B&OTF WORK PRODUCTS

- BULLETIN EVALUATION REPORTS - EACH OPERATING PLANT
- SAFETY EVALUATIONS LIFTING ORDERS - B&W PLANTS
- LETTERS ISSUING AFW REQUIREMENTS
- LETTERS APPROVING GUIDELINES FOR SBLOCA EMERGENCY OPERATING PROCEDURES
- REPORT SUMMARIZING B&OTF REVIEW OF BULLETINS, ORDERS AND GENERIC EVALUATION OF SBLOCA AND LOFW (NUREG-0645)
- REPORT ON GENERIC EVALUATION OF DELAYED RCP TRIP DURING SBLOCA IN PWRs (NUREG-0623)
- REPORTS ON GENERIC EVALUATION OF SBLOCA AND LOFW IN OPERATING REACTORS
  - NUREG-0565 (B&W)
  - NUREG-0611 (W)
  - NUREG-0626 (GE)
  - NUREG-0635 (CE)

FIGURE D-1

B&OTF RECOMMENDATIONS FOR B&W-DESIGNED PLANTS

SYSTEMS RELIABILITY

- INSTALL AUTOMATIC BLOCK-VALVE CLOSURE SYSTEM
- OPERATIONAL TEST OF AUTOMATIC BLOCK-VALVE CLOSURE SYSTEM
- EVALUATION OF PORV OPENING PROBABILITY DURING OVERPRESSURE TRANSIENT
- REPORTING FAILURES AND CHALLENGES TO THE PORVs
- EVALUATION OF SAFETY VALVE RELIABILITY
- REPORTING FAILURES AND CHALLENGES TO THE SAFETY VALVES
- REVIEW AND UPGRADE RELIABILITY AND REDUNDANCY OF NON-SAFETY GRADE EQUIPMENT UPON WHICH SBLOCA MITIGATION RELIES
- CONSIDERATION OF DIVERSE DECAY HEAT REMOVAL PATH FOR DAVIS-BESSE 1
- AUTOMATIC TRIP OF RCPs DURING SBLOCA - INSTALLED AND OPERATIONAL
- INSTRUMENTATION TO VERIFY NATURAL CIRCULATION - INSTALLED AND OPERATIONAL

ANALYSES

- ANALYSIS METHODS FOR SBLOCA, INCLUDING EVALUATION OF NODING
- PLANT-SPECIFIC CALCULATION TO SHOW COMPLIANCE WITH 10 CFR 50.46
- EVALUATION OF EFFECTS OF CORE FLOOD TANK INJECTION ON SBLOCAs
- ADDITIONAL STAFF AUDIT CALCULATIONS OF B&W'S SBLOCA ANALYSES
- EXPERIMENTAL VERIFICATION OF TWO-PHASE NATURAL CIRCULATION
- ANALYSIS OF PLANT RESPONSE TO A SBLOCA WHICH IS ISOLATED, CAUSING RCS REPRESSURIZATION AND SUBSEQUENT STUCK-OPEN PORV

- ANALYSIS OF PLANT RESPONSE TO A SBLOCA IN THE PRESSURIZER SPRAY LINE WITH A STUCK-OPEN SPRAY LINE ISOLATION VALVE
- EVALUATION OF EFFECTS OF WATER SLUGS IN PIPING CAUSED BY HPI AND CFT FLOWS
- EVALUATION OF RCP SEAL DAMAGE AND LEAKAGE DURING A SBLOCA
- SUBMIT PREDICTIONS FOR LOFT TEST L3-6 WITH RCPs RUNNING.
- SUBMIT REQUESTED INFORMATION ON THE EFFECTS OF NONCONDENSIBLE GASES: (1) JUSTIFICATION FOR OMISSION OF RADIOLYTIC DECOMPOSITION AS A SOURCE OF NONCONDENSIBLE GASES, AND (2) VERIFICATION OF PREDICTED CONDENSATION HEAT TRANSFER DEGRADATION
- EVALUATION OF MECHANICAL EFFECTS OF SLUG-FLOW ON STEAM GENERATOR TUBES

EMERGENCY PROCEDURES

- THE REQUIREMENTS FOR EMERGENCY PROCEDURES HAVE BEEN IMPLEMENTED IN B&W PLANTS BY COMMISSION ORDERS.

OPERATOR TRAINING

- MINIMUM SIMULATOR TRAINING REQUIREMENTS FOR SBLOCAs

B&OTF RECOMMENDATIONS FOR WESTINGHOUSE-DESIGNED OPERATING PLANTS

SYSTEMS RELIABILITY

- TECHNICAL SPECIFICATION (TS) TIME LIMIT ON AFW SYSTEM TRAIN OUTAGE (GS-1)
- TS ADMINISTRATIVE CONTROL ON MANUAL AFW SYSTEM VALVES-LOCK AND VERIFY POSITION (GS-2)
- AFW SYSTEM FLOW THROTTLING-WATER HAMMER (GS-3)
- AFW SYSTEM FLOW PATH VERIFICATION (GS-6)
- NON-SAFETY GRADE, NON-REDUNDANT AFW SYSTEM AUTOMATIC INITIATION SIGNALS (GS-7)
- AUTOMATIC INITIATION OF AFW SYSTEMS (GS-8)
- PRIMARY AFW SOURCE LOW LEVEL ALARM
- AFW PUMP ENDURANCE TEST
- INDICATION OF AFW FLOW TO THE STEAM GENERATORS
- AFW SYSTEM AVAILABILITY DURING PERIODIC SURVEILLANCE TESTING
- AUTOMATIC INITIATION OF AFW SYSTEMS (GL-1)
- SINGLE VALVES IN THE AFW SYSTEM FLOW PATH (GL-2)

B&OTF RECOMMENDATIONS FOR WESTINGHOUSE - DESIGNED OPERATING PLANTS (CONT'D)

- ELIMINATION OF AFW SYSTEM DEPENDENCY ON AC POWER FOLLOWING A COMPLETE LOSS OF AC POWER (GL-3)
- PREVENTION OF MULTIPLE PUMP DAMAGE DUE TO LOSS OF SUCTION RESULTING FROM NATURAL PHENOMENA (GL-4)
- NON-SAFETY GRADE, NON-REDUNDANT AFW SYSTEM AUTOMATIC INITIATION SIGNALS (GL-5)
- INTERACTION OF SAFETY AND NON-SAFETY SYSTEMS
- INSTRUMENTATION TO VERIFY NATURAL CIRCULATION
- PID CONTROLLER MODIFICATION
- PROPOSED ANTICIPATORY TRIP MODIFICATION
- CCI-SUPPLIED PORV
- INSTALLATION OF AUTO ISOLATION OF PORVs
- TESTING OF AUTO ISOLATION OF PORVs
- WESTINGHOUSE REPORT ON PORV FAILURE REDUCTION
- REPORTING PORV FAILURES AND CHALLENGES
- SAFETY VALVE FAILURE RATE BASED ON OPERATIONAL EXPERIENCE
- REPORTING SAFETY VALVE FAILURES AND CHALLENGES
- REACTOR COOLANT PUMP TRIP
- CONFIRMATION OF ANTICIPATORY TRIP

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B&OTF RECOMMENDATIONS FOR WESTINGHOUSE-DESIGNED OPERATING PLANTS (CONT'D)

ANALYSIS

- SMALL BREAK LOCA ANALYSIS METHODS - APPENDIX K
- PLANT-SPECIFIC APPENDIX K CALCULATIONS
- TWO-PHASE NATURAL CIRCULATION EXPERIMENTS
- EVALUATE ELIMINATION OF PORV FUNCTION
- MODIFICATIONS TO RELAP4 HEATUP CALCULATION
- EFFECTS OF ACCUMULATOR INJECTION ON RELAP4 CALCULATIONS
- MODIFICATION OF RELAP4 TO REPRESENT STEAM GENERATOR REALISTICALLY

