Final Submittal
(Blue Paper)

WATTS BAR JULY 2004 EXAM
50-390/2004-301
JULY 23, & JULY 26-30, 2004

1. Final RO/SRO Written Examination References

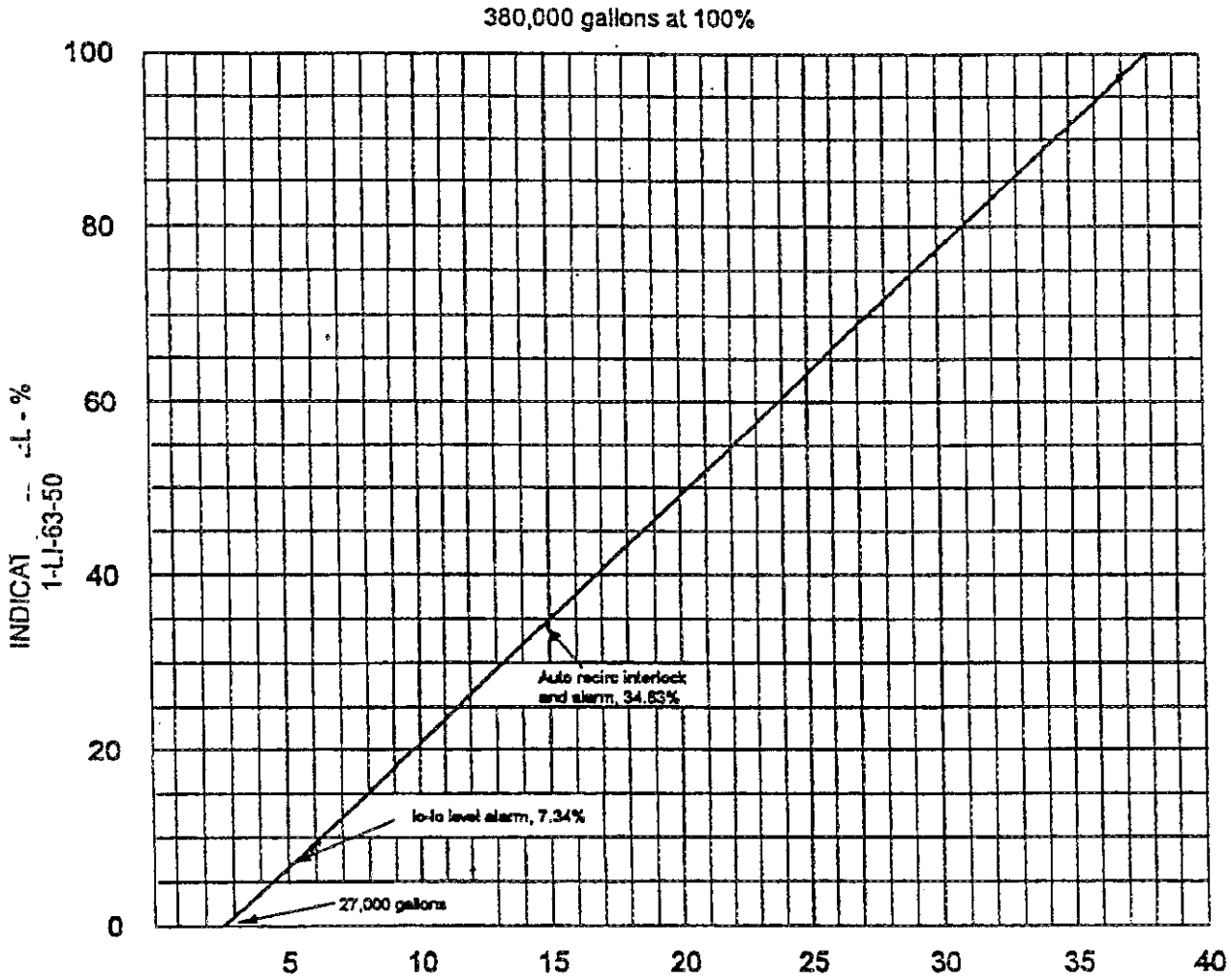
WATTS BAR NUCLEAR PLANT

NRC Site-Specific Written Examination SRO
7/23/2004

REFERENCES

APPENDIX 29
Page 1 of 1

REFUELING WATER STORAGE TANK



NOTE: Auto recirc lo interlock alarms at 1-XA-55-6C-126C. Lo-Lo level alarms at 1-XA-55-6C-126D.
Lo level makeup alarms at 1-XA-55-6C-127D at approximately 97% or 372000 gallons.
Hi level shutoff alarms at 1-XA-55-6C-127C at approximately 98% or 375000 gallons.

C:\FLW\RWST.PRE
TVA Drawing 47W309-3

APPENDIX C

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ACTION REQUIRED FOR SG TUBE LEAK

The following shall be used to determine recommended action for different leak rates or rates-of-change. The actions are based on EPRI guidelines considering the probability of a tube rupture occurring in a SG following a rise in leak rate:

NOTE 1 Leakage is confirmed when two independent radiation monitors trend in the same direction. Precise duplication of leak rates, as indicated by the monitors, is not important. Confirmation time should be kept to a minimum.

