 A.M., UNIT AT 25% POWER, SHUTTING DOWN AT 10%/HR TO TEST MAIN STEAM ISOLATION VALVES.
- CONDENSER AIR EJECTOR RADIATION MONITOR ALARM INDICATE PRIMARY-TO-SECONDARY LEAKAGE.
- CHEMISTRY SAMPLES CONFIRM SG "D" LEAKING AT ≈104 GPD.

CONTACT: E. BENNER, NRR/OEAB
REFERENCE: 10 CFR 50.72 #26665
PNO II-94-003

AIT: NO
SIGEVENT: TBD

- SHUTDOWN CONTINUED IN ACCORDANCE WITH ADMINISTRATIVE LIMIT OF 50 GPD LEAKAGE THROUGH ANY ONE SG.
- UNIT OFF LINE AT 4:00 A.M.

DISCUSSION

- PRESSURE TEST OF SGs REVEALED:

SG	TUBE	LEAK RATE	WHEN SLEEVED
"D"	R11-C75	STEADY STREAM	1991
"D"	R10-C31	≈1 DROP/5 MINUTES	1990
"A"	R41-C86	≈1 DROP/5 SECONDS	1990

- VISUAL INSPECTION OF TUBE R11-C75 COULD NOT PINPOINT EXACT LOCATION OF LEAK; HOWEVER, AREA ABOVE SLEEVE WAS DRY.
- BOBBIN COIL INSPECTION OF TUBE R11-C75 ABOVE SLEEVE AREA REVEALED NO DEFECT IN TUBE.
- ROTATING CROSS WOUND EDDY CURRENT INSPECTION OF R11-C75 AT SLEEVE AREA DETECTED A CIRCUMFERENTIAL DEFECT AT THE SLEEVE UPPER KINETIC WELD EXPANSION. THIS APPEARS TO BE SIMILAR TO A DEFECT FOUND IN AUGUST IN WHICH THE FAILURE WAS DETERMINED TO BE CAUSED BY INADEQUATE HEAT TREATMENT OF THE KINETIC WELD AREA.

LICENSEE'S PROPOSED CORRECTIVE ACTIONS

- PLUG ALL SLEEVED TUBES IN UNIT (724 TUBES TOTAL: 1/2 FROM 1990, 1/2 FROM 1991).
- PULL TUBE R11-C75 AND POSSIBLY ONE TUBE AND SLEEVE INSTALLED IN 1990 FOR DETAILED INSPECTION. DATA FROM INSPECTION WILL PROVIDE INPUT TO UNIT 2 CORRECTIVE ACTIONS.
- REPLACE SGs IN 18 MONTHS.
- INDEPENDENT ASSESSMENT TEAM (NPR, EPRI, INPO, DOMINION) WILL REVIEW EVENT.

FOLLOWUP

- REGIONAL SPECIAL INSPECTOR SENT TO SITE.
- INFORMATION NOTICE PUBLISHED ON AUGUST EVENT, STAFF WILL CONSIDER SUPPLEMENT.
- EMCB WILL REVIEW LICENSEE'S ASSESSMENT OF EVENT.

REACTOR SCRAM

Reporting Period: 02/07/94 to 02/13/94

<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>
02/11/94	FT CALHOUN 1	100	SA	Equipment Failure	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
02/13/94

SCRAM CAUSE	NUMBER OF SCRAMS	1994	1993	1992	1991*	1990*
		WEEKLY AVERAGE (YTD)	WEEKLY AVERAGE	WEEKLY AVERAGE	WEEKLY AVERAGE	WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE*	1	1.9	1.8	2.6	2.9	3.4
DESIGN/INSTALLATION ERROR*	0	0.0	-	-	-	-
OPERATING ERROR*	0	0.0	0.3	0.2	0.6	0.5
MAINTENANCE ERROR*	0	0.6	0.5	0.4	-	-
EXTERNAL*	0	0.0	0.1	-	-	-
OTHER*	0	0.0	-	0.2	-	-
Subtotal	1	2.5	2.7	3.4	3.5	3.9
POWER LESS THAN 15%						
EQUIPMENT FAILURE*	0	0.3	0.4	0.4	0.3	0.4
DESIGN/INSTALLATION ERROR*	0	0.0	-	-	-	-
OPERATING ERROR*	0	0.2	0.1	0.1	0.2	0.1
MAINTENANCE ERROR*	0	0.0	-	0.1	-	-
EXTERNAL*	0	0.0	-	-	-	-
OTHER*	0	0.0	-	0.1	-	-
Subtotal	0	0.5	0.5	0.7	0.5	0.5
TOTAL	1	3.0	3.2	4.1	4.0	4.4

SCRAM TYPE	NO. OF SCRAMS	1994	1993	1992	1991	1990
		WEEKLY AVERAGE (YTD)	WEEKLY AVERAGE	WEEKLY AVERAGE	WEEKLY AVERAGE	WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	1	2.2	2.4	3.1	3.3	3.2
TOTAL MANUAL SCRAMS	0	0.8	0.9	1.0	0.7	1.2

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	-----	176
Manual and Automatic Scrams for 1994	--(YTD 02/13/94)--	19