EMERGENCY PROCEDURES

- EMERGENCY PROCEDURES FOR INITIATING BACKUP WATER SUPPLIES (GS-4)
- EMERGENCY PROCEDURES FOR INITIATING AFW FLOW FOLLOWING LOSS OF ALL AC POWER (GS-5)
- REVIEW OF PROCEDURES (NRC)
- REVIEW OF PROCEDURES (NSSS VENDORS)
- SYMPTOM-BASED EMERGENCY PROCEDURES

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B&OTF RECOMMENDATIONS FOR WESTINGHOUSE-DESIGNED OPERATING PLANTS (CONT'D)

OPERATOR TRAINING

- SIMULATOR TRAINING PROGRAM
- SIMULATION OF SMALL BREAK LOCA
- MONITORING CONTROL BOARD

B&OTF RECOMMENDATIONS FOR CE-DESIGNED OPERATING PLANTS

SYSTEMS RELIABILITY

- TECHNICAL SPECIFICATION (TS) TIME LIMIT ON AFW SYSTEM TRAIN OUTAGE (GS-1)
- TS ADMINISTRATIVE CONTROL ON MANUAL VALVES - LOCK AND VERIFY POSITION (GS-2)
- AFW SYSTEM FLOW THROTTLING - WATER HAMMER (GS-3)
- AFW SYSTEM FLOW PATH VERIFICATION (GS-6)
- AUTOMATIC INITIATION OF AFW SYSTEM (GS-8)
- PRIMARY AFW SOURCE LOW LEVEL ALARM
- AFW PUMP ENDURANCE TEST
- INDICATION OF AFW FLOW TO THE STEAM GENERATORS
- AFW SYSTEM AVAILABILITY DURING PERIODIC SURVEILLANCE TESTING
- AUTOMATIC INITIATION OF AFW SYSTEM (GL-1)
- SINGLE VALVES IN AFW SYSTEM FLOW PATH (GL-2)
- ELIMINATION OF AC POWER DEPENDENCY (GL-3)
- PREVENTION OF MULTIPLE PUMP DAMAGE DUE TO LOSS OF SUCTION RESULTING FROM NATURAL PHENOMENA (GL-4)
- REVIEW OF RELIABILITY & REDUNDANCY OF EQUIPMENT

B&OTF RECOMMENDATIONS FOR CE-DESIGNED OPERATING PLANTS (CONT'D)

- INSTRUMENTATION TO VERIFY NATURAL CIRCULATION
- INSTALLATION OF AUTOMATIC ISOLATION OF PORVs
- TESTING AUTOMATIC ISOLATION OF PORVs
- CE REPORT ON PORV FAILURE REDUCTIONS
- REPORTING FUTURE FAILURES AND CHALLENGES OF PORV AND SV
- AUTOMATIC TRIP OF RCPs

ANALYSIS

- ANALYSIS METHODS-APPENDIX K
- PLANT-SPECIFIC APPENDIX K CALCULATIONS
- TWO-PHASE NATURAL CIRCULATION EXPERIMENTS
- EVALUATE THE ELIMINATION OF PORV FUNCTION
- MODIFICATION TO RELAP AND CEFLASH-4AS DUE TO UNCERTAINTIES IN HEATUP CALCULATIONS
- EFFECTS OF ACCUMULATOR INJECTION ON RELAP4 CALCULATIONS
- MODIFICATION OF RELAP4 TO REPRESENT SG BEHAVIOR REALISTICALLY

B&OTF RECOMMENDATIONS FOR CE-DESIGNED OPERATING PLANTS (CONT'D)

EMERGENCY PROCEDURES

- EMERGENCY PROCEDURES FOR INITIATING BACKUP WATER SUPPLIES (GS-4)
- EMERGENCY PROCEDURES FOR INITIATING AFW FLOW FOLLOWING LOSS OF ALL AC POWER (GS-5)
- REVIEW OF PROCEDURES (NRC)
- REVIEW OF PROCEDURES (NSSS VENDORS)
- SYMPTOM-BASED EMERGENCY PROCEDURES

OPERATOR TRAINING

- EXPANDED USE OF SIMULATORS IN OPERATOR TRAINING
- SIMULATOR TRAINING PROGRAM
- SIMULATION OF SMALL-BREAK LOCAs

B&OTF RECOMMENDATIONS FOR OPERATING AND NEAR-TERM OL BWR PLANTS

SYSTEMS RELIABILITY

- SEPARATION OF HPCI AND RCIC SYSTEM INITIATION LEVELS (A.1)
- ISOLATION OF ISOLATION CONDENSERS ON HIGH RADIATION (A.2)
- SPURIOUS ISOLATION OF HPCI AND RCIC SYSTEMS (A.3)
- REDUCTION OF CHALLENGES AND FAILURES OF RELIEF VALVES (A.4)
- REPORT ON OUTAGE OF ECC SYSTEMS (A.6)
- MODIFICATION OF ADS LOGIC (A.7)
- INTERLOCK ON RECIRCULATION PUMP LOOPS (A.8)
- LOSS OF SERVICE WATER FOR BIG ROCK POINT (A.9)
- RESTART OF CORE SPRAY AND LPCI SYSTEMS ON LOW LEVEL (A.10)
- AUTOMATIC SWITCHOVER OF RCIC SYSTEM SUCTION (B.1)
- CENTRAL WATER LEVEL RECORDING (B.2)
- SPACE COOLING FOR HPCI AND RCIC SYSTEMS (B.3)

B&OTF RECOMMENDATIONS FOR OPERATING AND NEAR-TERM OL BWR PLANTS (CONT'D.)

- EFFECT OF LOSS OF ALTERNATING CURRENT POWER ON PUMP SEALS (B.4)
- USE OF RHR FOR FUEL POOL COOLING (B.5)
- COMMON REFERENCE FOR LEVEL INSTRUMENTS (B.6)
- QUALIFICATION OF ACCUMULATORS ON ADS VALVES (B.7)
- DIVERSE INITIATION SIGNAL FOR RCIC SYSTEM (B.10)
- PERFORMANCE OF ISOLATION CONDENSERS WITH NONCONDENSIBLES (B.13)
- REPORTING OF FAILURES AND CHALLENGES TO SRVs (B.14)

ANALYSES

- REVISE SMALL-BREAK LOCA MODEL FOR COMPLIANCE WITH APPENDIX K (A.12)
- PLANT-SPECIFIC ANALYSES WITH REVISED MODEL (A.13)
- NO FUEL FAILURE REQUIREMENT FOR ANTICIPATED TRANSIENTS WITH SINGLE FAILURE (A.14)
- DEPRESSURIZATION WITH OTHER THAN ADS (A.15)
- MICHELSON CONCERNS (A.17)

B&OTF RECOMMENDATIONS FOR OPERATING AND NEAR-TERM OL BWR PLANTS (CONT'D.)