NOTE 2 Leakage rate-of-change is determined at least once per 30 minutes using the difference in leak rate divided by the change in time.

NOTE 3 Action Level 3 applies to leakage spikes exceeding 150 gpd that are confirmed as being real. The rate-of-change limit applies to progressively rising leak rates and not to leak rate spikes followed by leak rate drops.

OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 3: Leak rate is greater than or equal to 75 gpd in any one SG **AND** leakage rate-of-change has risen by greater than or equal to 30 gpd/hr. **OR** Leak rate is greater than or equal to 150 gpd in any one SG,	If confirmed leakage is greater than 75 gpd and the leakage rate-of-change has risen greater than 30 gpd/hr, commence prompt and controlled plant shutdown to $\leq$ 50% power within one hour and be within Mode 3 within the next 2 hours (3 hours total). If leakage exceeds 150 gpd in any one SG, initiate shutdown to be in MODE 3 within 6 hours. Monitor radiation monitor readings every 15 minutes. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication. Initiate Attachment 2, Minimize Secondary System Contamination. Evaluate Appendix D, Contingency Plans.

APPENDIX C
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ACTION REQUIRED FOR SG TUBE LEAK

The following shall be used to determine recommended action for different leak rates or rates-of-change. The actions are based on EPRI guidelines considering the probability of a tube rupture occurring in a SG following a rise in leak rate:

NOTE 1 Leakage is confirmed when two independent radiation monitors trend in the same direction. Precise duplication of leak rates, as indicated by the monitors, is not important. Confirmation time should be kept to a minimum. The 24 hours time limit to be in Mode 3, starts at the time the 75 gpd limit was exceeded using the initial radiation monitor indication.

NOTE 2 Leakage rate-of-change is determined at least once per 30 minutes using the difference in leak rate divided by the change in time.

OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 2: Leak rate is greater than or equal to 75 gpd in any one SG (sustained for greater than or equal to 1 hour), **AND** Leakage rate-of-change has risen by less than 30 gpd/hr.	If leakage is $\geq$ 75 gpd in any one SG (sustained for greater than or equal to 1 hour) and the leakage rate-of-change has risen by less than 30 gpd/hr, initiate shutdown to be in MODE 3 within 24 hours. Monitor radiation monitor readings every 15 minutes. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Go to Action Level 3 if leakage rate-of-change exceeds 30 gpd/hr. Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication. Initiate Attachment 2, Minimize Secondary System Contamination. Evaluate Appendix D, Contingency Plans.

