August 9, 1990

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

FROM: N. Prasad Kadambi, Acting Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: THE OPERATING REACTORS EVENTS MEETING
AUGUST 8, 1990 - MEETING 90-20

On August 8, 1990, we conducted an Operating Reactors Events meeting (90-20) to inform senior managers from NRR, ACRS, AEOD, RES, Commission staff, and regional offices of selected events that occurred since our last briefing on July 11, 1990. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

Enclosure 3 contains reactor scram statistics for the weeks ending 07/15/90 through 08/04/90. Enclosure 4 tabulates three significant events which were identified for input into the NRC performance indicator program.

Original signed by

N. Prasad Kadambi, Acting Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

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MLReardon, EAB
LKilgore, SECY
PDR

QF03 1/1 IDTR E-1 OPERATING EXPERIENCE

NPK

OFC	:EAB/DOEA	:AC:EAB/DOEA	:	:	:	:	:
NAME	:MLReardon	:NPKadambi	:	:	:	:	:
DATE	:08/09/90	:08/9/90	:	:	:	:	:

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DOCUMENT NAME: TRANSMITTAL LETTER 08/08/90

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AME	:MLReardon	:NPKadambi	:	:	:	:	:
ATE	:08/09/90	:08/9/90	::	:	:	:	:

OFFICIAL RECORD COPY
DOCUMENT NAME: TRANSMITTAL LETTER 08/08/90

cc:
T. Murley, NRR
F. Miraglia, NRR
W. Russell, NRR
F. Gillespie, NRR
J. Partlow, NRR
S. Varga, NRR
R. Wessman, NRR
G. Lainas, NRR
D. Crutchfield, NRR
J. Zwolinski, NRR
B. Boger, NRR
W. Travers, NRR
J. Richardson, NRR
A. Thadani, NRR
F. Rosa, NRR
B. Grimes, NRR
F. Congel, NRR
J. Roe, NRR
T. Martin, RI
W. Kane, RI
S. Ebneter, RII
L. Reyes, RII
B. Davis, RIII
E. Greenman, RIII
S. Collins, RIV
R.D. Martin, RIV
J.B. Martin, RV
R. Zimmerman, RV
P. Boehnert, ACRS
E. Jordan, AEOD
T. Novak, AEOD
L. Spessard, AEOD
E. Weiss, AEOD
S. Rubin, AEOD
M. Harper, AEOD
J. Dyer, EDO
R. Newlin, GPA
J. Cowan, INPO
E. Beckjord, RES
A. Bates, SECY
D. Pickett
P. Eng, NRR
R. Dudley, NRR

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS BRIEFING (90-20)

August 8, 1990

NAME	ORGANIZATION	NAME	ORGANIZATION
P. Boehnert	ACRS	N. Kadambi	NRR/DOEA
M. Reardon	NRR/DOEA	C. Thomas	NRR/DLPQ
M. Dapas	NRR/LPEB	B. Siegel	NRR/PD3-2
W. Haass	NRR/RVIB	J. Mazetiz	RES/DSIR
J. Carter	NRR/DOEA	J. Wilson	NRR/PD4-2
A. Fitzgerald	NRR/DRIS	M. Ryan	ACRS
E. Adensam	NRR/DRP	W. Troskoski	OE
P. Eapen	AEOD	A. Thadani	NRR/DST
J. Calvo	NRR/DOEA	R. Kendall	NRR/DOEA
K. Hart	SECY		

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

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

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

OEAB SCRAM DATA

Manual and Automatic Scrams for 1986 ---------- 461
Manual and Automatic Scrams for 1987 ---------- 439
Manual and Automatic Scrams for 1988 ---------- 287
Manual and Automatic Scrams for 1989 ---------- 244
Manual and Automatic Scrams for 1990 (YTD 08/06/90) --- 115

OPERATING REACTORS EVENTS BRIEFING 90-20

EVENTS ASSESSMENT BRANCH

LOCATION: 10B-11, WHITE FLINT

WEDNESDAY, AUGUST 8, 1990, 11:00 A.M.

COMANCHE PEAK UNIT 1	INADVERTENT SAFETY INJECTIONS
DRESDEN UNIT 2	STUCK OPEN SAFETY RELIEF VALVE

COMANCHE PEAK UNIT 1
INADVERTENT SAFETY INJECTIONS
JULY 26 & 30, 1990

PROBLEM

TWO INADVERTENT SAFETY INJECTIONS WITHIN FOUR DAYS. BOTH OCCURRED AUTOMATICALLY ON MAIN STEAM LINE LOW PRESSURE SIGNALS WHILE IN MODE 3 (HOT STANDBY).

