

January 16, 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: THE OPERATING REACTORS EVENTS MEETING
 JANUARY 2, 1991 - MEETING 91-01

On January 2, 1991, we conducted an Operating Reactors Events meeting (91-01) to inform senior managers from NRR, ACRS, AEOD, SECY, EDO, OE, and regional offices of selected events that occurred since our last briefing on December 19, 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 12/23/90 and 12/31/90. Enclosure 4 tabulates one significant event which was 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/Encl.:
 See Next Page

DISTRIBUTION:
 Central File
 EAB Reading File
 KBaumann, EAB
 LKilgore, SECY
 PDR
KABoilski

OFC	: EAB/DOEA	: SL: EAB/DOEA	: SL: EAB/DOEA	: C: EAB/DOEA	:	:	:
NAME	: KBaumann: kab: DCFischer	: HABAiley	: AEChaffee	:	:	:	:
DATE	: 01/03/91	: 01/03/91	: 01/03/91	: 01/16/91	:	:	:

OFFICIAL RECORD COPY
 Document Name: TRANSMITTAL LETTER 01/02/91

DF03

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
C. Hehl, RI
S. Ebnetter, RII
L. Reyes, RII
B. Davis, RIII
E. Greenman, RIII
R.D. Martin, RIV
S. Collins, RIV
J.B. Martin, RV
R. Zimmerman, RV
P. Boehmert, ACRS
E. Jordan, AEOD
T. Novak, AEOD
L. Spessard, AEOD
G. Zech, AEOD
E. Weiss, AEOD
S. Rubin, AEOD
M. Harper, AEOD
W. Bateman, EDO
R. Newlin, GPA
J. Cowan, INPO
E. Beckjord, RES
A. Bates, SECY

H. Rood, NRR
J. Dyer, NRR
D. Pickett, NRR
C. Grimes, NRR
D. Jaffe, NRR
J. Stolz, NRR



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

January 16, 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: THE OPERATING REACTORS EVENTS MEETING
JANUARY 2, 1991 - MFETING 91-01

On January 2, 1991, we conducted an Operating Reactors Events meeting (91-01) to inform senior managers from NRR, ACRS, AEOD, SECY, EDO, OE, and regional offices of selected events that occurred since our last briefing on December 19, 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 12/23/90 and 12/31/90. Enclosure 4 tabulates one significant event which was identified for input into the NRC performance indicator program.

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

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

Enclosures:
As stated

cc w/Encl.:
See Next Page

LIST OF ATTENDEESOPERATING REACTORS EVENTS BRIEFING (91-01)

January 2, 1991

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
E. Rossi	NRR/DOEA	P. Boehnert	ACRS
A. Chaffee	NRR/DOEA	S. Israel	AEOD
H. Bailey	NRR/DOEA	K. Hart	SECY
D. Fischer	NRR/DOEA	R. Smith	EDO
A. Young	NRR/DOEA	W. Troskoski	OE
R. Benedict	NRR/DOEA	G. Imbro	NRR/PD1V-2
J. Thompson	NRR/DOEA	W. LeFave	NRR/DST
R. Woodruff	NRR/DOEA	D. Pickett	NRR/DRSP
W. Jensen	NRR/DOEA	J. Stolz	NRR/DRP1
K. Baumann	NRR/DOEA	M. Virgilio	NRR/DRPW
C.Y. Cheng	NRR/DET	J. Dyer	NRR/DRPW
B.D. Liaw	NRR/DET	K. Dempsey	NRR/EMEB
D. Jaffe	NRR/DRP	J. Richardson	NRR/DET
M. Caruso	NRR/SRXB	B. Grimes	NRR/DRIS
H. Rood	NRR/PD5	F. Witt	NRR/EMCB
G. Hubbard	NRR/SPLB	S. Varga	NRR/DRP
S. Jones	NRR/SPLB		

OPERATING REACTORS EVENTS BRIEFING 91-01
EVENTS ASSESSMENT BRANCH
LOCATION: 8B-11, WHITE FLINT
WEDNESDAY, JANUARY 2, 1991, 11:00 A.M.