APPENDIX C

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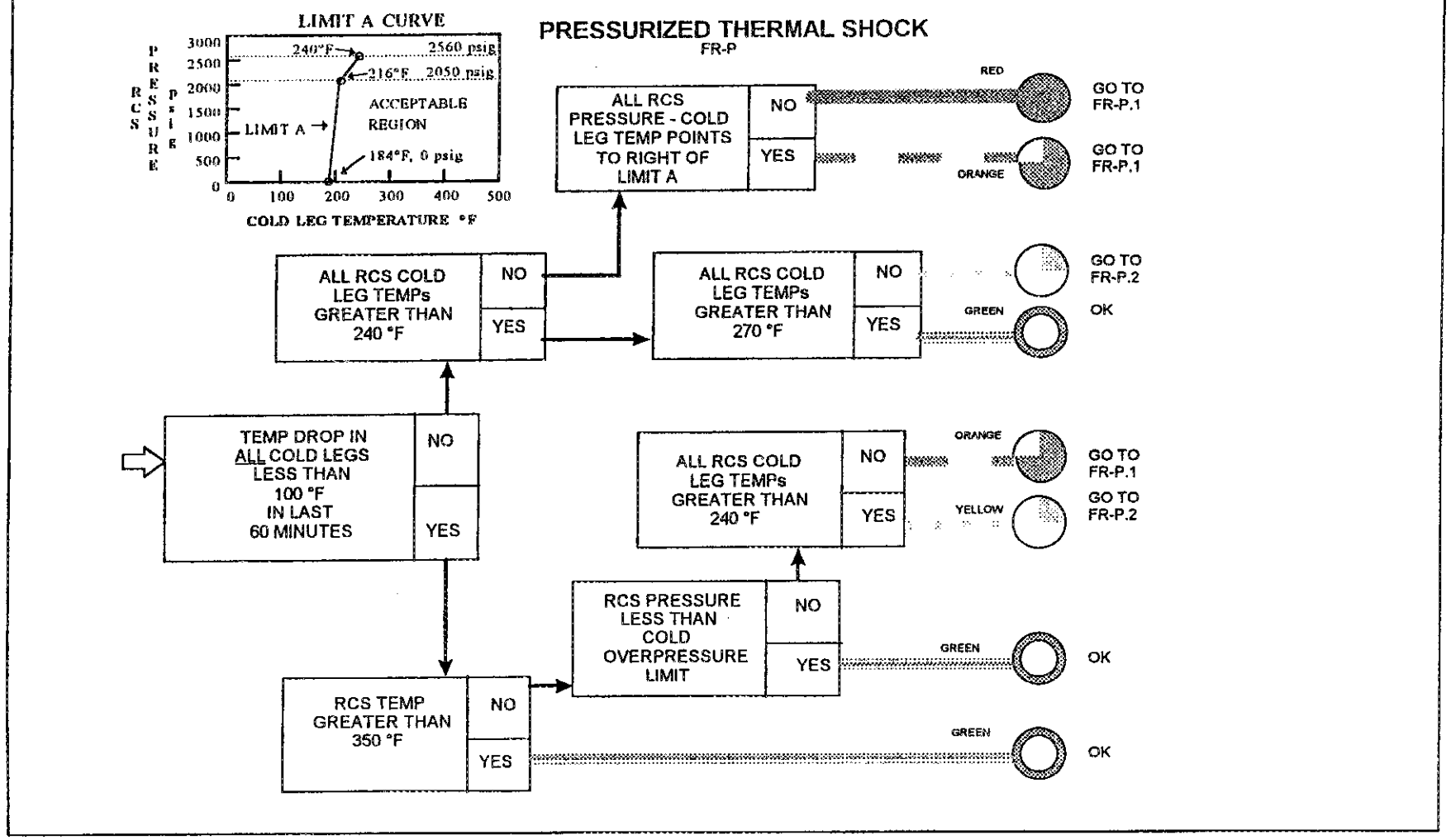
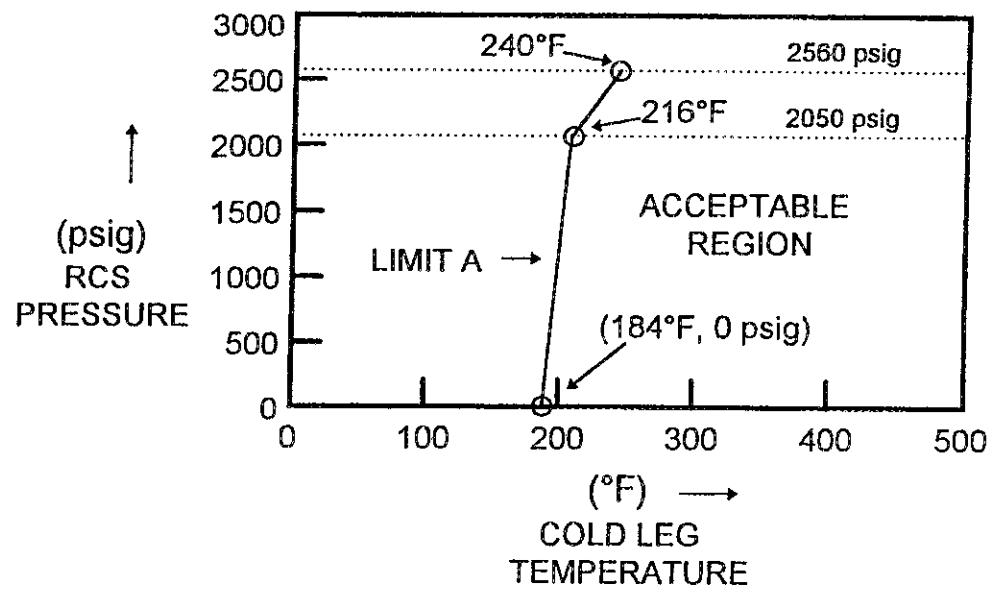
ACTION REQUIRED FOR SG TUBE LEAK

OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 1: Leak rate greater than or equal to 30 gpd but less than 75 gpd,	Raise frequency of grab sample. Monitor radiation monitor readings every 15 minutes until stable per Appendix A. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Evaluate Attachment 2, Minimize Secondary System Contamination, for implementation. Notify Chemistry to adjust setpoints on radiation monitors 1-RM-119, 1-RM-120 and 1-RM-121 to ~30 gpd above baseline to detect leak rate rise (but not over 75 gpd). Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication.
INCREASED MONITORING: Leak rate is greater than or equal to 5 gpd but less than 30 gpd.	Elevate repair of any out-of-service leakage monitoring equipment to highest (non-emergency) priority. Notify Chemistry to adjust radiation monitors 1-RM-119, 1-RM-120 and 1-RM-121 setpoints to provide prompt indication of leakage rise. Monitor radiation monitor indications hourly until stable per Appendix A. Identify leaking SG, quantify leakage and determine leakage rate-of-change.