CAUSE

JULY 26, 1990 - INADVERTENT OPENING OF TWO MAIN STEAM ISOLATION VALVES (MSIV) BECAUSE OF A DANGER TAG CLEARANCE ERROR THAT RESULTED IN CONTROL CIRCUIT FUSES BEING PULLED IN THE WRONG SEQUENCE.

JULY 30, 1990 - UNCERTAIN; IMPROPER OPERATION OF THE NO. 3 STEAM GENERATOR ATMOSPHERIC RELIEF VALVE (SGARV) BECAUSE OF TWO PHASE FLOW THROUGH THE VALVE IS SUSPECTED.

SAFETY SIGNIFICANCE

UNNECESSARY CHALLENGES TO SAFETY-RELATED SYSTEMS AND PLANT EQUIPMENT.

DISCUSSION

JULY 26, 1990:

- o APPROX. 8000 GALLONS INJECTED FROM THE REFUELING WATER STORAGE TANK (RWST) TO THE REACTOR COOLANT SYSTEM (RCS). PRESSURIZER LEVEL INCREASED FROM 25% TO 87%. SAFETY INJECTION (SI) WAS TERMINATED AFTER 19 MINUTES VIA EMERGENCY OPERATING PROCEDURES (EOPs).
- o SAFETY SYSTEMS FUNCTIONED AS DESIGNED.

CONTACT: R. KENDALL SIGEVENT: NO

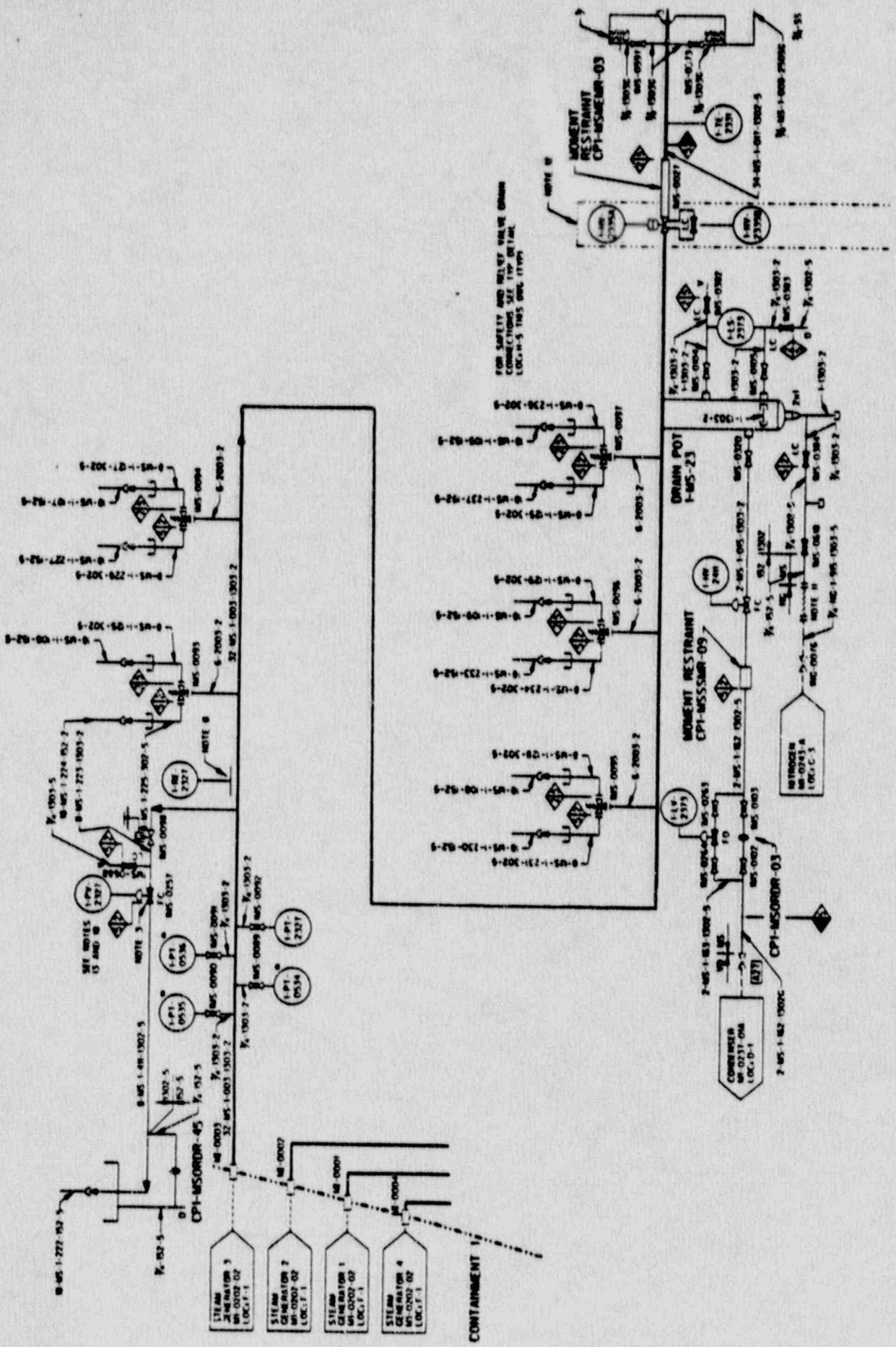
REFERENCES: 10 CFR 50.72 #s 18972 & 18998 AND PNOs-IV-90-26 & 27