- TEST PROGRAM FOR SMALL-BREAK LOCA MODEL VERIFICATION (B.9)
- USE OF NON-ECC SYSTEMS IN ANALYSES (B.12)
- IMPACT OF B&OTF RECOMMENDATIONS (B.15)

EMERGENCY PROCEDURES

- IDENTIFY WATER SOURCES PRIOR TO MANUAL ACTIVATION ADS (A.5)
- REVISED EMERGENCY PROCEDURES (A.11)
- TWO OPERATORS IN CONTROL ROOM (A.16)
- GUIDELINES FOR SYMPTOM-BASED EMERGENCY PROCEDURES (B.8)

OPERATOR TRAINING

- SMALL-BREAK LOCA ON SIMULATOR (B.11)

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HARDWARE-TYPE RECOMMENDATIONS

THE HARDWARE-TYPE RECOMMENDATIONS INCLUDE:

(A) PLACING THE PORV'S AND BLOCK VALVES ON EMERGENCY POWER – (THIS RECOMMENDATION IS SIMILAR TO RECOMMENDATION NO. 2.1.1 OF NUREG-0578);

(B) DIRECT POSITION INDICATION OF PORV'S – (THIS RECOMMENDATION IS SIMILAR TO RECOMMENDATION NO. 2.1.3.a OF NUREG-0578);

(C) AUTOMATICALLY ISOLATING THE PORV'S ON LOW REACTOR SYSTEM PRESSURE AND

(D) DERIVATIVE "FIX" – (THIS RECOMMENDATION IS APPLICABLE TO W-DESIGNED PLANTS ONLY. IN BRIEF, IT INVOLVES RAISING THE TRIP PRESSURE SETPOINT ON THE PID CONTROLLER WHICH IS USED ON MOST W-DESIGNED PLANTS. SINCE THIS RECOMMENDATION TENDS TO BE PLANT-SPECIFIC, AND SINCE IT HAS BEEN IMPLEMENTED IN THE AFFECTED PLANTS PER A SIMILAR RECOMMENDATION MADE BY WESTINGHOUSE, ITS EFFECTIVENESS WAS NOT ASSESSED.)

PLUS

(E) CHANGING PORV SETPOINT – THE PORV SETPOINT WAS RAISED ON THE B&W PLANTS ONLY.

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SOFTWARE-TYPE RECOMMENDATIONS

THE SOFTWARE-TYPE RECOMMENDATIONS INCLUDE:

(A) QUALIFICATIONS – (THIS RECOMMENDATION IS SIMILAR TO RECOMMENDATION NO. 9 IN NUREG-0585, I.E., EVALUATING INTERACTIONS OF NON-SAFETY AND SAFETY SYSTEMS AND PROPER QUALIFICATION OF SAFETY SYSTEMS);

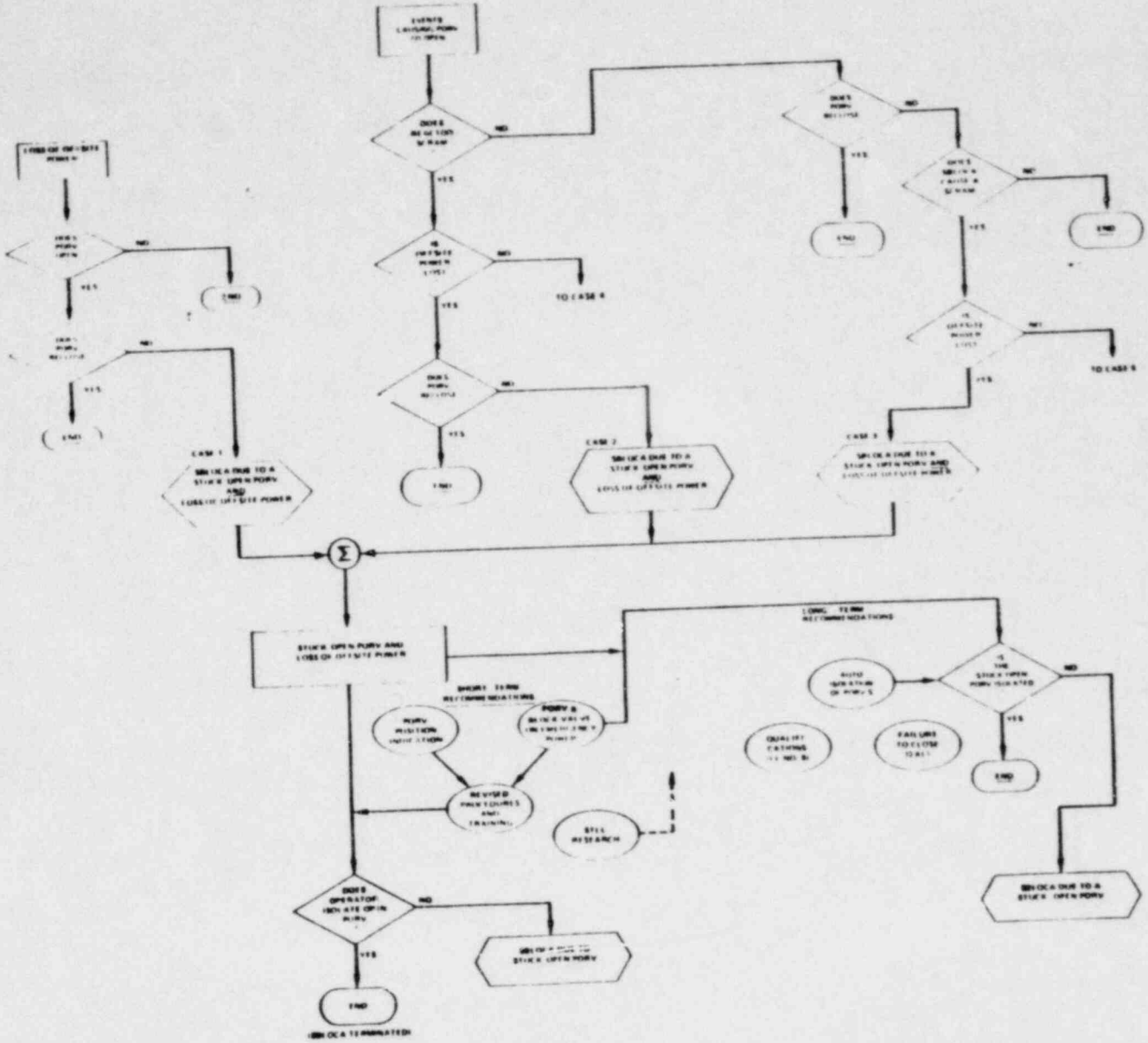
(B) OPERATIONAL PROCEDURES AND TRAINING – (THIS RECOMMENDATION PERTAINS TO NEW GUIDELINES AND PROCEDURES TO MORE READILY IDENTIFY SMALL-BREAK LOCA'S AND TRAINING INVOLVING THE USE OF SEVERAL PARAMETERS, THE SATURATION METER AND DIRECT POSITION INDICATOR ON PORV'S IN DIAGNOSING SMALL-BREAK LOCA's);

(C) McGUIRE CONCERN – (THIS MATTER INVOLVES THE FAILURE OF A PORV SUPPLIED BY CCI ON A SPECIFIC PLANT DURING TESTING. BECAUSE OF THE SPECIFICITY OF THIS MATTER, THE EFFECTS OF THE "FIX" WERE NOT ASSESSED);

(D) FAILURE TO CLOSE "EAL" – (THIS RECOMMENDATION INVOLVES THE PROMPT REPORTING OF PORV FAILURES IN CONFORMANCE WITH THE EMERGENCY ACTION LEVELS STATED IN NUREG-0610); AND