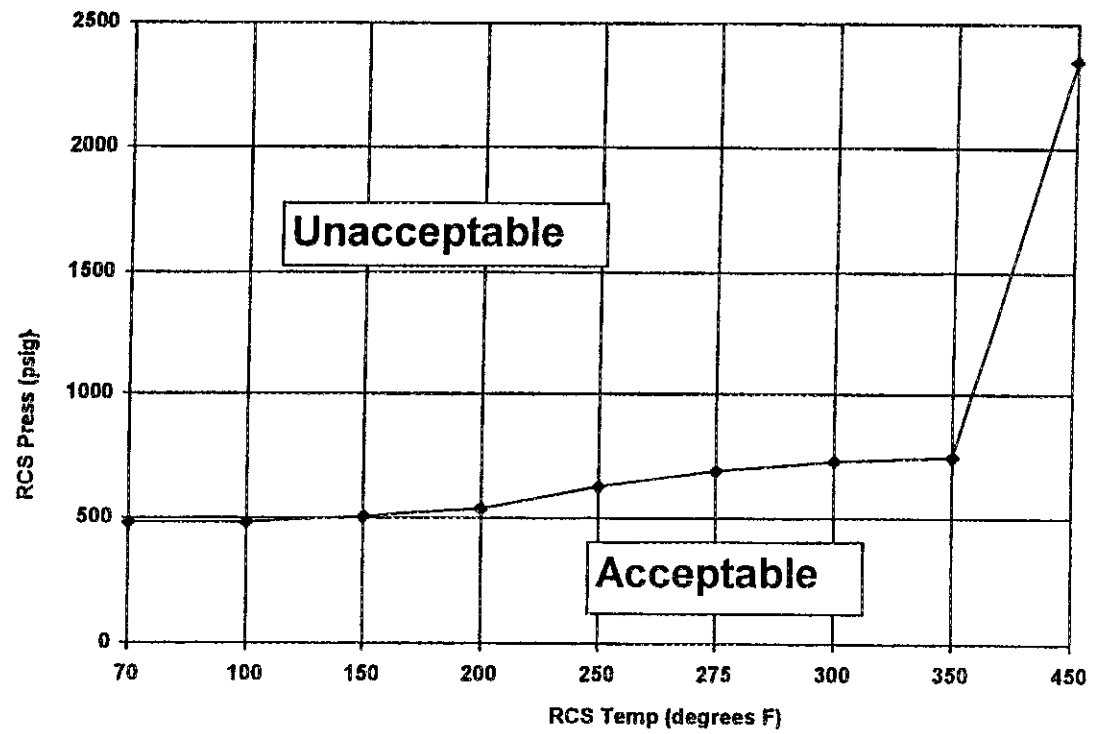

LIMIT A CURVE
RCS PRESSURE psig
3000
2500
2000
1500
1000
500
0
240°F
2560 psig
216°F
2050 psig
LIMIT A
ACCEPTABLE REGION
184°F, 0 psig
0
100
200
300
400
500
COLD LEG TEMPERATURE °F
PRESSURIZED THERMAL SHOCK
FR-P
ALL RCS PRESSURE - COLD LEG TEMP POINTS TO RIGHT OF LIMIT A
NO
YES
RED
GO TO FR-P.1
ORANGE
GO TO FR-P.1
ALL RCS COLD LEG TEMPs GREATER THAN 240 °F
NO
YES
ALL RCS COLD LEG TEMPs GREATER THAN 270 °F
NO
YES
GREEN
GO TO FR-P.2
OK
TEMP DROP IN ALL COLD LEGS LESS THAN 100 °F IN LAST 60 MINUTES
NO
YES
ALL RCS COLD LEG TEMPs GREATER THAN 240 °F
NO
YES
ORANGE
GO TO FR-P.1
YELLOW
GO TO FR-P.2
RCS PRESSURE LESS THAN COLD OVERPRESSURE LIMIT
NO
YES
GREEN
OK
RCS TEMP GREATER THAN 350 °F
NO
YES
GREEN
OK

LIMIT A CURVE
FIGURE 2



COLD OVERPRESSURE LIMIT CURVE

FIGURE 1



14.1 Fire Detection (Early Warning Fire Detection and Notification Only) (OR)

The minimum number of fire detectors are identified on Table 14.1 and shall be Operable when the safety-related or FSSD equipment in that area is required to be Operable.

NOTE 1: The action statements below apply to only the Function A fire detectors as defined in Table 14.I. The action statements of Section 14.3 and 14.4 apply to the Function B fire detectors that are associated with automatic suppression systems.

NOTE 2: Inoperable fire detectors may cause alarms or troubles on the associated local control panels that cause a masking condition addressed in Section 14.5.

NOTE 3: The central processing unit (CPU) for the fire detection system shall be operable when the fire detection system identified in Operating Requirement 14.1 is required to be operable.

NOTE 4: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

14.1.1 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable in any accessible area, within one hour restore the inoperable equipment -OR- establish a roving fire watch once per hour.

14.1.2 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable inside containment, within eight hours, restore the inoperable equipment -OR- either establish a roving fire watch once per 8-hours -OR- monitor the air temperature for the area affected once per hour using the following:

AREA	INSTRUMENT(S)
Upper Containment	U-9019 on Plant Computer
Lower Containment	U-9020 on Plant Computer

14.1.3 Restore the inoperable detector(s) to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures. Also, determine if any continuous fire watch routes are to be augmented as specified in Section 13.0.A.