DISCUSSION (CONTINUED)
JULY 30, 1990

- o OPERATORS WERE ATTEMPTING TO REDUCE LEVEL IN SG NO. 3 BY USING SGARV NO. 3. NORMAL MEANS FOR REDUCING LEVEL WERE UNAVAILABLE.
- o SGARV NO. 3 DEMAND WAS SET TO 20%; VALVE POSITION INDICATION IN THE CONTROL ROOM INDICATED THE VALVE WAS CLOSED. OPERATORS WERE ABOUT TO INCREASE THE DEMAND SETTING WHEN SI OCCURRED.
- o APPROX. 3500 GALLONS INJECTED FROM RWST TO RCS. PRESSURIZER LEVEL INCREASED FROM 28% TO 73%. SI WAS TERMINATED AFTER 22 MINUTES VIA EOPs.
- o SGARV NO. 3 BLEW OPEN AND STUCK AT APPROX. 50% OPEN. THE VALVE'S LOCAL MANUAL OPERATING MECHANISM HAD BECOME ENGAGED (CAUSE UNKNOWN), PREVENTING REMOTE CLOSURE FROM THE CONTROL ROOM.
- o AUXILIARY OPERATORS TERMINATED THE BLOWDOWN BY MANUALLY CLOSING AN UPSTREAM BLOCK VALVE (700 TURNS; 15 MINUTES).
- o EVIDENCE OF STEAM BLOWBACK FROM THE SGARV VENT STACK; ROOM LIGHTING AND INSULATION WERE DAMAGED. LICENSEE THEORIZES THAT CONDENSATE BACKUP FROM THE MAIN STEAM LINE DRAINS, WHICH HAD BEEN ISOLATED FOR CONDENSER MAINTENANCE, CAUSED IMPROPER SGARV OPERATION AND BLOWBACK
- o HOT STANDBY OPERATING PROCEDURE WAS INADEQUATE FOR THE SPECIFIC PLANT CONDITIONS.
- o ADDITIONAL CONCERNS:
  - INADEQUATE LIGHTING IN SGARV ROOM HINDERED AUXILIARY OPERATORS.
  - PERSONNEL UNFAMILIAR WITH OPERATION OF CONTAINMENT AIRLOCK.
  - SPURIOUS REACTOR TRIP SIGNAL ON SG LO LO LEVEL.
  - APPROPRIATENESS OF MAINTAINING PLANT IN HOT STANDBY VS. COLD SHUTDOWN TO PERFORM ROUTINE EXTENDED MAINTENANCE.

FOLLOWUP

RGN IV SPECIAL INSPECTION TEAM RESPONDED TO THE EVENT. THE INITIAL ACTIONS RESULTING FROM THE LICENSEE'S INVESTIGATION HAVE BEEN REVIEWED AND DETERMINED TO BE APPROPRIATE BY REGION IV AND NRR.


MOMENT RESTRAINT CP1-MSAEMR-03
DRAIN POT 1-MS-23
MOMENT RESTRAINT CP1-MSSSMR-09
CP1-MSORDR-03
CP1-MSORDR-05
CONTAINMENT
STEAM GENERATOR 3
STEAM GENERATOR 2
STEAM GENERATOR 1
STEAM GENERATOR 4
NOTE 8
NOTE 3
SEE NOTES 5 AND 8