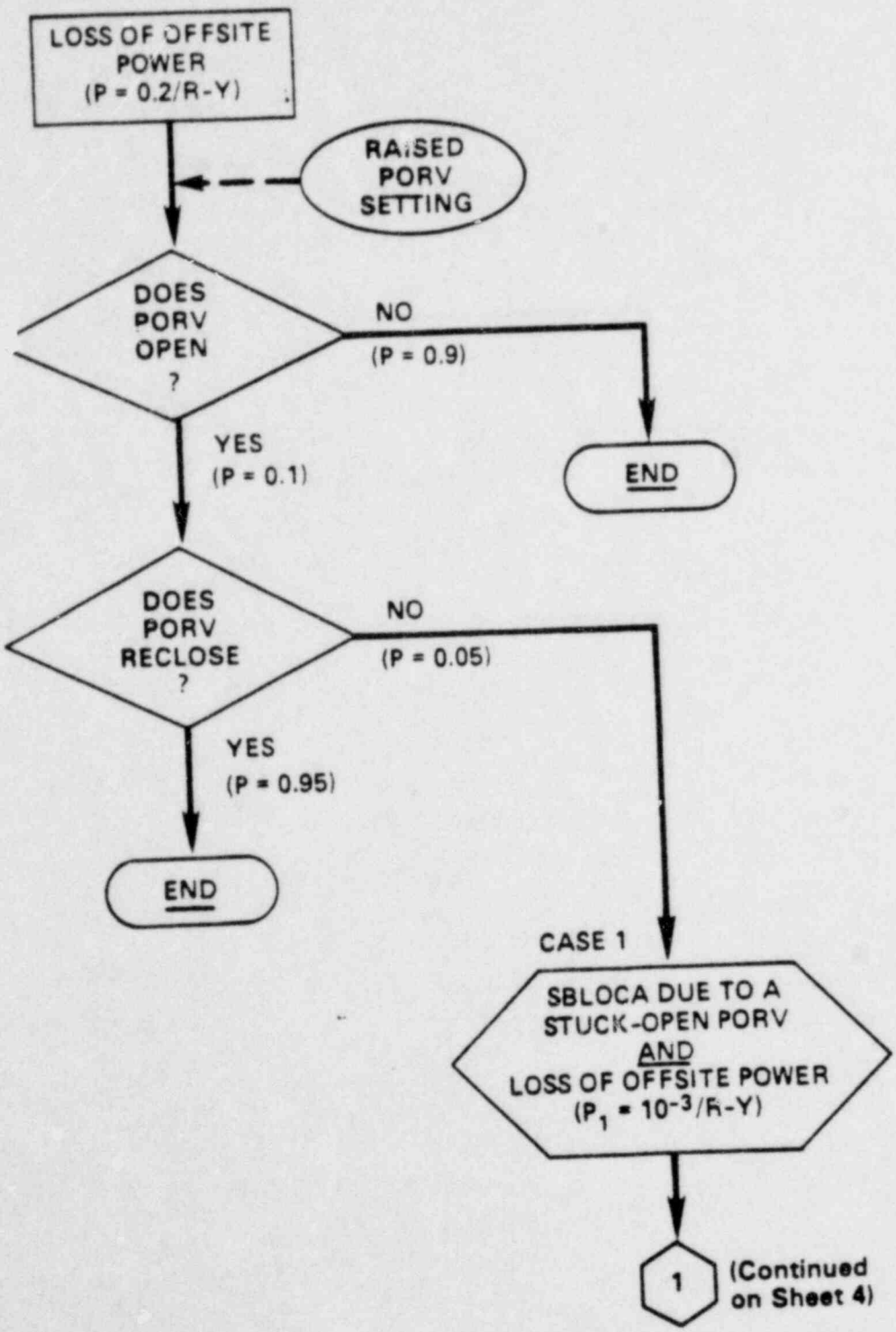
(E) SHORT-TERM LESSONS LEARNED (STLL) RESEARCH – (THIS RECOMMENDATION INVOLVES THE TESTING OF RELIEF AND SAFETY VALVES IN CONFORMANCE WITH RECOMMENDATION NUMBER 2.1.1 OF NUREG-0578, INCLUDING THE TESTING OF VALVES UNDER THEIR EXPECTED DYNAMIC OPERATING CONDITIONS SUCH AS TWO-PHASE FLUID SLUG FLOW).

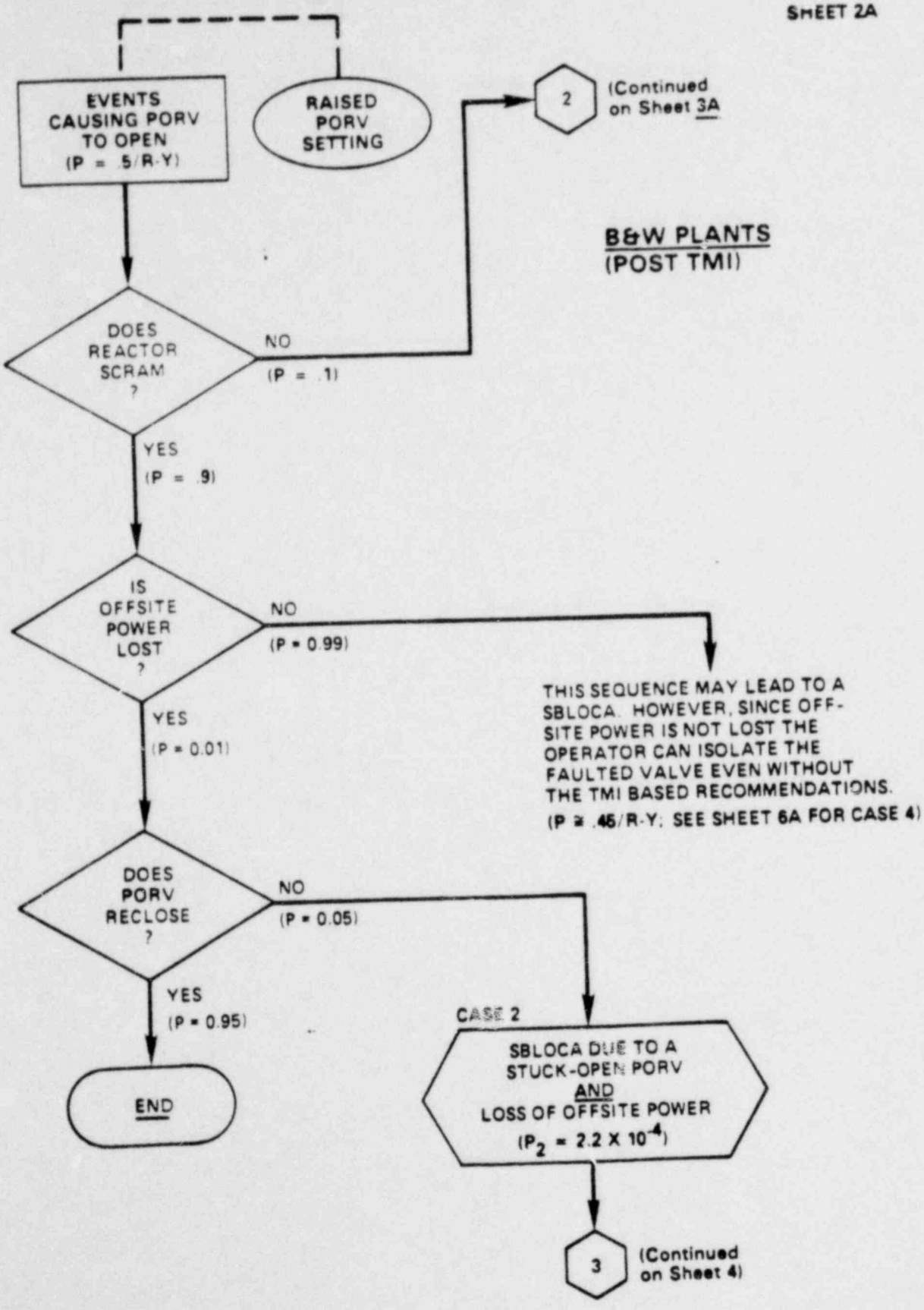
ASSESSMENT OF CITED RECOMMENDATION IN REDUCING THE LIKELIHOOD OF SMALL-BREAK LOCA'S DUE TO STUCK-OPEN PORV'S

