SEP 06 1989

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

FROM: Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: THE OPERATING REACTORS EVENTS MEETING
August 30, 1989 - MEETING 89-31

On August 30, 1989, we conducted an Operating Reactors Events meeting (89-31) to brief senior managers from NRR, AEOD, ACRS, RES, Commission Staff, and regional offices on selected events that occurred since our last meeting on August 23, 1989. Enclosure 1 lists the attendees.

Enclosure 2 presents the significant elements of the discussed events. Enclosure 3 contains a summary of reactor scrams for the week ending 08/27/89 and a comparison of weekly statistics with industry averages. We identified one significant event for input into the NRC performance indicator program.

/S/

Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

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IDAR-5-1 OPERATING EXPERIENCE

OFC	:EAB/DOEA	:C:EAB/DOEA	:	:	:	:	:
NAME	:MLReardon	:CJHaughney	:	:	:	:	:
DATE	:08/31/89	:09/1/89	:	:	:	:	:

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8909150002 890905
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cc:
T. Murley, NRR
F. Miraglia, NRR
J. Sniezek, NRR
E. Jordan, AEOD
J. Taylor, EDO
E. Beckjord, RES
W. Russell, RI
S. Ebneter, RII
B. Davis, RIII
R. D. Martin, RIV
J. B. Martin, RV
W. Kane, RI
L. Reyes, RII
E. Greenman, RIII
L. Callan, RIV
R. Zimmerman, RV
S. Varga, NRR
B. Boger, NRR
G. Lainas, NRR
L. Shao, NRR
B. Grimes, NRR
F. Congel, NRR
E. Weiss, AEOD
T. Martin, EDO
J. Lieberman, OE
J. Guttmann, SECY
A. Thadani, NRR
S. Rubin, AEOD
J. Forsyth, INPO
R. Barrett, NRR
M. Harper, AEOD
R. Newlin, GPA
H. Alderman, ACRS
D. Hood, NRR
D. Matthews, NRR
J. Hayes, NRR
E. Adensam, NRR
P. Shemanski, NRR
M. Slosson, NRR
R. Capra, NRR

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

September 5, 1989

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Charles J. Haughney

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Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS BRIEFING (89-31)

August 30, 1989

NAME	ORGANIZATION	NAME	ORGANIZATION
E. Adensam	NRR/DRP	J. Roe	NRR/DLPQ
J. Hayes	NRR/DRP	C. Rossi	NRR/DOEA
R. Borchardt	OEDO	J. Partlow	NRR/ADP
W. Troskoski	OE	W. Minners	RES/DSIR
M. Reardon	NRR/DOEA	T. Greene	NRR/DOEA
L. Norrholm	OCM/KC	J. Raleigh	NRR/DOEA
G. Hammer	NRR/DET	S. Stein	NRR/DRIS
J. Carter	NRR/DOEA	D. Hood	NRR/PD2-3
R. Karsch	NRR/DOEA	A. Gilbert	NRR/DOEA
P. Schemanski	NRR/PD3-2	C. Daily	ACRS
H. Ornstein	AEOD	S. Long	ACRS
L. Kintner	NRR/PD4	S. Newberry	NRR/SICB
A. Gibson	Region II	H. Li	NRR/SICB
P. Cortland	NRR/TVA	R. Lobel	NRR/DOEA
S. Varga	NRR/DRP	T. Gody, Jr.	NRR/PD3-3
D. Trimble	OCM/JC	G. Lainas	NRR/DSP
M. Slosson	NRR/PD1-1	P. Baranowsky	NRR/DOEA
D. Matthews	NRR/PD2-3	R. Benedict	NRR/DOEA
P. Bobe	AEOD/DSP	R. Capra	NRR/PD1-1

ENCLOSURE 2

OPERATING REACTORS EVENTS BRIEFING 89-31
EVENTS ASSESSMENT BRANCH
LOCATION: 15B-11, WHITE FLINT
WEDNESDAY, AUGUST 30, 1989, 11:00 A.M.