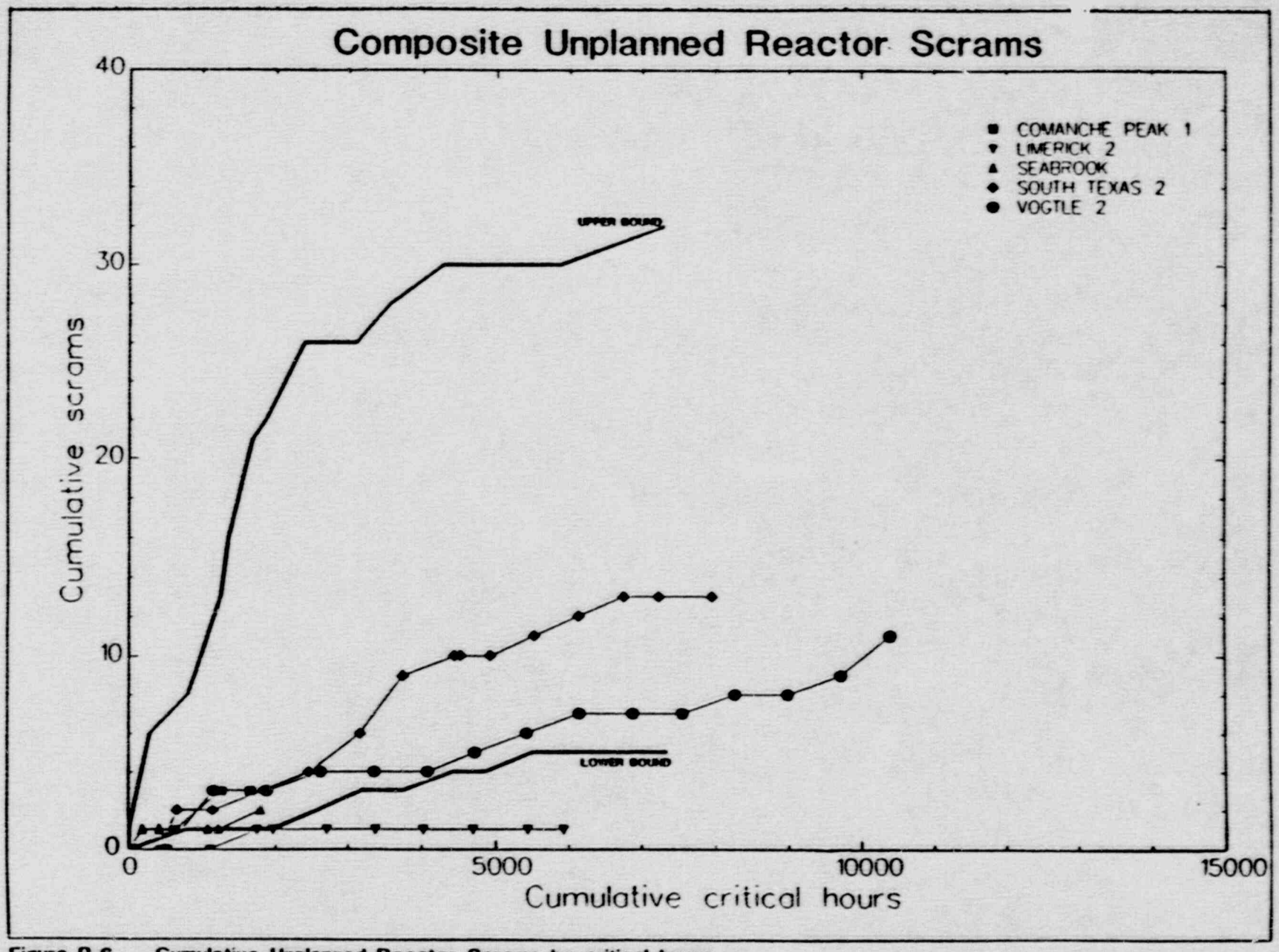


Figure B-6. Cumulative Unplanned Reactor Scrams by critical hours.