DIABLO CANYON

FAILED-OPEN PRESSURIZER SPRAY
VALVE AND STEAM DUMP VALVE

WOLF CREEK

BOTH TRAINS OF SI DECLARED
INOPERABLE DUE TO FREEZING OF
COMMON RECIRCULATION LINE TO
THE RWST

MILLSTONE UNIT 3

CONDENSATE SYSTEM PIPING RUPTURES

DIABLO CANYON, UNIT 1
FAILED-OPEN PRESSURIZER SPRAY VALVE
AND STEAM DUMP VALVE
DECEMBER 24, 1990

PROBLEM:

REACTOR SCRAM RESULTING FROM FAILED-OPEN PRESSURIZER SPRAY VALVE WITH EXCESSIVE COOLDOWN RESULTING FROM FAILED-OPEN STEAM DUMP VALVE COMPLICATED BY AN INCORRECT INDICATION THAT ALL STEAM DUMP VALVES WERE CLOSED.

CAUSE:

THE PRESSURIZER SPRAY VALVE FAILED DUE TO A MISSING SET SCREW NUT IN THE POSITIONER LINKAGE. THE STEAM DUMP VALVE FAILED DUE TO A FAILED STEM.

SAFETY SIGNIFICANCE:

POTENTIAL PRESSURIZED THERMAL SHOCK TO REACTOR VESSEL.

SEQUENCE OF EVENTS:

- o THE REACTOR WAS AT 88% POWER.
- o A PRESSURIZER SPRAY VALVE FAILED OPEN.
- o RCS PRESSURE DROPPED RESULTING IN A REACTOR SCRAM, SAFETY INJECTION, AND PHASE A CONTAINMENT ISOLATION.
- o THIS ISOLATED INSTRUMENT AIR TO CONTAINMENT, EVENTUALLY ALLOWING THE SPRAY VALVE TO CLOSE.
- o OPERATOR TRIPPED 1 RCP (IN ACCORDANCE WITH EOPs).
- o RCS PRESSURE BEGAN INCREASING.
- o OPERATOR RESET SI AND RE-ESTABLISHED INSTRUMENT AIR TO CONTAINMENT (IN ACCORDANCE WITH EOPs).
- o SPRAY VALVE AGAIN CAME FULL-OPEN.

CONTACT: A. P. YOUNG
REFERENCE: 10 CFR 50.72 #20143 AND MORNING
REPORT DATED 12/24/90

SIGEVENT: YES

- o RCS PRESSURE AGAIN DROPPED.
- o OPERATOR TRIPPED 2ND RCP.
- o RCS PRESSURE BEGAN TO INCREASE.
- o OPERATOR CLOSED MSIVs TO STOP THE CONTINUING DECREASE IN RCS TEMPERATURE.
- o OPERATOR SECURED INSTRUMENT AIR LOCALLY TO PZR SPRAY VALVE.
- o MINIMUM RCS PRESSURE DURING THE TRANSIENT WAS 1475 PSIG. MIN RCS TEMPERATURE WAS APPROXIMATELY 420F. MAX COOLDOWN RATE (HOT LEG) WAS 170F/HR FOR APPROXIMATELY 40 MINUTES. MAX COLD LEG COOLDOWN RATE WAS 117F/HR OVER A 60 MINUTE PERIOD. (TECH SPEC LIMIT IS 100F/HR.)

DISCUSSION:

PRESSURIZER SPRAY VALVE FAILURE --

- o 1 OF 2 SPRAY VALVES (MANUFACTURED BY FISHER) FAILED OPEN DUE TO A MISSING SET SCREW NUT IN THE POSITIONER LINKAGE. THE SET SCREW NORMALLY CONNECTS THE FEEDBACK ARM TO THE POSITIONER WITH THE FEEDBACK ARM DISCONNECTED, THE POSITIONER CALLED FOR 100% OPEN.
- o LICENSEE CHECKED THE OTHER UNIT 1 SET SCREW, BOTH UNIT 2 SET SCREWS, AND OTHER VALVES WITH A SIMILAR DESIGN. NO OTHER VALVES WERE AFFECTED.
- o LICENSEE SPECULATES THE NUT, OR LOCKING DEVICE, WAS NEVER INSTALLED.

STEAM DUMP VALVE FAILURE --

- o DURING A ROUTINE FUNCTIONAL TEST, AFTER RECOVERING FROM THE TRANSIENT, THE LICENSEE FOUND THAT 1 OF 12 STEAM DUMP VALVES (MANUFACTURED BY COPES-VULCAN) HAD A BENT STEM AND EXHIBITED ERRATIC STROKING. THE LICENSEE DISASSEMBLED THE VALVE AND FOUND THAT THE PILOT VALVE STEM WAS FRACTURED WHERE IT THREADS INTO THE MAIN STEM, RESULTING IN THE STEAM DUMP VALVE COMING OPEN.