14.1.4 With the CPU inoperable, within one hour establish the following compensatory action:

a. Fire detection zones containing Function A detectors in accessible areas shall be continuously monitored at the panel. Exempted from this action are zones inside the Main Control Room and zones associated with supervisory functions (i.e., pressure switches, valve position, fire door position, etc.).

b. For fire detection zones containing Function A detectors in inaccessible areas, the air temperature shall be monitored once per hour -OR- the local panel shall be monitored once per hour.

c. For fire detection zones containing function B detectors or for zones providing a supervisory function in accessible or inaccessible areas, the local fire detection panel shall be monitored hourly.

14.1.5 Restore the inoperable CPU to operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.

14.2 Water Supply

The Fire Suppression Water Supply System shall be Operable at all times as follows:

NOTE: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

a. Three fire suppression pumps consisting of the diesel driven pump (2500 gpm at 125 psig (288 feet of head)) AND two electric driven pumps, each with a minimum capacity of 1590 gpm at 300 feet of head (130 psig), with their discharge aligned to the fire suppression system header, AND

b. An Operable flow path from the suction supplies, through distribution piping, sectionalizing, control or isolation valves up to but not including the first valve off the headers, leading to the yard hydrant (Section 14.7), the fire hose station/standpipes (Section 14.6), and each water based suppression system (Section 14.3).

14.3 Water Based Fire Suppression

The water based fire suppression systems in the following areas (See Table 14.3 for specific systems) and their associated fire detectors shall be Operable whenever the protected safety-related or FSSD equipment is required to be Operable:

a. Unit 1 Reactor building - RC pump area, Annulus.
b. Auxiliary building - Elev. 692, 713, 729, 737, 757, 772, and 782.
c. Auxiliary building - ABGTS filters, EGTS filters, Containment Purge Air Exhaust Filters, 125V battery and battery board rooms.
d. Control building - Elev. 692, cable spreading room, operator living area.
e. Control building - MCR air filters.
f. Diesel building - Corridor area.
g. Intake Pumping Station
h. Turbine Building - Control Building Wall

Note 1: The action statements of this section apply to the Function B fire detectors that are associated with an automatic suppression system. Refer to Table 14.1 for the specific number of fire detectors associated with the water based fire suppression systems in the areas noted below.

Note 2: Inoperable fire detectors may cause alarm or trouble conditions on the associated local control panels that may cause a masking condition addressed in Section 14.5.

Note 3: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

14.3.1. With either suppression and/or associated Function B fire detectors inoperable in any of the locations noted above (a-h) in which redundant safe shutdown systems or components could be damaged by a single fire, within one hour, restore the inoperable equipment or:

a. For accessible areas, within one hour establish the following:

1. A continuous fire watch AND backup suppression equipment for those areas, if detection or both suppression and detection are inoperable, -OR-

2. A roving fire watch and backup suppression equipment for those areas, except for 737' elevation of the Auxiliary Building, if only the suppression is inoperable.

3. A continuous fire watch and backup suppression equipment for the 737' elevation of the Auxiliary Building if suppression or detection or both are inoperable. This watch shall be limited to the 737' elevation of the Auxiliary Building.

b. For inaccessible areas, as noted, within one hour establish the following:

1. For the Unit 1 Reactor Building, Lower Containment, within one hour establish a continuous fire watch -OR- monitor the air temperature in the area once per hour using U-9020 on Plant Computer.

2. For other inaccessible areas with detection inoperable OR both suppression and detection inoperable, within one hour establish backup suppression equipment and:

a. A continuous fire watch, OR

b. Provide alternate compensatory actions.

3. For other inaccessible areas with inoperable suppression only, within one hour establish backup fire suppression equipment AND:

a. An hourly roving fire watch, OR

b. Provide alternate compensatory actions.

14.3.2 With either inoperable suppression or associated Function B fire detectors in any of the locations noted above (a-h) in which redundant safe shutdown systems or components are NOT exposed to the damage of a single fire, within one hour establish a roving fire watch AND backup suppression equipment for those areas.

14.3.3 Restore the inoperable suppression and/or associated detection to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures. Also, determine if any continuous fire watch routes are to be augmented as specified in Section 13.0.A.

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 1 OF 10)