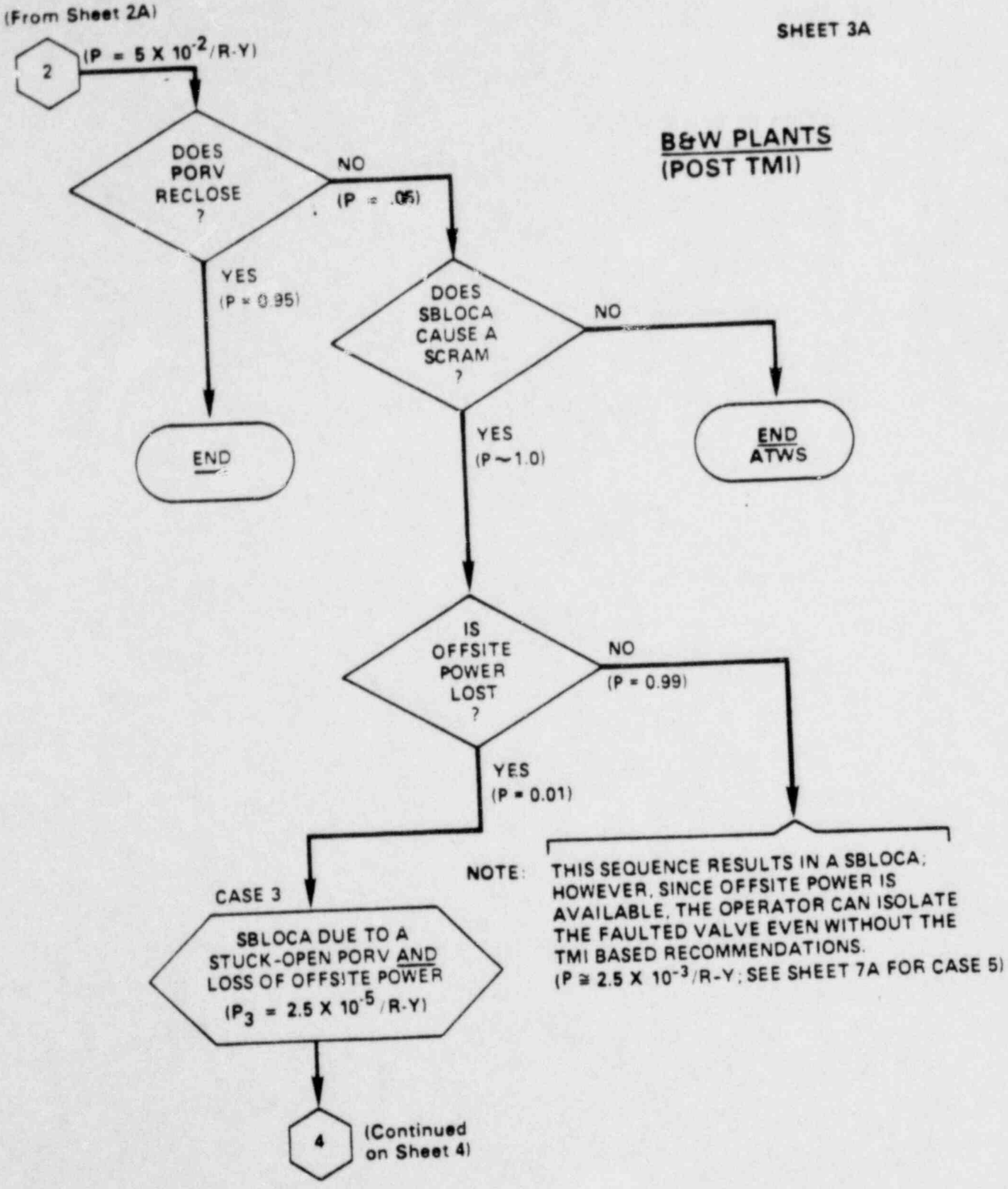


91-0

(POST TMI)
INITIATING EVENTS LEADING TO STUCK-OPEN PORVS IN B&W PLANTS



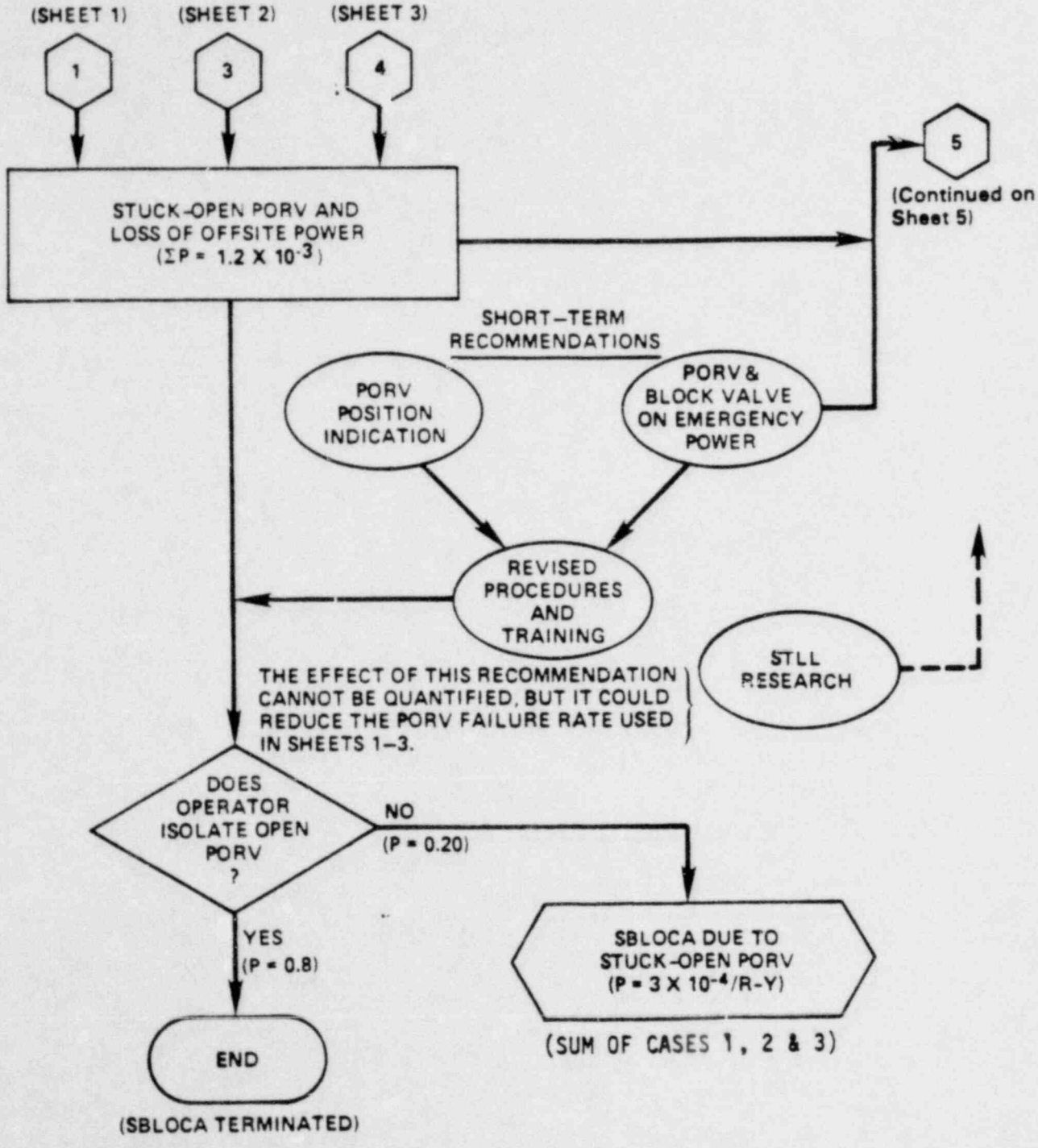

EVENTS CAUSING PORV TO OPEN (P = .5/R-Y)
RAISED PORV SETTING
2
(Continued on Sheet 3A
B&W PLANTS (POST TMI)
DOES REACTOR SCRAM ?
NO (P = .1)
YES (P = .9)
IS OFFSITE POWER LOST ?
NO (P = 0.99)
THIS SEQUENCE MAY LEAD TO A SBLOCA. HOWEVER, SINCE OFF-SITE POWER IS NOT LOST THE OPERATOR CAN ISOLATE THE FAULTED VALVE EVEN WITHOUT THE TMI BASED RECOMMENDATIONS.
(P ≅ .45/R-Y; SEE SHEET 6A FOR CASE 4)
YES (P = 0.01)
DOES PORV RECLOSE ?
NO (P = 0.05)
YES (P = 0.95)
END
CASE 2
SBLOCA DUE TO A STUCK-OPEN PORV AND LOSS OF OFFSITE POWER
($P_2 = 2.2 \times 10^{-4}$)
3
(Continued on Sheet 4)


(From Sheet 2A)
2
(P = 5 X 10^-2/R-Y)
B&W PLANTS
(POST TMI)
DOES PORV RECLOSE ?
NO
(P = .05)
YES
(P = 0.95)
DOES SBLOCA CAUSE A SCRAM ?
NO
YES
(P ~ 1.0)
END
END ATWS
IS OFFSITE POWER LOST ?
NO
(P = 0.99)