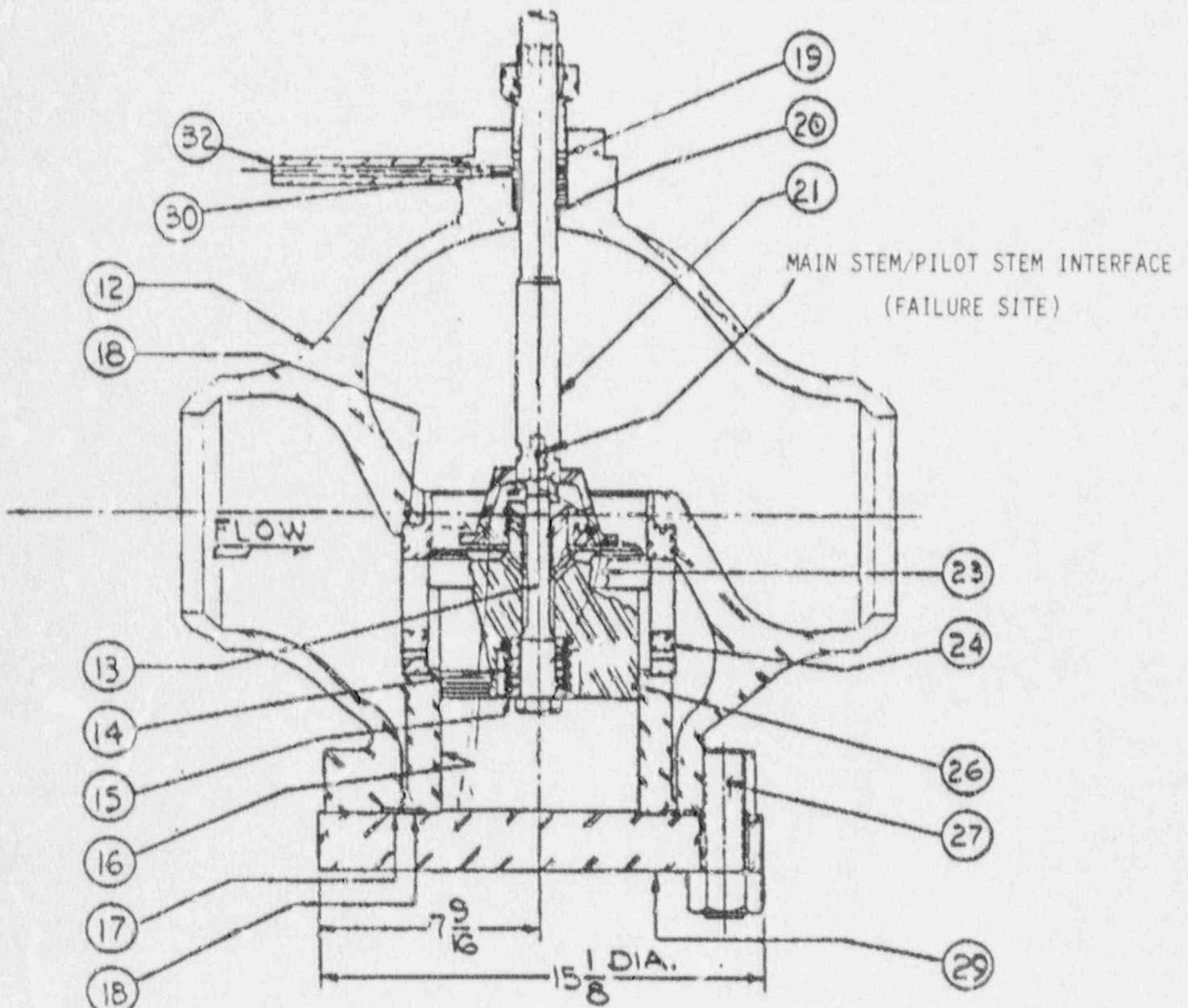
- o THE OPERATORS WERE NOT AWARE OF THE STEAM DUMP VALVE FAILURE DURING THE TRANSIENT BECAUSE THE CONTROL ROOM INDICATION SHOWED THE VALVE TO BE CLOSED. THE POSITION SWITCHES ARE LOCATED ON THE VALVE STEM OUTSIDE THE VALVE BODY.
- o NONE OF THE OTHER STEAM DUMP VALVES FAILED THE ROUTINE FUNCTIONAL TEST.
- o ROOT CAUSE IS STILL UNDER INVESTIGATION.