MCGUIRE UNIT 2	STEEL CONTAINMENT VESSEL CORROSION
SUMMER UNIT 1	REPEAT EVENT SPURIOUS PRESSURIZER SAFETY VALVE OPENING
LASALLE UNIT 2	SCRAM WITH POSSIBLE RPS MALFUNCTION
NINE MILE POINT UNIT 1	CONTAMINATION OF SUB-BASEMENT BY LEAKING DRUMS (AIT UPDATE)
GENERIC ISSUE	SOLENOID VALVE FAILURES

MCGUIRE UNIT 2
STEEL CONTAINMENT VESSEL CORROSION
AUGUST 24, 1989

PROBLEM
CORROSION OF STEEL CONTAINMENT VESSEL.

CAUSE
COLLECTION OF WATER ON FLOOR OF ANNULUS BETWEEN CONTAINMENT VESSEL AND CONCRETE SHIELD BUILDING.

SAFETY SIGNIFICANCE
POTENTIAL WEAK SPOT IN CONTAINMENT VESSEL.

DISCUSSION
- PROTECTIVE COATING DEGRADED, PERMITTING CORROSION OF STEEL.
- AREA ABOUT 1-1/2 INCHES HIGH BY ABOUT 30 FEET LONG, DIRECTLY ABOVE ANNULUS FLOOR.
- 1/16 INCH GENERAL CORROSION, PITTING TO 1/10 INCH.
- STEEL IS 1 INCH THICK.
- ADEQUATE REMAINING WALL THICKNESS.
- INSPECTION ACCESS IS LIMITED DUE TO AIR DUCTS.
- SOURCE OF WATER IS UNKNOWN, BUT LICENSEE IS LOOKING FOR IT. MAY BE LEAKING VALVES OR FLOOR SUMP OVERFLOW.
- WEEKLY SURVEILLANCE.
- REPAIR AT NEXT REFUELING - CLEAN, WELD DEPOSIT, DIFFERENT COATING.
- UNIT 1 CHECKED 8/29/89.

FOLLOWUP
REGION MAY PERFORM ITS OWN INSPECTION OR PARTICIPATE IN LICENSEE'S INSPECTION.

CONTACT: R. BENEDICT SIGEVENT NO
REFERENCE: 10 CFR 50.72 #16392

SUMMER UNIT 1
REPEAT EVENT SPURIOUS PRESSURIZER SAFETY VALVE OPENING
AUGUST 25, 1989

PROBLEM

A PRESSURIZER CODE SAFETY VALVE OPENED SPURIOUSLY DURING POWER OPERATION.

CAUSE

LOSS OF LOOP SEAL (ROOT CAUSE UNKNOWN).

SAFETY SIGNIFICANCE

LOSS OF REACTOR COOLANT AND POTENTIAL CHALLENGE TO PLANT SAFETY SYSTEMS.

BACKGROUND

- MAY 28, 1989, SUMMER UNIT 1 HAD A SPURIOUS OPENING OF "C" PRESSURIZER CODE SAFETY VALVE DURING 100% POWER OPERATION (2250 PSIA).
- "C" AND "B" WERE REPLACED. ("B" WAS REPLACED DUE TO SEAT LEAKAGE.)
- TESTS ON FAULTY VALVES AT A W TEST FACILITY IN CALIFORNIA WERE INCONCLUSIVE--THE LICENSEE FOUND NO DEFECTS IN THE VALVE.
- LICENSEE HAS BEEN CONTINUALLY MONITORING ALL PRESSURIZER CODE SAFETY VALVES FOR VALVE BODY TEMPERATURE (LOOP SEAL LEAKAGE RAISES THE TEMPERATURE) SINCE THE JUNE STARTUP.

DISCUSSION

- SAFETY VALVE "A" HAS BEEN LEAKING SINCE SHORTLY AFTER THE JUNE STARTUP.
- ON AUGUST 25, 1989, SUMMER UNIT 1 HAD SPURIOUS OPENING OF "A" PZR CODE SAFETY VALVE DURING 100% POWER OPERATION.

CONTACT: A. GILBERT.