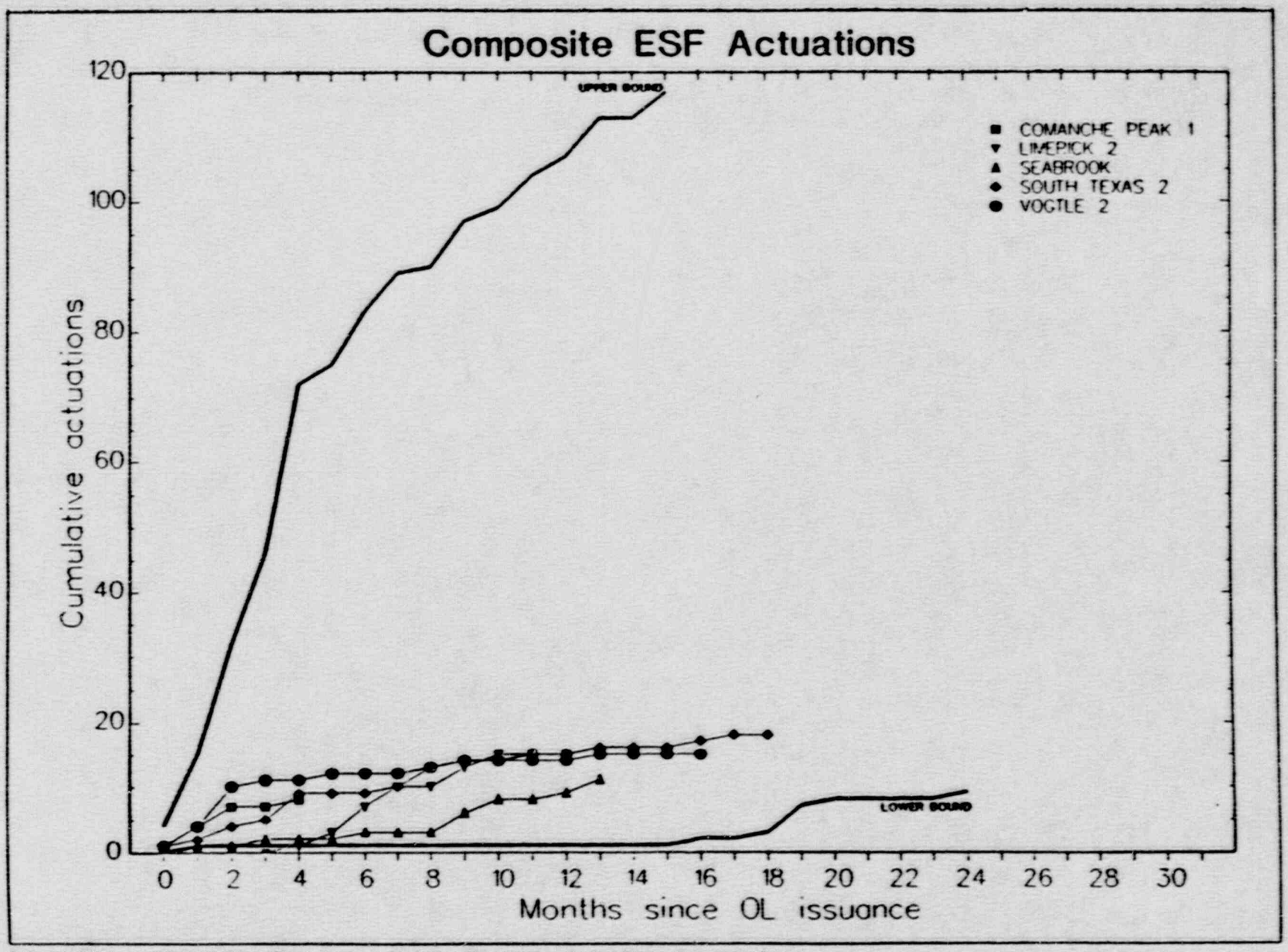
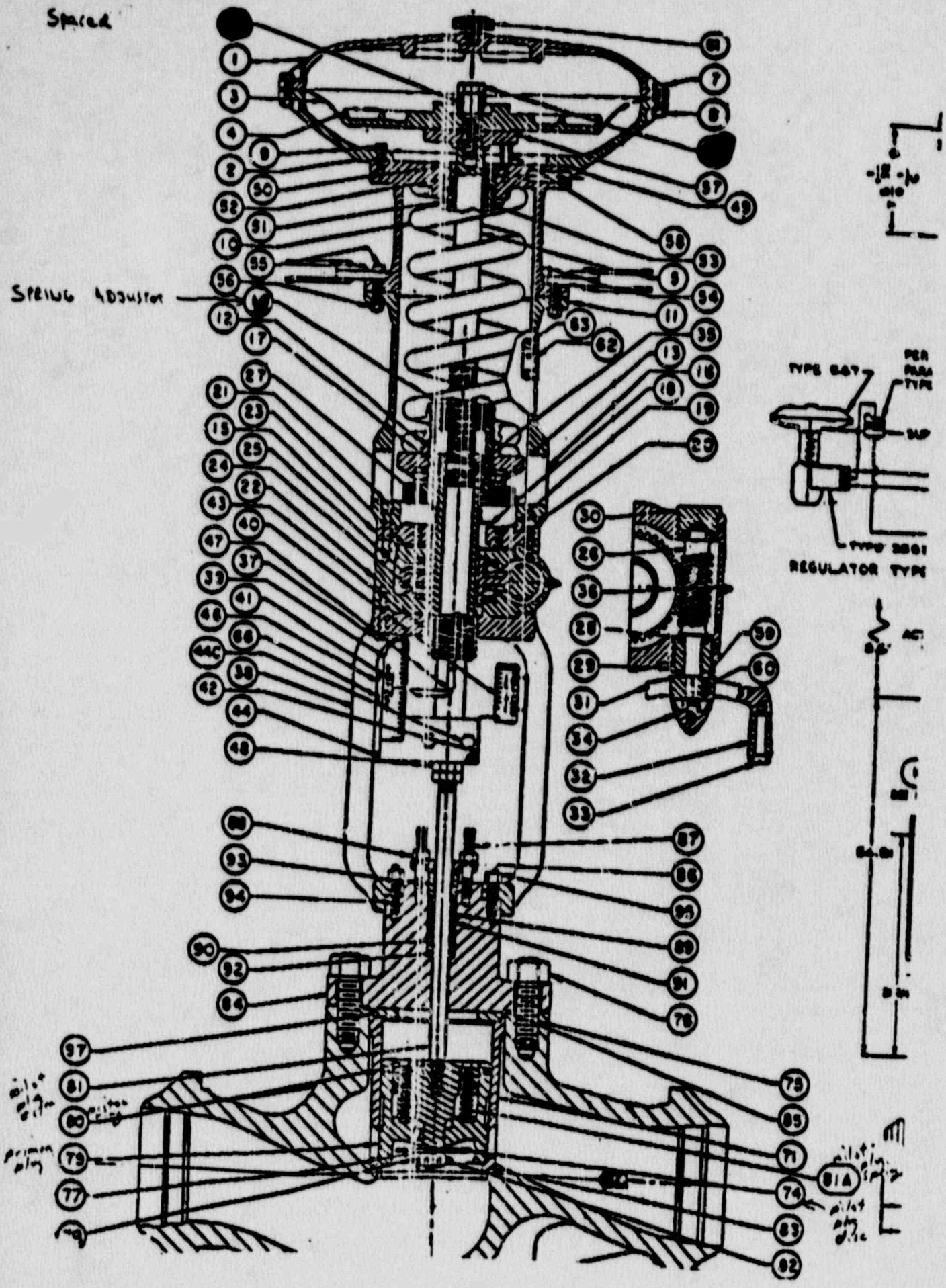