	A. Diesel Generator Building	Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
1	Diesel Gen. Rm. 2B-B, El. 742	0/5	
2	Diesel Gen. Rm. 2B-B, El. 742	0/5	
3	Diesel Gen. Rm. 1B-B, El. 742	0/5	
4	Diesel Gen. Rm. 1B-B, El. 742	0/5	
5	Diesel Gen. Rm. 2A-A, El. 742	0/5	
6	Diesel Gen. Rm. 2A-A, El. 742	0/5	
7	Diesel Gen. Rm. 1A-A, El. 742	0/5	
8	Diesel Gen. Rm. 1A-A, El. 742	0/5	
9	Lube Oil Storage Rm., El. 742	0/1	
10	Lube Oil Storage Rm., El. 742	0/1	
11	Fuel Oil Transfer Rm., El. 742	0/1	
12	Fuel Oil Transfer Rm., El. 742	0/1	
13	Diesel Gen. Corridor, El. 742		0/6
14	Air Intake & Exhaust Rm. 2B, El. 760	10/0	
15	Air Intake & Exhaust Rm. 1B, El. 760	10/0	
16	Air Intake & Exhaust Rm. 2A, El. 760	10/0	
17	Air Intake & Exhaust Rm. 1A, El. 760	10/0	
18	Diesel Gen. 2B-B Relay Bd. El. 742		3/0
19	Diesel Gen. 1B-B Relay Bd. El. 742		3/0
20	Diesel Gen. 2A-A Relay Bd. El. 742		3/0
21	Diesel Gen. 1A-A Relay Bd. El. 742		3/0
22	Diesel Gen. Board Rm. 2B-B, El. 760	0/2	
23	Diesel Gen. Board Rm. 2B-B, El. 760		0/2
24	Diesel Gen. Board Rm. 1B-B, El. 760	0/2	
25	Diesel Gen. Board Rm. 1B-B, El. 760		0/2
26	Diesel Gen. Board Rm. 2A-A, El. 760	0/2	
27	Diesel Gen. Board Rm. 2A-A, El. 760		0/2
28	Diesel Gen. Board Rm. 1A-A, El. 760	0/2	
29	Diesel Gen. Board Rm. 1A-A, El. 760		0/2
36	DGB Tr B Conduit Entry, El. 742		0/1
37	DGB Tr A Conduit Entry, El. 742		0/1
432	DGB Conduit Interface Room		9/0

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 2 OF 10)

B. Control Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
30	Cable Spreading Rm. C7-C11, El. 729		0/15
31	Cable Spreading Rm. C7-C11, El. 729		0/15
32	Cable Spreading Rm. C7-C11, El. 729		0/15
33	Cable Spreading Rm. C7-C11, El. 729		0/15
34	Cable Spreading Rm. C3-C7, El. 729		0/15
35	Cable Spreading Rm. C3-C7, El. 729		0/15
48	Control Bldg. Corridor, El. 692		0/4
49	Control Bldg. Corridor, El. 692		0/4
50	Mech. Equip Rm., Col. C1, El. 692		0/2
51	Mech. Equip Rm., Col. C1, El. 692		0/2
52	Mech. Equip Rm., Col. C3, El. 692		0/2
53	Mech. Equip Rm., Col. C3, El. 692		0/2
54	Battery Rm., El. 692		0/3
55	Battery Rm., El. 692		0/3
56	Battery Bd. Rm., El. 692		2/0
57	Battery Bd. Rm., El. 692		2/0
58	Battery Bd. Rm., El. 692		2/0
59	Battery Bd. Rm., El. 692		2/0
60	Battery Rm., El. 692		0/3
61	Battery Rm., El. 692		0/3
62	Battery Rm., El. 692		0/3
63	Battery Rm., El. 692		0/3
64	Battery Bd. Rm., El. 692		2/0
65	Battery Bd. Rm., El. 692		2/0
66	Communications Rm., El. 692		0/4
67	Communications Rm., El. 692		0/4
68	Mech. Equip Rm., Col. C11, El. 692		0/2
69	Mech. Equip Rm., Col. C11, El. 692		0/2
149	Cable Spreading Rm. C3-C7, El. 729		0/15
150	Cable Spreading Rm. C3-C7, El. 729		0/15
214	Mech. Equip Rm., Col. C1-C2, El. 755		0/5
215	Mech. Equip Rm., Col. C1-C2, El. 755		0/5
216	CR Fltr. B, Duct Det., El. 755		0/1
217	CR Fltr. B, Duct Det., El. 755		0/1

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 3 OF 10)

	B. Control Building (continued)	Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
218	CR Fltr. A, Duct Det., El. 755		0/1
219	CR Fltr. A, Duct Det., El. 755		0/1
220	Main CR, El. 755		27/0
221	Tech Support Center, El. 755		0/6
222	Tech Support Center, El. 755		0/6
223	PSO Eng. Shop, El. 755		0/1
224	PSO Eng. Shop, El. 755		0/1
225	Relay Bd. Rm., El. 755		11/0
226	Electric Cont. Bds., El. 755		12/0
227	Operation Living Area, E. 755	0/4	0/4
228	Operation Living Area, E. 755		0/8
229	Main Control Bds., El. 755		8/0
267	Aux. Instr. Rm., Unit 1, El. 708		0/8
268	Aux. Instr. Rm., Unit 1, El. 708	0/10	
269	Computer Rm., El. 708		0/4
270	Computer Rm., El. 708	0/4	
271	Aux. Instr. Rm., Unit 2, El. 708		0/8
272	Aux. Instr. Rm., Unit 2, El. 708	0/10	
273	Computer Rm. Corridor, El. 708		3/0
298	Common Main Cont. Bds. & M15, El. 755		12/0
387	Control/Turbine Bldg. Wall	0/26	
412	Duplex Relay Bds., El. 755		4/0

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 4 OF 10)