FOLLOWUP:

- o LICENSEE RECREATED THE EVENT ON A SIMULATOR WITH THE STEAM DUMP VALVE FULLY OPEN TO VERIFY THAT THE EXCESSIVE COOLDOWN COULD BE ATTRIBUTED TO THE FAILED-OPEN STEAM DUMP VALVE. THE SIMULATOR RUN DUPLICATED THE EVENT.
- o WESTINGHOUSE ANALYZED THE OVERCOOLING EVENT AND FOUND THAT THE COOLDOWN RATES WERE ACCEPTABLE AND THAT THE EVENT WAS BOUNDED BY THE CURRENT ACCIDENT ANALYSIS.
- o STRUCTURAL INTEGRITY, OR BRITTLE FRACTURE, OF THE REACTOR VESSEL WAS NOT A CONCERN SINCE RCS TEMPERATURE DID NOT APPROACH THE 300F DUCTILITY IMBRITTEMENT ZONE.
- o DIABLO CANYON IS OPERATING AT 100% POWER.
- o REGION V IS STILL EVALUATING THE LICENSEE'S FOLLOWUP ACTIVITIES.

DIABLO CANYON UNIT 1

STEAM DUMP VALVE



CROSS-SECTION

WOLF CREEK, UNIT 1
BOTH TRAINS OF SI DECLARED INOPERABLE DUE TO
FREEZING OF COMMON RECIRCULATION LINE TO THE RWST
DECEMBER 23, 1990

PROBLEM:

BOTH TRAINS OF SI WERE DECLARED INOPERABLE DUE TO FREEZING OF THE COMMON RECIRCULATION LINE TO THE RWST.

CAUSE:

A FAILED THERMOSTAT COMMON TO MULTIPLE HEAT TRACING ELEMENTS ALLOWED THE PIPING TO THE RWST TO FREEZE.

SAFETY SIGNIFICANCE:

FREEZING OF THE COMMON RECIRCULATION PIPING FOR BOTH SI PUMPS WOULD CAUSE PUMP DEADHEADING DURING A SMALL-BREAK LOCA AND MAY LEAD TO FAILURE OF THE SI PUMPS BEFORE OPERATOR ACTION COULD BE TAKEN.

EVENTS DESCRIPTION:

- o ON DECEMBER 23, 1990, WITH UNIT 1 AT 100% POWER, THE LICENSEE WAS PERFORMING A MAKEUP TO THE RWST THRU THE CVCS BORIC ACID BLENDING TEE LINE (WHICH TIES INTO THE RECIRCULATION LINE).
- o NO FLOW WAS OBSERVED, LICENSEE ATTEMPTED TO MAKEUP USING THE FUEL POOL CLEAN-UP PUMP LINE (WHICH TIES INTO THE RECIRCULATION LINE UPSTREAM OF THE BLENDING TEE LINE).

CONTACT: JOHN THOMPSON
REFERENCE: 10 CFR 50.72's 20136, 20137
AND MORNING REPORT DATED 12/28/90

SIGEVENT: YES

- o LICENSEE SUSPECTED ICE BLOCKAGE IN RECIRCULATION LINE AND IDENTIFIED FAILURE IN HEAT TRACING ON THE 25 FT. SECTION OF PIPING TO THE RWST.
- o A THERMOSTAT HAD FAILED WHICH WAS COMMON TO MULTIPLE HEAT TRACING ELEMENTS FOR THE 25 FT. SECTION OF PIPING TO THE RWST.
- o LICENSEE DECLARED THE SI SYSTEM INOPERABLE AND ENTERED INTO TECH SPEC 3.0.3 AFTER PLACING BOTH SI PUMPS IN "PULL TO LOCK".
- o LICENSEE EXITED TECH SPEC 3.0.3 AFTER THAWING ICE PLUG WITH HEAT GUN AND PUSHED ICE THRU THE PIPING WITH THE FUEL POOL CLEAN-UP PUMPS.