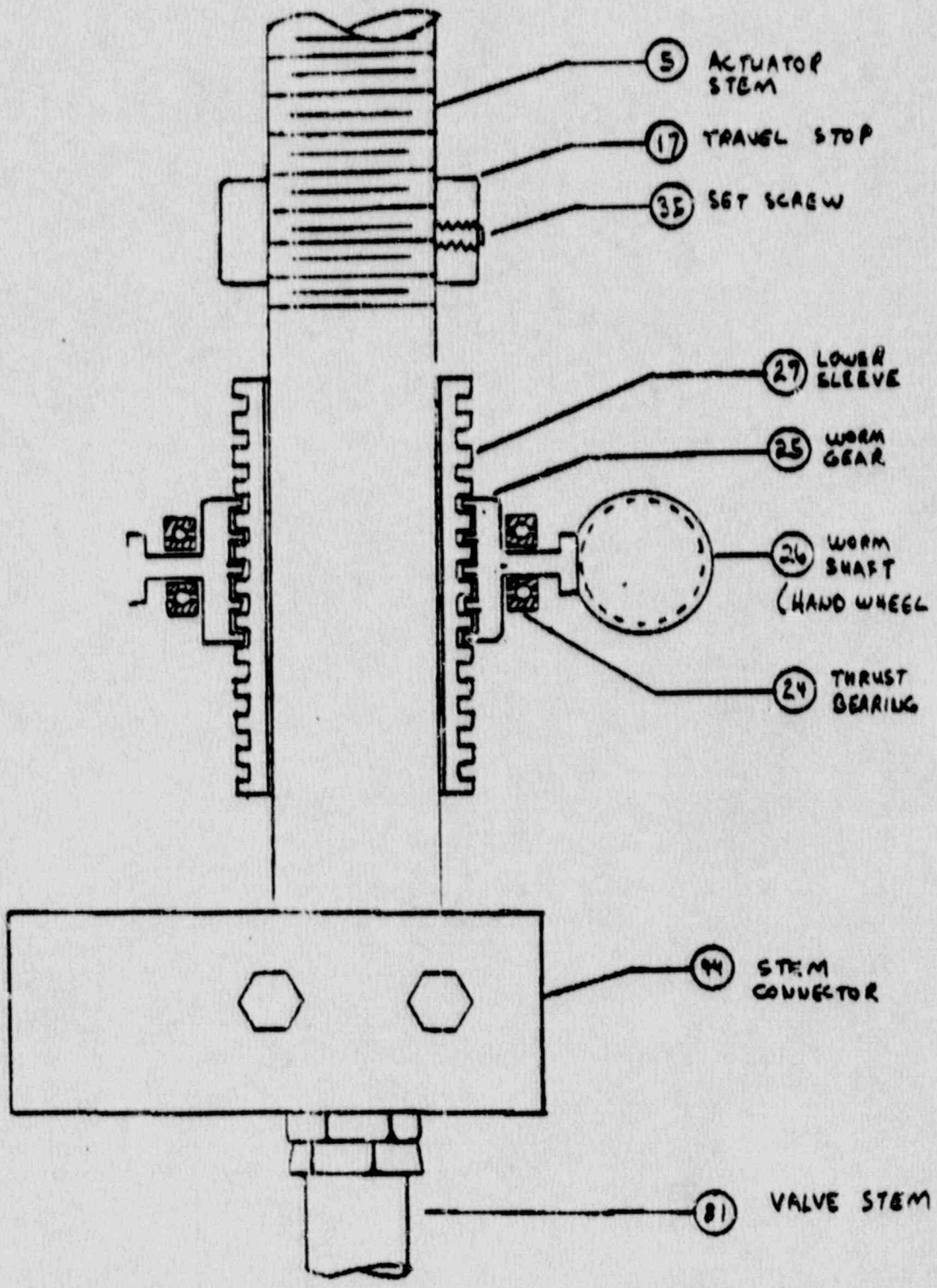