C. Auxiliary Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
39	Cont. Spray Pump 1A-A, El. 676		2/0
40	Cont. Spray Pump 1B-B, El. 676		2/0
43	RHR Pump 1A-A, El. 676		2/0
44	RHR Pump 1B-B, El. 676		2/0
47	Corridor of Aux. Bldg., El. 676		11/0
70	A5-A11, Col. W-X, El. 692		0/6
71	A5-A11, Col. W-X, El. 692		0/6
72	Aux. FW Pump Turbine 1A-S, El. 692		0/1
73	Aux. FW Pump Turbine 1A-S, El. 692		0/1
76	S.I & Charging Pump Rms., El. 692		0/5
77	S. I. Pump Rm. 1A, El. 692		0/1
78	S. I. Pump Rm. 1B, El. 692		0/1
79	Charging Pump Rm. 1C, El. 692		0/1
80	Charging Pump Rm. 1B, El. 692		0/1
81	Charging Pump Rm. 1A, El. 692		0/1
88	Aux. Bldg. Corridor A1-A8, El. 692		0/8
89	Aux. Bldg. Corridor A1-A8, El. 692		0/8
90	Aux. Bldg. Corridor A8-A15, El. 692		0/12
91	Aux. Bldg. Corridor A81-A15, El. 692		0/12
92	Aux. Bldg. Corridor U-W, El. 692		0/4
93	Aux. Bldg. Corridor U-W, El. 692		0/4
94	Pipe Gallery, El. 692		0/2
95	Pipe Gallery, El. 692		0/2
98	Cntmt. Purge Air Fltr., A & B, Duct Det., El. 713		0/2
99	Cntmt. Purge Air Fltr., A & B, Duct Det., El. 713		0/2
102	Pipe Gallery, El. 713		0/4
103	Pipe Gallery, El. 713		0/4
106	Aux. Bldg. Corridor A5-11, Col. T-W, El. 713		0/8
107	Aux. Bldg. Corridor A5-11, Col. T-W, El. 713		0/8
108	Radio Chemical Lab. Area, El. 713		0/3
109	Radio Chemical Lab. Area, El. 713		0/3
110	Aux. Bldg. A1-A8, Col. Q-U, El. 713		0/24

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 5 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
111	Aux. Bldg. A1-A8, Col. Q-U, El. 713		0/22
112	Aux. Bldg. A8-A15, Col. Q-U, El. 713		0/15
113	Aux. Bldg. A8-A15, Col. Q-U, El. 713		0/15
114	Waste Packaging Area, El. 729		0/3
115	Waste Packaging Area, El. 729		0/3
116	Cask Loading Area, El. 729	0/2	
117	Cask Loading Area, El. 729	0/2	
118	New Fuel Storage Area		4/0
120	Aux. Bldg. Gas Trtmt. Fltr., U1, El. 737		0/1
121	Aux. Bldg. Gas Trtmt. Fltr., U1, El. 737		0/1
123	Vol. Control Tank Rm. 1A, El 713		0/3
125	Vol. Control Tank Rm. 1A, El 713		0/3
128	Post Accident Samp. Fac. U1, El. 729		0/3
129	Post Accident Samp. Fac. U1, El. 729		0/3
130	Ventilation & Purge Air Rm., U2, El. 737		0/5
131	Ventilation & Purge Air Rm., U2, El. 737		0/5
132	Ventilation & Purge Air Rm., U2, El. 737		0/5
133	Ventilation & Purge Air Rm., U2, El. 737		0/5
134	Aux. Bldg. A5-A11, Col. U-W, El. 737		0/7
135	Aux. Bldg. A5-A11, Col. U-W, El. 737		0/7
136	Heating & Vent Rm., U1, El. 737		0/5
137	Heating & Vent Rm., U1, El. 737		0/5
138	Heating & Vent Rm., U2, El. 737		0/5
139	Heating & Vent Rm., U2, El. 737		0/5
140	Hot Instrument Shop, El. 737		0/1
141	Hot Instrument Shop, El. 737		0/1
142	Aux. Bldg. A1-A8, Col. Q-U, El. 737		0/13
143	Aux. Bldg. A1-A8, Col. Q-U, El. 737		0/13
144	Aux. Bldg. A8-A15, Col. Q-U, El. 737		0/10
145	Aux. Bldg. A8-A15, Col. Q-U, El. 737		0/10
146	N_2 Storage, El. 729		4/0
147	Aux. Bldg Gas Trtmt. Fltr, U2, El. 737		0/1