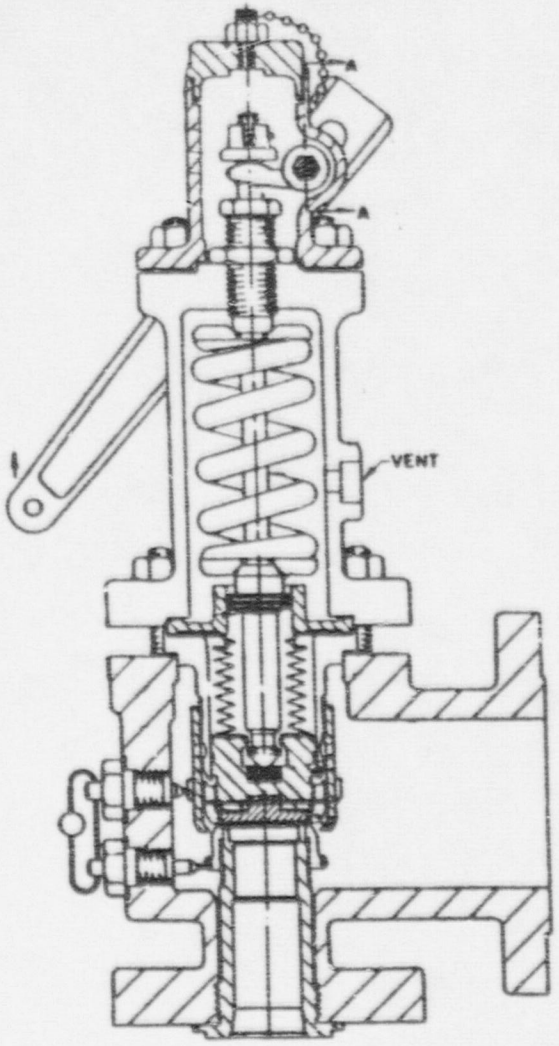
SIGEVENT YES

REFERENCE: 10 CFR 50.72 #16404

- RESPONSE WAS SIMILAR TO MAY EVENT RESPONSE:
  - REACTOR COOLANT SYSTEM PRESSURE DECREASED QUICKLY.
  - MANUAL REACTOR TRIP AT ABOUT 2000 PSI, NO SAFETY INJECTION. SETPOINT IS 1875 PSI.
  - SAFETY VALVE "A" RESEATED; PRESSURE LEVELED AT ABOUT 1950 PSI.
  - LICENSEE BROUGHT PLANT TO COLD SHUTDOWN.
- VALVE "A" HAS BEEN REPLACED AND IS EXPECTED TO BE TESTED.
- REPLACEMENT VALVE IS A REFURBISHED VALVE FROM THE SAME WESTINGHOUSE FACILITY IN CALIFORNIA. (THE SAME TYPE OF REPLACEMENT AS WAS USED FOR "B" AND "C" VALVES IN MAY.)
- LICENSEE PLANS TO STARTUP THIS WEEKEND.

FOLLOWUP

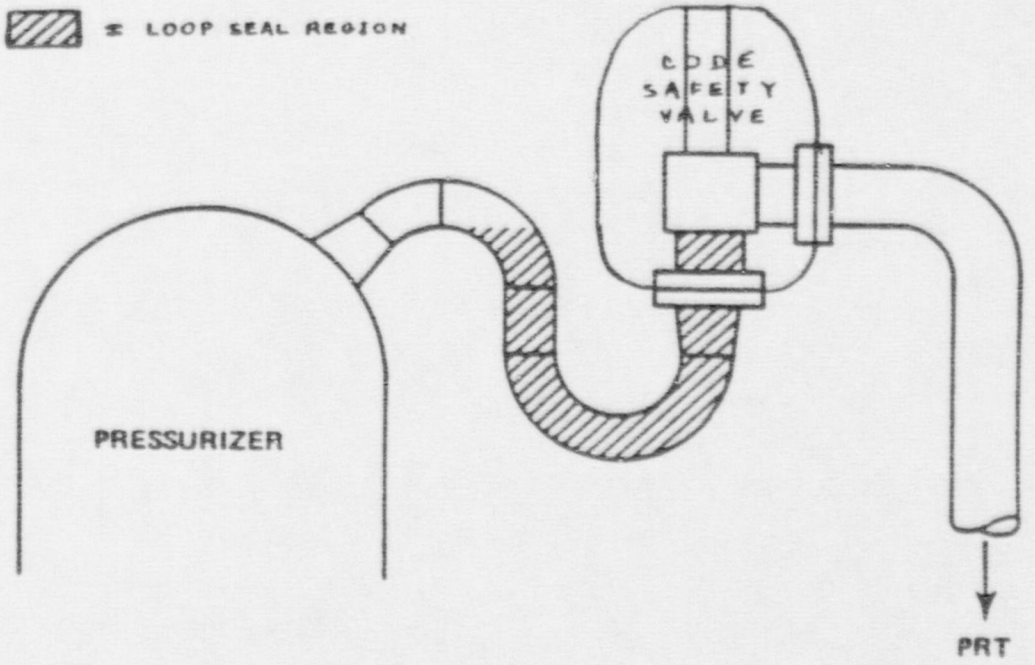
REGION II IS FOLLOWING THIS EVENT. MECHANICAL ENGINEERING BRANCH AND AEOD ARE LOOKING AT THE GENERIC ASPECTS OF THIS PROBLEM.