Figure B-7. Cumulative Engineered Safety Features Actuations by month.


Spacer
SPRING ADJUSTER
TYPE 667
REGULATOR TYPE

SIMPLIFIED HANDWHEEL ASSEMBLY



DRESDEN UNIT 2
STUCK OPEN SAFETY RELIEF VALVE
AUGUST 2, 1990

PROBLEM

REACTOR HAD A RAPID UNCONTROLLED COOLDOWN.

CAUSE

SAFETY RELIEF VALVE (SRV) OPENED AND STUCK OPEN.

SAFETY SIGNIFICANCE

RAPID COOLDOWN EXCEEDED NORMAL OPERATION LIMITS. STUCK OPEN SRV IS SMALL-BREAK LOCA.

DISCUSSION

- o REACTOR WAS OPERATING AT 87% RATED POWER.
- o TARGET ROCK SAFETY-RELIEF VALVE OPENED SPURIOUSLY.
- o ACOUSTICAL MONITOR ALARMED.
- o TAIL PIPE TEMPERATURE INCREASED.
- o NO OPEN INDICATION FROM POSITION LIGHTS.
- o UNABLE TO CLOSE SRV.
- o REGION ISSUED CAL ON 8/3.
- o SPECIALIST SENT TO SITE.
- o TORUS BULK WATER TEMPERATURE INCREASED TO MAXIMUM OF 122°F.
- o REACTOR MANUALLY SCRAMMED BEFORE TORUS WATER REACHED 110°F.
- o REACTOR COOLDOWN RATE WAS 120°F/1ST HOUR.
  RATE WITHIN BOUNDING SAFETY-RELIEF BLOWDOWN ANALYSIS.
- o THERE WERE 2 PREVIOUS TRANSIENTS>100°F/HR - LAST ONE WAS 1976.
- o FSAR STATES DESIGN BASIS IS 12 SRV BLOWDOWNS.
- o LICENSEE REPLACES ENTIRE SRV AND PILOT ASSEMBLY.

FOLLOWUP

- o INSPECTORS ARE MONITORING LICENSEE'S ACTIONS.
- o AEOD HAS HUMAN FACTOR INSPECTION TEAM AT SITE.
- o LICENSEE WILL COMPLETE INSPECTION OF SRV/PILOT.