DISCUSSION:

- o THE RECIRCULATION PIPING IS NONSAFETY-GRADE, BUT SEISMICALLY QUALIFIED PIPING.
- o THE HEAT TRACING SYSTEMS ARE NONSAFETY, AND USE A COMMON POWER SUPPLY AND THERMOSTAT.
- o FOUR (4) WATER TANKS (RWST, CST, ETC) SHARE A HEAT TRACING FAILURE ALARM WHICH INDICATES IN THE CONTROL ROOM. THE ALARM INDICATES A LOW TEMPERATURE CONDITION AND CAN ONLY INDICATE A SINGLE ALARM STATUS AT ANY GIVEN TIME.
- o A CST OVERFLOW ALARM HAD BEEN RECEIVED EARLIER AND WAS NOT CLEARED AT THE TIME OF THIS EVENT. THE LICENSEE HAD EVALUATED THE ALARM CONDITION AS NOT BEING SAFETY SIGNIFICANT.
- o THE LICENSEE PERFORMS A DAILY CHECK ON THE HEAT TRACING SYSTEMS. THIS CONSISTS OF A CHECK TO SEE IF THE BREAKERS ARE CLOSED TO THE POWER SUPPLY.

- o THE DESIGN FOR THE RECIRCULATION PIPING AND HEAT TRACING SYSTEMS ARE COMMON IN THE INDUSTRY.

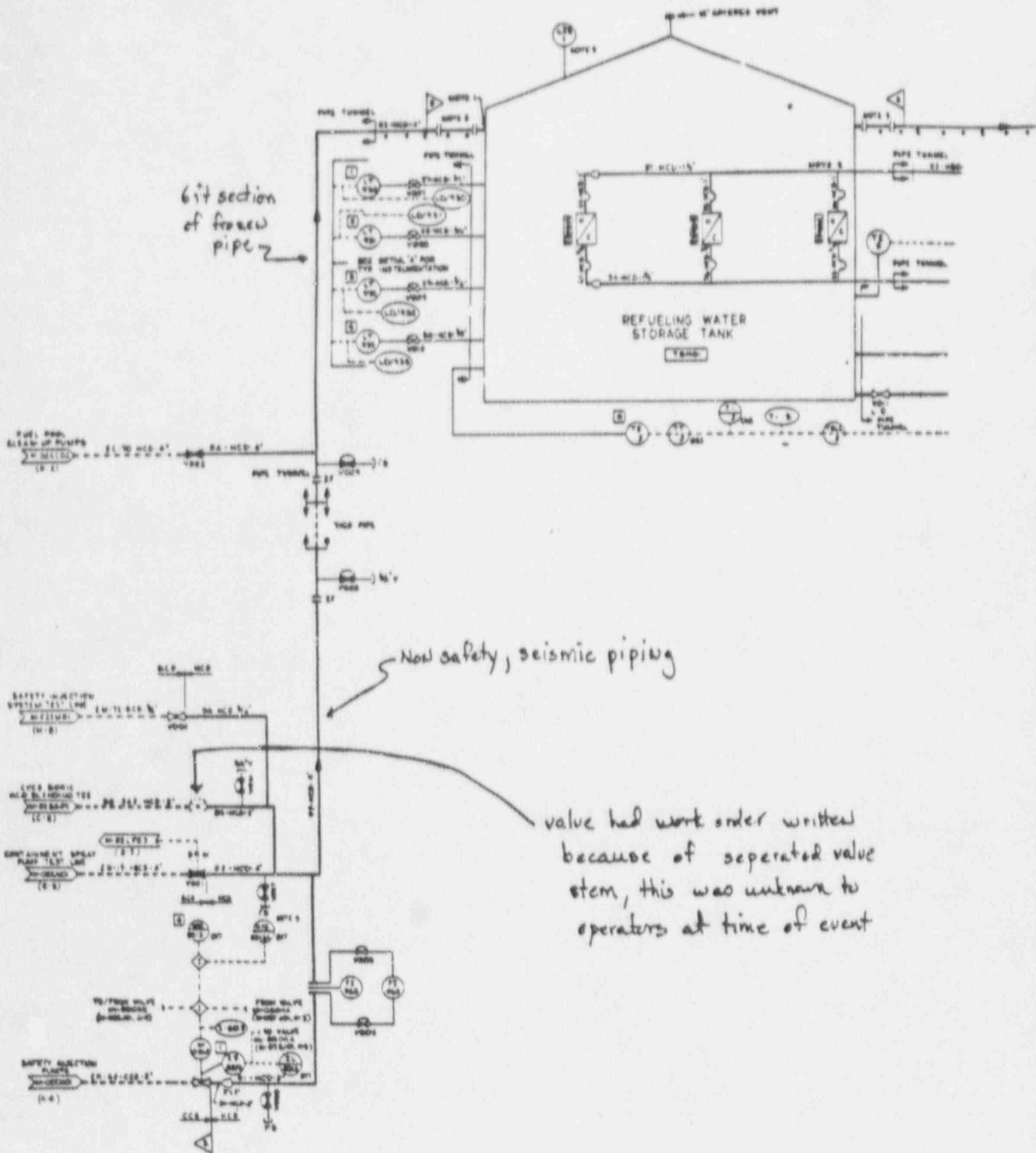
PREVIOUS GENERIC COMMUNICATIONS:

- o BULLETIN 79-24, "FROZEN LINES" WAS ISSUED TO ALL LICENSEES TO INSURE THAT ALL SAFETY-RELATED EQUIPMENT, SAMPLE LINES, AND INSTRUMENT LINES WERE ADEQUATELY PROTECTED AGAINST FREEZING IN EXTREMELY COLD WEATHER. THE BULLETIN'S DESCRIPTION OF AN EVENT AT DAVIS-BESSE IN 1979 WAS SIMILAR TO THE WOLF CREEK EVENT.
- o FOR CONSTRUCTION PERMIT LICENSEES, THE BULLETIN REQUIRED NO RESPONSE.

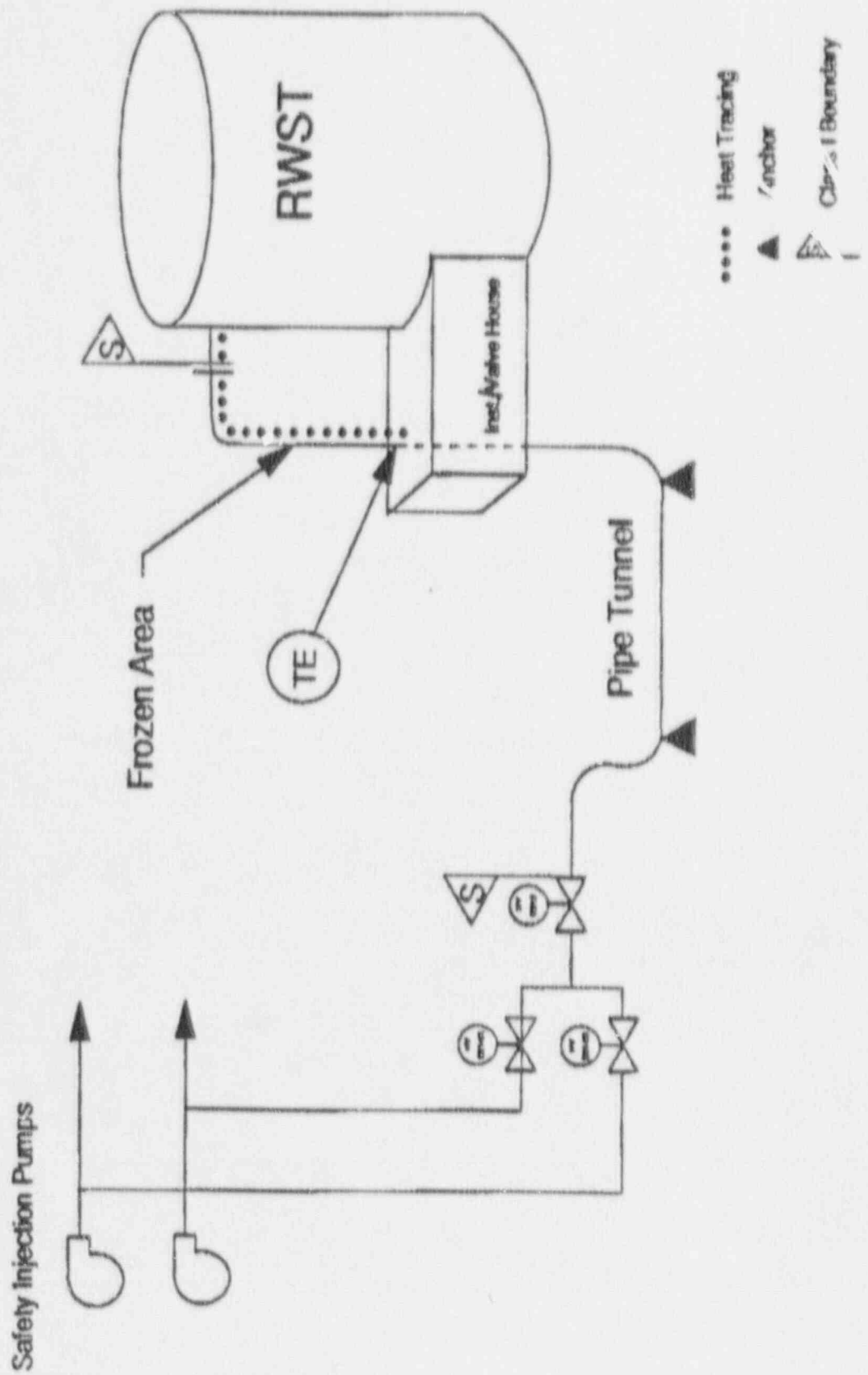
FOLLOW-UP:

- o EAB WILL WORK WITH REACTOR SYSTEMS BRANCH TO DETERMINE SAFETY SIGNIFICANCE AND IF A GENERIC COMMUNICATION SHOULD BE ISSUED.
- o THE LICENSEE'S IMMEDIATE CORRECTIVE ACTION WAS TO ESTABLISH CONTINUOUS RECIRCULATION IN THE PIPING BETWEEN THE SI PUMPS AND THE RWST. LONG TERM CORRECTIVE ACTION IS STILL UNDER INVESTIGATION BY THE LICENSEE.
- o REGION IV IS CONTINUING TO FOLLOWUP ON LICENSEE ACTIONS ASSOCIATED WITH THIS EVENT.

Wolf Creek Unit 1 SI Recirculation Path to RWST



SI Recirculation Line



MILLSTONE UNIT 3
 CONDENSATE SYSTEM PIPING RUPTURES
 DECEMBER 31, 1990

PROBLEM

RUPTURE OF TWO HIGH PRESSURE 6-INCH LINES IN THE TURBINE BUILDING.

CAUSE

EROSION/CORROSION OF A LINE FROM THE MOISTURE SEPARATOR DRAIN PUMP CAUSED IT TO FAIL AND WHIP AGAINST A SECOND LINE CAUSING IT TO FAIL.

SAFETY SIGNIFICANCE

- o PARTIAL LOSS OF REACTOR HEAT SINK,
- o HAZARD TO PERSONNEL AND PLANT EQUIPMENT.

DISCUSSION

- o PLANT AT 86% POWER COASTING DOWN TO REFUELING.
- o RUPTURE OF A 6-INCH SCHEDULE 40 CARBON STEEL LINE FROM MOISTURE SEPARATOR DRAIN TANK PUMP DISCHARGE TO CONDENSATE SYSTEM.
- o PIPE WHIP CAUSED RUPTURE OF NEARBY 6-INCH MSR DRAIN PUMP DISCHARGE LINE.
- o MANUAL REACTOR TRIP FROM CONTROL ROOM.
- o FLOODING OF THE TURBINE BUILDING CAUSED LOSS OF NON-VITAL ELECTRICAL EQUIPMENT AND RELATED EQUIPMENT FAILURES.
 - PLANT PROCESS COMPUTER FROM LOSS OF POWER,
 - INSTRUMENT AIR COMPRESSOR FROM LOSS OF POWER,
 - STEAM DUMP TO THE CONDENSER FROM LOSS OF POWER,
 - PRESSURIZER SPRAY VALVE FAILED CLOSED FROM LOSS OF AIR,
 - POWER LOST TO AUXILIARY BOILER.
- o PRESSURIZER PORVS USED TO CONTROL REACTOR SYSTEM PRESSURE.

CONTACT: W. JENSEN

REFERENCES: 10 CFR 50.72 REPORT #20178
 AND MORNING REPORT DTD 01/02/91

AIT: YES

SIGEVENT: YES

- o MAIN STEAM ATMOSPHERIC RELIEF VALVES USED FOR DECAY HEAT REMOVAL.
- o PLANT BEING MAINTAINED IN HOT STANDBY.
- o CAUSE OF RUPTURE, EROSION-CORROSION PIPE WALL THINNING.

SIMILAR EVENTS AND GENERIC COMMUNICATION

- o FEEDWATER LINE BREAK AT SURRY 12/09/86 SEE IN 86-106 SUP 1,2,3.
- o BUL 87-01 REQUESTED INFORMATION ON LICENSEE SURVEILLANCE OF PIPE WALL THINNING.
- o IN 88-17 SUMMARIZED PLANT PIPE WALL THINNING SURVEILLANCE PROGRAMS.
- o GL 89-08 REQUIRED DEVELOPMENT OF LONG TERM EROSION-CORROSION PROGRAMS.

FOLLOW-UP

- o AN AIT IS BEING DISPATCHED TO THE SITE.
- o THIS EVENT WILL BE FACTORED INTO AN INFORMATION NOTICE CURRENTLY BEING DEVELOPED.
- o NRR EVALUATING NEED FOR ADDITIONAL GENERIC COMMUNICATION.