CROSBY CODE SAFETY VALVE

SUMMER UNIT 1

LOOP SEAL PIPING CONFIGURATION



LASALLE UNIT 2
SCRAM WITH POSSIBLE RPS MALFUNCTION
AUGUST 26, 1989

PROBLEM

AFTER RECEIPT OF A SCRAM SIGNAL 2 OF 8 INDICATING LIGHTS FOR RPS SUBCHANNELS REMAINED LIT INDICATING POSSIBLE STICKING OF A SCRAM CONTACTOR.

CAUSE

UNKNOWN AT THIS TIME.

SAFETY SIGNIFICANCE

FAILURE OF TWO CONTACTORS IN CERTAIN CHANNELS COULD LEAD TO AN ATWS. ONLY ONE CONTACTOR IS SUSPECTED TO HAVE MOMENTARILY STUCK.

DISCUSSION

- LASALLE UNIT 2 WAS AT 10% POWER TESTING TURBINE STOP VALVE CLOSURE WHEN THE REACTOR AUTO SCRAMMED.
- TWO OF EIGHT RPS SCRAM LIGHTS STAYED ON, INDICATING THAT THE SCRAM VALVES DID NOT OPEN.
- MANY PIECES OF EQUIPMENT WHICH COULD HAVE PREVENTED THIS EVENT OR PROVIDED INFORMATION TO UNDERSTAND WHAT HAPPENED EITHER FAILED OR WERE INOPERATIVE, E.G.,
  - MSSV POSITION INDICATION FOR THE #3 VALVE SHOWED FULL OPEN,
  - TURBINE FIRST STAGE PRESSURE CHART RECORDER HAD RUN OUT OF INK,
  - ALARM TYPER DATA RECORDER FAILED BECAUSE THE INPUT WAS OVERLOADED DUE TO NUISANCE ALARMS.
  - STARTREK WAS NOT WORKING BECAUSE IT HAD NO INPUT SIGNAL.
- THE SCRAM CONTACTOR "K14E" MAY HAVE BEEN SLOW TO OPEN, CAUSING SCRAM LIGHTS "A2" AND "A3" TO REMAIN LIT.
- THE OPERATOR OBSERVED THAT SCRAM LIGHTS "A2 AND "A3" WERE STILL LIT AFTER SCRAM ACTUATION.

CONTACT: RUDY KARSCH

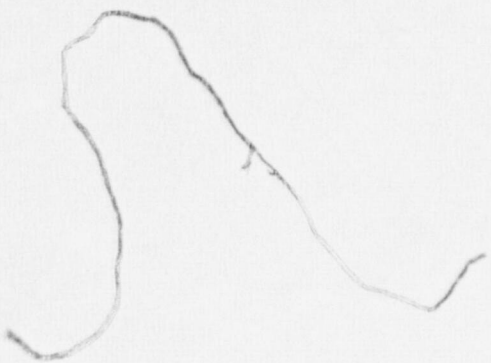
SIGEVENT IBD

REFERENCE: 10 CFR 50.72 #16411

- THE OPERATOR MANUALLY SCRAMMED THE REACTOR 13 SECONDS AFTER THE AUTO SCRAM.