CONTACT: J. CARTER SIGEVENT: YES

REFERENCE: 10 CFR 50.72 # 19015 AND MORNING REPORTS 08/02 & 08/03

REACTOR SCRAM SUMMARY
WEEK ENDING 08/06/90

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
07/30/90	SOUTH TEXAS	1	100	M	PERSONNEL	NO	5	1	6
08/01/90	SEABROOK	1	22	A	EQUIPMENT	NO	3	0	3
08/02/90	DRESDEN	2	87	M	EQUIPMENT	NO	3	0	3

REACTOR SCRAM SUMMARY
WEEK ENDING 07/29/90

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
07/23/90	VOGTLE	1	100	M	EQUIPMENT	NO	3	0	3
07/24/90	GRAND GULF	1	100	A	EQUIPMENT	NO	1	0	1
07/27/90	PEACH BOTTOM	3	100	M	EQUIPMENT	NO	3	0	3

REACTOR SCRAM SUMMARY
WEEK ENDING 07/22/90

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
07/16/90	SOUTH TEXAS	1	100	A	PERSONNEL	NO	4	1	5
07/20/90	FARLEY	1	100	M	EQUIPMENT	NO	1	0	1

REACTOR SCRAM SUMMARY
WEEK ENDING 07/15/90

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
07/09/90	CLINTON	1	91	A	PERSONNEL	NO	2	0	2
07/15/90	LIMERICK	2	89	A	EQUIPMENT	NO	1	0	1

21. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
08/06/90

SCRAM CAUSE	POWER	NUMBER OF SCRAMS(5)	1990 WEEKLY AVERAGE YTD	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE (3)(4)
** POWER >15%							
EQUIP. RELATED	>15%	2	3.1	2.9	3.1	3.9	4.3
PERS. RELATED(6)	>15%	1	0.5	1.0	1.0	1.3	1.8
OTHER(7)	>15%	0	0.0	0.1	0.5	1.2	0.4
** Subtotal **		3	3.6	4.0	4.6	6.4	6.5
** POWER <15%							
EQUIP. RELATED	<15%	0	0.4	0.4	0.5	1.2	1.4
PERS. RELATED	<15%	0	0.1	0.3	0.3	0.6	0.8
OTHER	<15%	0	0.0	0.7	0.1	0.3	0.2
** Subtotal **		0	0.5	1.4	0.9	2.1	2.4
*** Total ***		3	4.1	5.4	5.5	8.5	8.9

MANUAL VS AUTO SCRAMS

TYPE	NUMBER OF SCRAMS	1990 WEEKLY AVERAGE YTD	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE
MANUAL SCRAMS	2	1.1	0.9	1.0	1.4	1.0
AUTOMATIC SCRAMS	1	3.0	3.8	4.5	7.0	7.9

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
07/29/90

SCRAM CAUSE	POWER	NUMBER OF SCRAMS(5)	1990 WEEKLY AVERAGE YTD	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE (3)(4)
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** POWER <15%							
EQUIP. RELATED	<15%	0	0.4	0.4	0.5	1.2	1.4
PERS. RELATED	<15%	0	0.1	0.3	0.3	0.6	0.8
OTHER	<15%	0	0.0	0.7	0.1	0.3	0.2
** Subtotal **		0	0.5	1.4	0.9	2.1	2.4
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07/22/90

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Manual and Automatic Scrams for 1988	287
Manual and Automatic Scrams for 1989	244
Manual and Automatic Scrams for 1990 (YTD 08/06/90)	115

PERFORMANCE INDICATORS SIGNIFICANT EVENTS

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	NTR SIGNIFICANCE
CALVERT CLIFFS 1&2	12/20/89	LICENSEE DISCOVERED NON-SAFETY SECTION OF PIPING IN SERVICE WATER SYSTEM COULD RUPTURE IN CASE OF AN EARTHQUATE, AND CAUSE LOSS OF SAFETY-RELATED SERVICE WATER FLOW TO AUX BLDG AND EDGs.	0 POTENTIAL FOR OR ACTUAL DEGRADATION OF SAFETY-RELATED EQUIPMENT.
MILLSTONE 1	05/11/90	HOUSE HEATING STEAM LINES PASSING THRU VITAL AREAS FOUND NOT TO BE ANALYZED BY HELB FOR FAILURE. SEISMIC EVENT COULD CAUSE MULTIPLE LINE FAILURES RESULTING IN LOSS OF MULTIPLE TRAINS OF SAFETY EQUIPMENT.	0 POTENTIAL FOR ACTUAL DEGRADATION OF SAFETY-RELATED EQUIPMENT.
QUAD CITIES 1 & 2	07/07/90	FLOOR DRAIN CHECK VALVE IN ALL ECCS PUMP ROOMS INOPERABLE WOULD ALLOW FLOOD WATER FLOW TO ALL REDUNDANT ECCS EQUIPMENT ROOMS.	0 POTENTIAL FOR OR ACTUAL DEGRADATION OF SAFETY-RELATED EQUIPMENT.