YES
(P = 0.01)
NOTE: THIS SEQUENCE RESULTS IN A SBLOCA; HOWEVER, SINCE OFFSITE POWER IS AVAILABLE, THE OPERATOR CAN ISOLATE THE FAULTED VALVE EVEN WITHOUT THE TMI BASED RECOMMENDATIONS.
(P ≅ 2.5 X 10^-3/R-Y; SEE SHEET 7A FOR CASE 5)
CASE 3
SBLOCA DUE TO A STUCK-OPEN PORV AND LOSS OF OFFSITE POWER
(P3 = 2.5 X 10^-5/R-Y)
4
(Continued on Sheet 4)

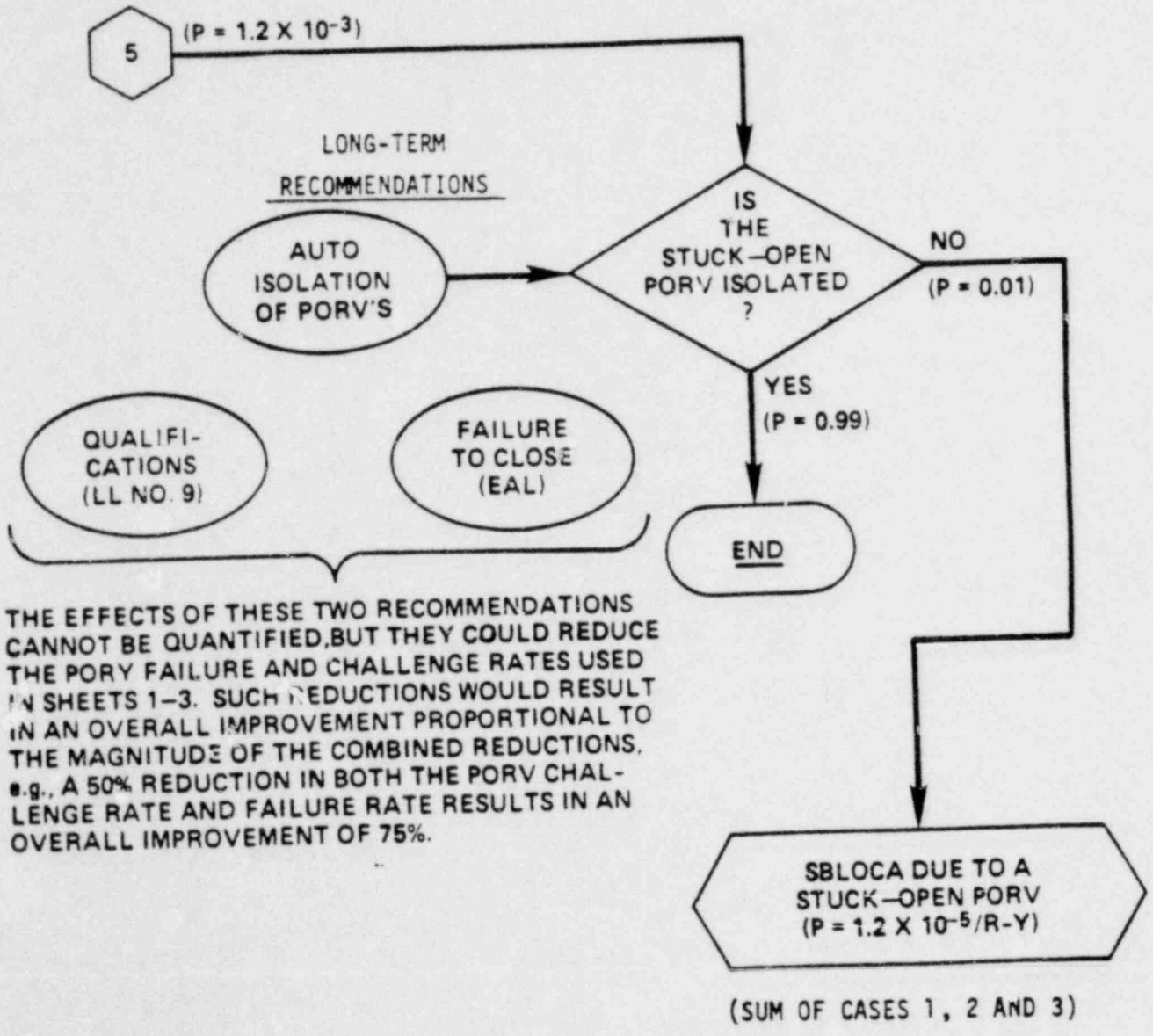
(POST TMI)

SHEET 4

ASSESSMENT OF REDUCTION OF SBLOCA'S DUE TO STUCK-OPEN PORV'S IN B&W PLANTS



(POST-TMI)
ASSESSMENT OF REDUCTION OF SBLOCA'S DUE TO STUCK-OPEN PORV S IN B&W PLANTS



THE EFFECTS OF THESE TWO RECOMMENDATIONS CANNOT BE QUANTIFIED,BUT THEY COULD REDUCE THE PORY FAILURE AND CHALLENGE RATES USED IN SHEETS 1–3. SUCH REDUCTIONS WOULD RESULT IN AN OVERALL IMPROVEMENT PROPORTIONAL TO THE MAGNITUDE OF THE COMBINED REDUCTIONS, e.g., A 50% REDUCTION IN BOTH THE PORV CHALLENGE RATE AND FAILURE RATE RESULTS IN AN OVERALL IMPROVEMENT OF 75%.