FOLLOWUP

- THE LICENSEE WILL CONDUCT THE FOLLOWING INVESTIGATIONS:
  - TRACE THE PREVENTIVE MAINTENANCE HISTORY OF THE SCRAM CONTACTORS,
  - CONDUCT A FAULT TREE ANALYSIS TO DISCOVER IF THERE ARE ANY OTHER WAYS TO PRODUCE THE OBSERVED SYMPTOMS,
  - DO A REVERSE CALIBRATION STUDY TO DETERMINE IF INSTRUMENTATION MALADJUSTMENT ALONE COULD CAUSE THIS EVENT.
- IN ADDITION THE LICENSEE WILL PROVIDE DETAILS REGARDING ALL THE OBSERVED EQUIPMENT MALFUNCTIONS AND PROVIDE AN EXPLANATION THAT TIES UP ALL THE LOOSE ENDS.
- REGION III SENT AN ELECTRICAL SPECIALIST TO THE SITE.
- NRR/ICSB WILL BE THE FOCAL POINT FOR ONGOING FOLLOWUP.



NINE MILE POINT UNIT 1
CONTAMINATION OF SUB-BASEMENT BY LEAKING DRUMS
(AIT UPDATE)
AUGUST 21, 1989

PROBLEM

RESIN STORAGE DRUMS SPILL RADIOACTIVE MATERIAL DUE TO THEIR BEING LEFT UNCOVERED.

AIT FINDINGS

- SUB-BASEMENT WAS USED FOR OVERFLOW FROM DRAINING OPERATIONS SINCE PLANT WAS LICENSED. (NOT UNCOMMON FOR PLANTS OF THAT VINTAGE DUE TO UNDER DESIGN OF RAD WASTE SYSTEM).
- IN 1981 SIGNIFICANTLY MORE WATER WAS DUMPED INTO THE ROOM, FOUR FEET OF WATER INSTEAD OF ONE FOOT.
- AT THAT TIME THE ROOM HELD DRUMS FULL OF SPENT RESIN. THE DRUMS WERE OPEN WAITING FOR THE RESINS TO DRY OUT.
- THE WATER DISLODGED THE DRUMS SPILLING THE CONTENTS ONTO THE FLOOR.
- AIT DETERMINED THAT THERE IS NO RELEASE PATHWAY FOR LIQUID OR SOLID RAD WASTE. AIRBORNE RELEASE IS MONITORED VIA THE PLANT STACK.
- POSSIBLE ENFORCEMENT ACTION BECAUSE THE LICENSEE DID NOT FILE A 50.59 ANALYSIS AND FSAR UPDATE.

CONTACT: R. KARSCH

REFERENCE: 10 CFR 50.72 #16374

AIT YES

SIGEVENT NO

GENERIC ISSUE
POTENTIAL COMMON MODE FAILURE OF MSIVs
DUE TO ASCO VALVES EXCEEDING QUALIFIED OPERATING LIFE

PROBLEM

ALL SOLENOID VALVES USED AT GRAND GULF TO ACHIEVE MSIV CLOSURE HAD DEGRADED ELASTOMER SEAT MATERIAL.

CAUSE

SOLENOID VALVES APPEAR TO HAVE HAD AN IMPROPERLY CALCULATED QUALIFIED LIFE BECAUSE IMPROPER TEMPERATURES IN THE REGION OF THE ELASTOMER WERE USED.

SAFETY SIGNIFICANCE

POTENTIAL FOR COMMON MODE FAILURE OF MSIVs EXISTS DUE TO OPERATION BEYOND THE ACTUAL LIFE EXPECTANCY OF THE SOLENOID VALVES.