REACTOR SCRAM SUMMARY
WEEK ENDING 12/23/90

ENCLOSURE 3

1. PLANT SPECIFIC DATA (1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE (2)	COMPLI- CATIONS	YTD		YTD TOTAL
							ABOVE 15%	BELOW 15%	
12/18/90	ARKANSAS	1	0	A	EQUIPMENT	NO	0	1	1
12/18/90	VOBTLE	1	100	M	EQUIPMENT	NO	5	0	5
12/18/90	GRAND GULF	1	17	A	EQUIPMENT	NO	4	1	5
12/20/90	BYRON	2	72	M	EQUIPMENT	NO	2	0	2
12/21/90	GINNA	1	17	A	PERSONNEL	NO	5	2	7

REACTOR SCRAM SUMMARY
WEEK ENDING 12/31/90

1. PLANT SPECIFIC DATA (1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE (2)	COMPLI- CATIONS	YTD		YTD TOTAL
							ABOVE 15%	BELOW 15%	
12/27/90	MCGUIRE	2	0	M	EQUIPMENT	NO	0	1	1
12/27/90	INDIAN POINT	3	48	M	EQUIPMENT	NO	2	0	2
12/27/90	NINE MILE POINT	1	10	A	EQUIPMENT	NO	3	1	4
12/29/90	PRAIRIE ISLAND	2	100	A	EQUIPMENT	NO	3	2	5
12/30/90	BRAIDWOOD	1	100	A	EQUIPMENT	NO	5	0	5
12/30/90	CALLAWAY	1	100	A	EQUIPMENT	NO	3	0	3
12/31/90	MILLSTONE	3	86	M	EQUIPMENT	NO	6	0	6

11. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
12/23/90

SCRAM CAUSE	POWER	NUMBER OF SCRAMS	1990 WEEKLY AVERAGE (YTD)	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
POWER >15%						
EQUIP. RELATED	>15%	3	3.4	3.1	3.0	3.9
PERS. RELATED (2)	>15%	1	0.5	1.0	1.0	1.3
OTHER (4)	>15%	0	0.0	0.1	0.4	1.1
Subtotal		4	3.9	4.2	4.4	6.3
POWER <15%						
EQUIP. RELATED	<15%	1	0.4	0.3	0.6	1.2
PERS. RELATED	<15%	0	0.1	0.3	0.4	0.6
OTHER	<15%	0	0.0	0.0	0.2	0.3
Subtotal		1	0.5	0.6	1.2	2.1
TOTAL		5	4.4	4.8	5.6	8.4

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1990 WEEKLY AVERAGE (YTD)	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
MANUAL SCRAMS	2	1.2	0.9	1.1	1.4
AUTOMATIC SCRAMS	3	3.2	3.9	4.5	7.0

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
12/31/90

SCRAM CAUSE	POWER	NUMBER OF SCRAMS	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
POWER >15%						
EQUIP. RELATED	>15%	5	3.4	3.1	3.0	3.9
PERS. RELATED (2)	>15%	0	0.5	1.0	1.0	1.3
OTHER (4)	>15%	0	0.0	0.1	0.4	1.1
Subtotal		5	3.9	4.2	4.4	6.3
POWER <15%						
EQUIP. RELATED	<15%	2	0.4	0.3	0.6	1.2
PERS. RELATED	<15%	0	0.1	0.3	0.4	0.6
OTHER	<15%	0	0.0	0.0	0.2	0.3
Subtotal		2	0.5	0.6	1.2	2.1
TOTAL		7	4.4	4.8	5.6	8.4

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE
MANUAL SCRAMS	3	1.2	0.9	1.1	1.4
AUTOMATIC SCRAMS	4	3.2	3.9	4.5	7.0

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 (YTD 12/31/90)----	226

Page No. 1
1/02/91

PERFORMANCE INDICATORS SIGNIFICANT EVENTS

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	OIR SIGNIFICANCE
ONE MILE POINT 1	11/12/90	PHASE-TO-PHASE FAULT ON ONE RESERVE TRANSFORMER CAUSED TOTAL LOSS OF ALL OFFSITE POWER. NOT BRIEFED.	PREVIOUSLY IDENTIFIED DESIGN INADEQUACY CONTRIBUTED LOSS OF OFFSITE POWER, CHALLENGE TO SAFETY SYSTEMS.