(SUM OF CASES 1, 2 AND 3)

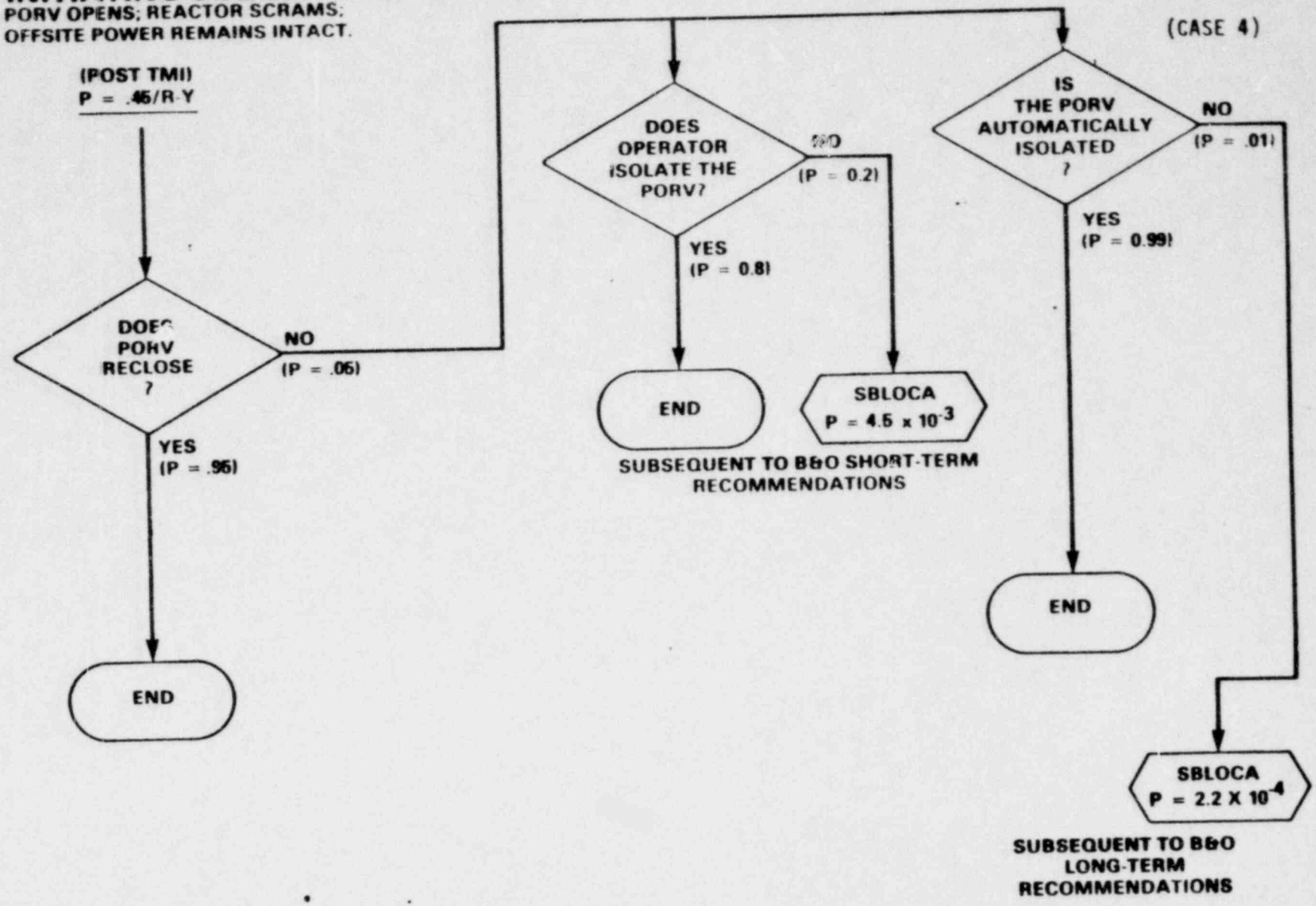
B&W PLANTS (POST TMI)

INITIATING SEQUENCE: (FROM SHEET 2A)

SHEET 6A

PORV OPENS; REACTOR SCRAMS;
OFFSITE POWER REMAINS INTACT.

(CASE 4)



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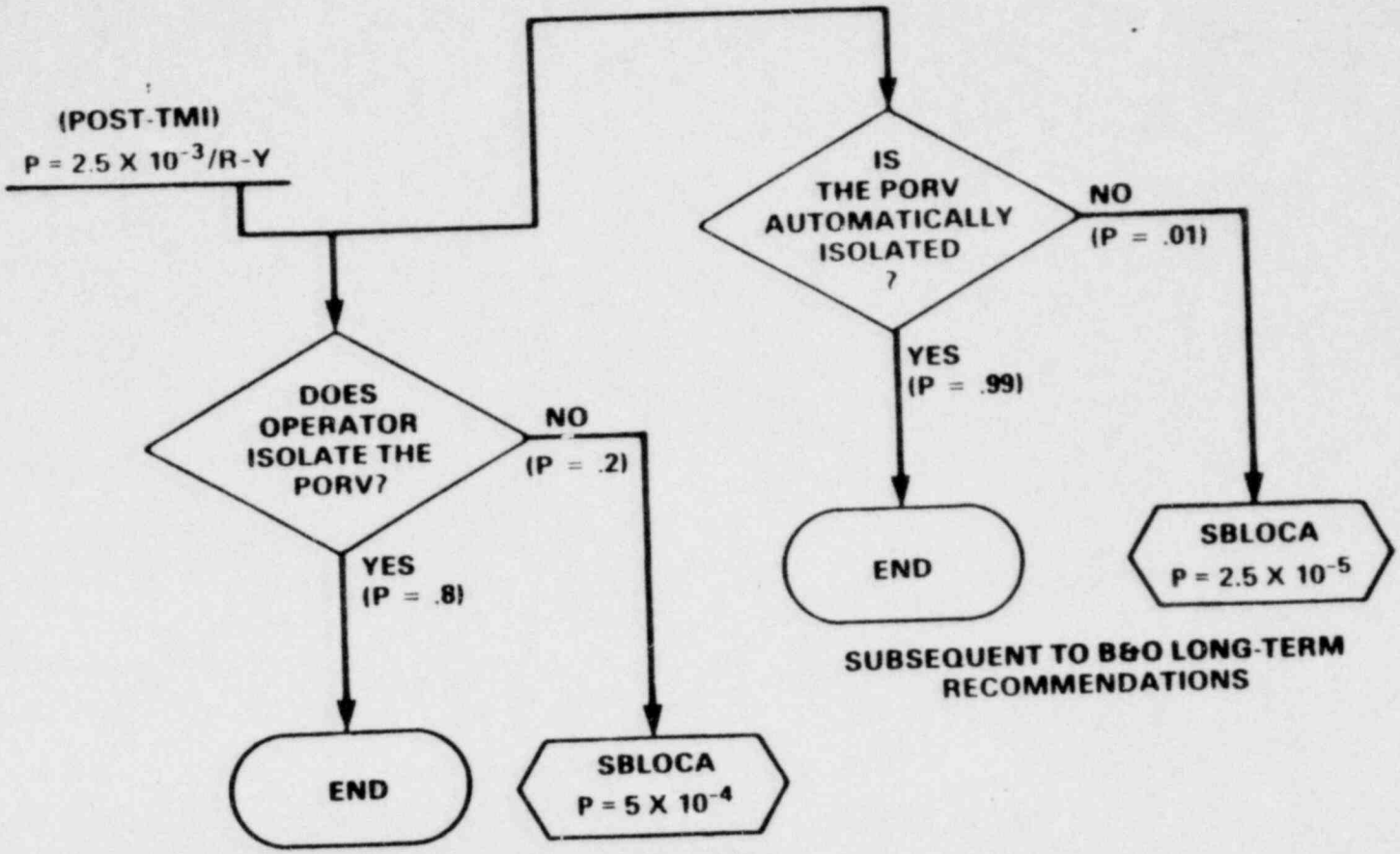
B&W PLANTS (POST TMI)

INITIATING SBLOCA SEQUENCE: (FROM SHEET 3A)

SHEET 7A

(CASE 5)

PORV OPENS; REACTOR DOES NOT SCRAM; PORV DOES NOT RECLOSE; REACTOR SCRAMS ON SBLOCA; OFFSITE POWER REMAINS INTACT.