DISCUSSION

- o SOLENOID VALVES WIDELY USED IN MANY SAFETY-RELATED SYSTEMS.
- o COMMON MODE FAILURE MECHANISMS IDENTIFIED FOR ASCO MODEL NP 8323
  - ELASTOMER DEGRADATION
  - STICKING INTERNALS
- o GRAND GULF CALCULATED QUALIFICATION LIFE IN 1985 USING SINGLE COIL HEATUP DATA: LIFE WAS 8.6 - 5.9 YEARS.
- o DUAL COIL HEATUP DATA BECAME AVAILABLE IN 1987
  - SEAT TEMPERATURE ABOUT 100 F ABOVE AMBIENT.
- o RECALCULATED QUALIFICATION LIFE AS 2.9 YRS.; ACTUAL WAS 4.5 YRS.
- o BOTH BWRs AND PWRs HAVE ASCO DUAL COIL SOLENOID VALVES.
- o MANY GENERIC COMMUNICATIONS ISSUED.
  - MOST RECENTLY INFORMATION NOTICES 88-43 AND GE SIL 481.

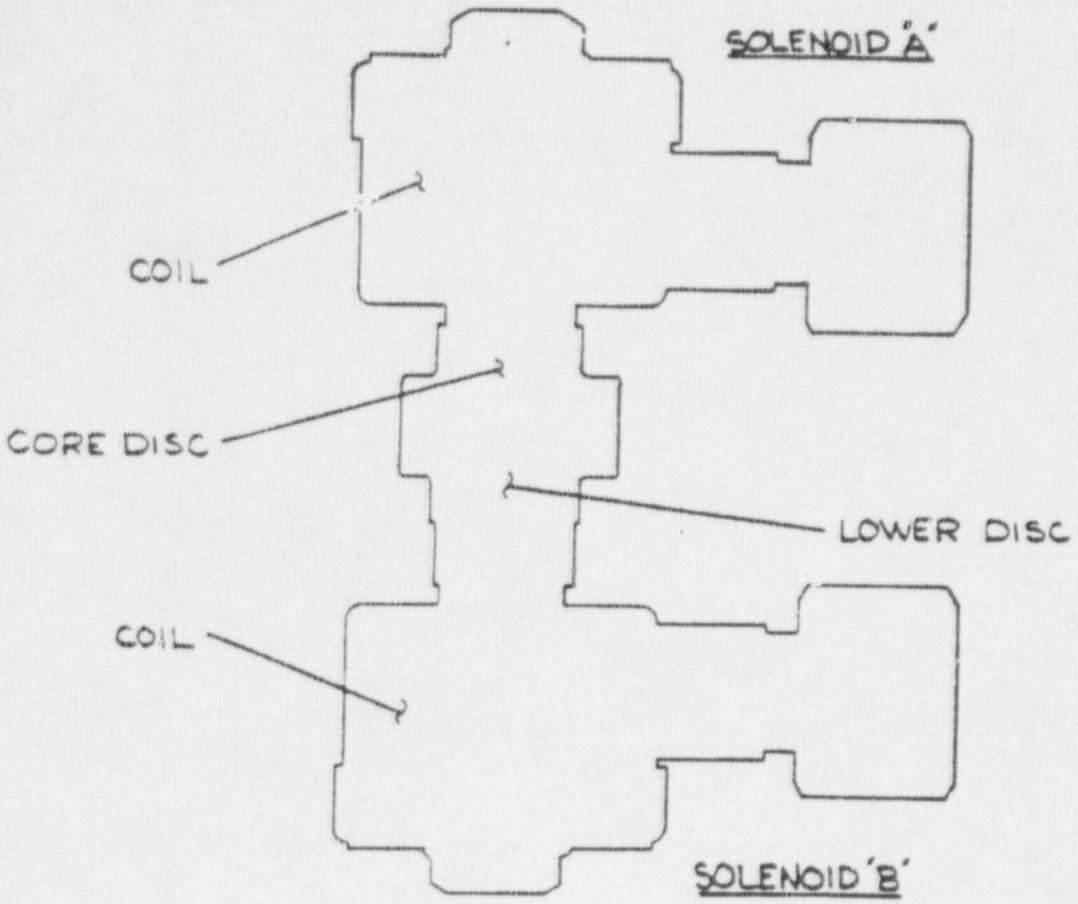
FOLLOWUP

- o ASCO IS PREPARING A SERVICE BULLETIN TO DESCRIBE THE CHANGES IN TEMPERATURE INFORMATION AND WHAT TO DO TO ASSURE A VALID QUALIFICATION LIFE FOR ACTUAL OPERATING CONDITIONS.
- o AN IN IS BEING DRAFTED TO ALERT THE NUCLEAR INDUSTRY.
- o AEOD COMPLETING CASE STUDY ON SOLENOID VALVE FAILURES.