ESTIMATED EFFECTIVENESS OF THE B&O RECOMMENDATIONS IN REDUCING THE LIKELIHOOD OF SMALL-BREAK LOCA'S IN OPERATING PLANTS DUE TO STUCK-OPEN PORV'S

A. LIKELIHOOD OF SUCH EVENTS PER REACTOR-YEAR IN B&W PLANTS:

CASE	PRIOR TO TMI	AFTER SHORT-TERM RECOMMENDATIONS	AFTER LONG-TERM RECOMMENDATIONS
1	5×10^{-3}	2×10^{-4}	10^{-5}
2	2×10^{-3}	4.4×10^{-5}	2.2×10^{-6}
3	5×10^{-4}	5×10^{-6}	2.5×10^{-7}
4	10^{-1}	4.5×10^{-3}	2.2×10^{-4}
5	2.5×10^{-2}	5×10^{-4}	2.5×10^{-5}
TOTAL	$\sim 10^{-1}$	$\sim 5 \times 10^{-3}$	$\sim 2 \times 10^{-4}$

B. LIKELIHOOD OF SUCH EVENTS PER REACTOR-YEAR IN C-E AND W PLANTS:

CASE	PRIOR TO TMI	AFTER SHORT-TERM RECOMMENDATIONS	AFTER LONG-TERM RECOMMENDATIONS
1	10^{-3}	2×10^{-4}	10^{-5}
2	6×10^{-5}	1.2×10^{-5}	6×10^{-7}
3	4×10^{-5}	8×10^{-6}	4×10^{-7}
4	2.5×10^{-3}	10^{-3}	5×10^{-5}
5	2×10^{-3}	8×10^{-4}	4×10^{-5}
TOTAL	$\sim 6 \times 10^{-3}$	$\sim 2 \times 10^{-3}$	$\sim 10^{-4}$

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CR3 KEY PARAMETERS AVAILABILITY

Parameter	Instrument Number	Control Board	Computer
RCS Flow Loop "A"	RC-14A-FT	NO	NO
RCS Flow Loop "B"	RC-14B-FT	NO	NO
T HOT Loop "A"	RC-4A-TT1	NO	NO
T HOT Loop "A"	RC-4A-TT4	NO*	NO
T HOT Loop "B"	RC-4B-TT1	NO	NO
T HOT Loop "B"	RC-4B-TT4	NO*	NO*
Pressurizer Level	RC1-LT1	NO	NO

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PARAMETER (CONTINUED)	INSTRUMENT NUMBER	CONTROL BOARD	COMPUTER
PRESSURIZER LEVEL	RC1-LT2	NO	NO
PRESSURIZER LEVEL	RC1-LT3	NO	YES
T COLD LOOP "A"	RC-5A-TT1	NO	NO
T COLD LOOP "A"	RC-5A-TT3	NO*	YES
T COLD LOOP "B"	RC-5B-TT1	No	NO
T COLD LOOP "B"	RC-5B-TT3	NO*	YES

*AVAILABILITY IF SELECTED

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CR3 KEY PARAMETER AVAILABILITY

PARAMETER	INSTRUMENT NUMBER	CONTROL BOARD	COMPUTER
ENGINEERED SAFEGUARDS WIDE RANGE RCS PRESSURE	RC-3A-PT3	YES	NO
ENGINEERED SAFEGUARDS WIDE RANGE RCS PRESSURE	RC-3B-PT3	YES	NO
TC WIDE RANGE LOOP A	RC-5A-TT4	YES	NO
TC WIDE RANGE LOOP B	RC-5B-TT4	YES	YES
OTSG "B" OPERATING LEVEL	SP-1B-LT3	YES	NO
OTSG "B" STARTUP LEVEL	SP-1B-LT4	NO	YES

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Parameter (Continued)	Instrument Number	Control Board	Computer
OTSG "A" Full Range Level	SP-1A-LT1	YES	NO
OTSG "B" Full Range Level	SP-1B-LT1	YES	NO
OTSG "A" Pressure	SP-6A-PT2	NO	YES
OTSG "B" Pressure	SP-6B-PT1	YES	YES
High Pressure Injection Flow	MU-23-DPT3	YES	NO
High Pressure Injection Flow	MU-23-DPT4	YES	NO

B2-0

PARAMETER (CONTINUED)	INSTRUMENT NUMBER	CONTROL BOARD	COMPUTER
LOW PRESSURE INJECTION FLOW	DH-1-DPT2	YES	NO
CORE FLOOD TANK "B" LEVEL	CF-2-LT2	YES	YES

STATUS ON UNREVIEWED SAFETY QUESTIONS ASSOCIATED WITH AUTO INITIATION OF AFW SYSTEMS

PLANT	VENDOR	OWNER RESPONSE DATE	SUBSTANCE OF RESPONSE	LICENSEE CONCLUDES FROM ANALYSES THAT RETURN TO POWER AND CONTAINMENT PRESSURE ACCEPTABLE	AUTO INITIATION STATUS (3)
MILLSTONE 2	CE	01/25/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
CALVERT CLIFFS	CE	01/25/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
HADDAM NECK	W	01/30/80	PROVIDED ANALYSIS(1)	YES	DESIGN SUBMITTED
PALISADES	CE	01/21/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
MAINE YANKEE	CE	01/09/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
ST. LUCIE 1	CE	01/24/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
FT. CALHOUN	CE	01/10/80	PROVIDED ANALYSIS(1)	YES(2)	DESIGN SUBMITTED
SAN ONOFRE	W	01/16/80	DOES NOT PLAN TO SUBMIT ANALYSIS UNTIL OCT. 1980	N/A	PARTIAL CONTROL GRADE DESIGN SUBMITTED

O-30

(1) ANALYSES UNDER REVIEW BY CSB & RSB. PLAN COMPLETION IN APRIL 1980

(2) 2-5 MINUTE TIME DELAY OF AFW INITIATION ASSUMED IN MSLB ANALYSIS

(3) WILL NOT IMPLEMENT UNTIL STAFF APPROVES MSLB ANALYSIS

EXPERIENCE WITH PUMP TRIP DURING NON-LOCA DEPRESSURIZING TRANSIENTS

NON-LOCA TRANSIENTS WHICH PRODUCED PRIMARY SYSTEM DEPRESSURIZATION TO SI ACTUATION SETPOINT AND REQUIRED RCP TRIP

DATE	PLANT	TYPE	EVENT
9/26/79	NORTH ANNA UNIT NO. 1	WESTINGHOUSE 3-LOOP	FW HEATER MALFUNCTION TURBINE TRIP-REACTOR TRIP/CONDENSER DUMP VALVE STUCK OPEN
10/2/79	PRAIRIE ISLAND UNIT NO. 1	WESTINGHOUSE 2-LOOP	STEAM GENERATOR TUBE BREAK
1/29/80	ANO-2	COMBUSTION ENGINEERING	TURBINE TRIP-REACTOR TRIP/STEAM DUMP VALVE STUCK OPEN
2/26/80	CRYSTAL RIVER	B&W 177FA LOWERED LOOP	REACTOR TRIP/ICS FAILURE/SG OVERFEED