CONTACT: J. CARTER
REFERENCES: 10 CFR 50.72 #16355

FV 236843

CATALOG NUMBER NP 8323 A20E AC/AC



AMBIENT TEMP	COIL - SOL. 'A'	COIL - SOL. 'B'	CORE DISC	LOWER DISC
	MAXIMUM TEMPERATURE			
25°C	126°C	141°C	88°C	77°C
49°C	147°C	160°C	108°C	99°C
66°C	163°C	175°C	121°C	113°C
131°C	219°C	227°C	176°C	170°C

ITEM

MAXIMUM TEMPERATURES OF COIL AND CRITICAL ELASTOMERS WITH VALVE ENERGIZED AND NO FLOW

ER NO.	BY	DATE	APP	DATE

	BY	DATE
DRAWN	BWB	7-7-87
PROJ. APP.		
CHECKED	G.V.	7-7-87
DFT. APP.		
ENG. APP.	JCF	7/7/87
	GRS	7/10/87

MANUFACTURING TOLERANCES TO BE IN ACCORDANCE WITH ASCO PROCEDURE MP 1-003

NONE (SCALE) | 210651 (ASSEM. REF NO)

AE ☐ AN ☐ AL ☐ AM ☐ AJ ☐
CH ☐ AV ☐ AR ☐ AA ☐ PS ☐
AG ☐ ☐ ☐ ☐ ☐

CRT ☐

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FILE

CHANGE LETTER

REACTOR SCRAM SUMMARY
WEEK ENDING 08/27/89

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
08/22/89	BIG ROCK POINT	1	96	A	EQUIPMENT	NO	1	0	1
08/23/89	SOUTH TEXAS	2	100	A	EQUIPMENT	NO	4	1	5
08/24/89	CATAWBA	1	98	M	EQUIPMENT	NO	3	0	3
08/25/89	SUMMER	1	97	M	EQUIPMENT	NO	4	0	4
08/26/89	LASALLE	2	10	A	EQUIPMENT	NO	0	1	1
08/26/89	MCGUIRE	1	100	A	EQUIPMENT	NO	2	0	2
08/26/89	DUANE ARNOLD	1	98	A	EQUIPMENT	NO	5	0	5

PERFORMANCE INDICATORS SIGNIFICANT EVENTS

ENCLOSURE 3

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	QTR	SIGNIFICANCE
ROBINSON 2	08/16/89	INADEQUATE NPSH FOR AUX FEEDWATER PUMPS.	0	POTENTIAL FOR OR ACTUAL DEGRADATION OF SAFETY-RELATED EQUIPMENT

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING 08/27/89

SCRAM CAUSE	POWER	NUMBER OF SCRAMS(5)	1989 WEEKLY AVERAGE YTD	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE (3)(4)	1985 WEEKLY AVERAGE (8)(9)
** POWER >15%							
EQUIP. RELATED	>15%	6	3.0	3.1	3.9	4.3	5.4
PERS. RELATED(6)	>15%	0	1.2	1.0	1.3	1.8	2.0
OTHER(7)	>15%	0	0.1	0.5	1.2	0.4	0.6
** Subtotal **		6	4.3	4.6	6.4	6.5	8.0
** POWER <15%							
EQUIP. RELATED	<15%	1	0.4	0.5	1.2	1.4	1.3
PERS. RELATED	<15%	0	0.3	0.3	0.6	0.8	0.9
OTHER	<15%	0	0.0	0.1	0.3	0.2	0.2
** Subtotal **		1	0.7	0.9	2.1	2.4	2.4
*** Total ***		7	5.0	5.5	8.5	8.9	10.4

MANUAL VS AUTO SCRAMS

TYPE	NUMBER OF SCRAMS	1989 WEEKLY AVERAGE YTD	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE	1985 WEEKLY AVERAGE
MANUAL SCRAMS	2	0.9	1.0	1.4	1.0	1.0
AUTOMATIC SCRAMS	5	4.2	4.5	7.0	7.9	9.4

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.