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 6 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
148	Aux. Bldg Gas Trtmt. Fltr, U2, El. 737		0/1
156	Reactor Bldg. Access Rm., El. 757		0/2
157	Reactor Bldg. Access Rm., El. 757		0/2
160	Spare Room (Reverse Osmosis), El. 757, A4-V		0/4
161	Spare Room (Reverse Osmosis), El. 757, A4-V		0/4
162	EGTS Rm., El. 757		0/3
163	EGTS Rm., El. 757		0/3
164	EGTS Fltr. A, El. 757		0/1
165	EGTS Fltr. A, El. 757		0/1
166	EGTS Fltr. B, El. 757		0/1
167	EGTS Fltr. B, El. 757		0/1
168	Reactor Bldg. Equip. Hatch, El. 757 Unit 1		0/1
169	Reactor Bldg. Equip. Hatch, El. 757 Unit 1		0/1
170	Reactor Bldg. Equip. Hatch, El. 757 Unit 2		0/1
171	Reactor Bldg. Equip. Hatch, El. 757 Unit 2		0/1
172	Unit 1 Mech. Eqpt. Rm., El. 757		0/1
173	Unit 1 Mech. Eqpt. Rm., El. 757		0/1
174	Unit 2 Mech. Eqpt. Rm., El. 757		0/1
175	Unit 2 Mech. Eqpt. Rm., El. 757		0/1
176	480V Shtdn Bd. Rm. 1A1, El. 757		0/2
177	480V Shtdn Bd. Rm. 1A1, El. 757		0/2
178	480V Shtdn Bd. Rm. 1A2, El. 757		0/2
179	480V Shtdn Bd. Rm. 1A2, El. 757		0/2
180	480V Shtdn Bd. Rm. 1B1, El. 757		0/2
181	480V Shtdn Bd. Rm. 1B1, El. 757		0/2
182	480V Shtdn Bd. Rm. 1B2, El. 757		0/3
183	480V Shtdn Bd. Rm. 1B2, El. 757		0/3
184	6.9 kV Shtdn. Bd. Rm. A, El. 757		0/7
185	6.9 kV Shtdn. Bd. Rm. A, El. 757		0/7
186	6.9 kV Shtdn. Bd. Rm. B, El. 757		0/7
187	6.9 kV Shtdn. Bd. Rm. B, El. 757		0/7
188	480V Shtdn Bd. Rm. 2A1, El. 757		0/2
189	480V Shtdn Bd. Rm. 2A1, El. 757		0/2
190	480V Shtdn Bd. Rm. 2A2, El. 757		0/3

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 8 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
245	480V XFMR Rm. 2A, El. 772		0/3
246	480V XFMR Rm. 2A, El. 772		0/3
247	480V XFMR Rm. 2B, El. 772		0/3
248	480V XFMR Rm. 21B, El. 772		0/3
249	125V Batt. Rm., I, El. 772		2/0
251	125V Batt. Rm., II, El. 772		2/0
253	125V Batt. Rm., III, El. 772		2/0
255	125V Batt. Rm., IV, El. 772		2/0
257	480V Bd. Rm., 1B, El. 772		0/4
258	480V Bd. Rm., 1B, El. 772		0/4
259	480V Bd. Rm., 1A, El. 772		0/4
260	480V Bd. Rm., 1A, El. 772		0/4
261	480V Bd. Rm., 2A, El. 772		0/4
262	480V Bd. Rm., 2A, El. 772		0/4
263	480V Bd. Rm., 2B, El. 772		0/4
264	480V Bd. Rm., 2B, El. 772		0/4
296	Aux. CR Bds. L-4B, 4D, & 11B, El. 757		8/0
330	Pipe Chase, U1, El. 737, 713, 692		20/0
441	125V Batt. Rm., V, El. 772		0/2
442	125V Batt. Rm., V, El. 772		0/2
455	Post Accident Samp. Fac., U1, El.737		0/1
456	Post Accident Samp. Fac., U1, El.737		0/1

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 9 OF 10)

D. Additional Equipment Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
122	Add. Eqpt. Bldg., U1, El. 729		6/0
154	Add. Eqpt. Bldg., U1, El. 763.5		6/0
231	Add. Eqpt. Bldg., El. 786.5		4/0
232	Add. Eqpt. Bldg., El. 775.25		4/0

E. Intake Pumping Station		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
250	ERCW Pump Rm., El. 741	4/0	
277	Strainer Rm., El. 722		18/0
278	ERCW Pump Rm., El. 741	4/0	
405	Elect. Bd. Rm., El. 711		0/5
406	Elect. Bd. Rm., El. 711		0/5

F. Containment Unit 1 #		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
352	Lower Compt. Coolers, El. 716		4/0
354	Upper Compt. Coolers, El. 801		4/0
356	RCP 2, El. 716	0/2	
357	RCP 2, El. 716	0/2	
360	RCP 1, El. 716	0/2	
361	RCP 1, El. 716	0/2	
364	RCP 3, El. 716	0/2	
365	RCP 3, El. 716	0/2	
368	RCP 4, El. 716	0/2	
369	RCP 4, El. 716	0/2	
372	Reactor Bldg. Annulus		0/26
373	Reactor Bldg. Annulus		0/25
457	Reactor Bldg. Annulus		0/9
458	Reactor Bldg. Annulus		0/8

The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 10 OF 10)

TABLE NOTATION

** A/B: A is a number of Function A (early warning fire detection and notification only) instruments.

B is a number of Function B (actuation of fire suppression systems and early warning notification) instruments.

TABLE 14.3 WATER BASED FIRE SUPPRESSION
(PAGE 1 OF 1)

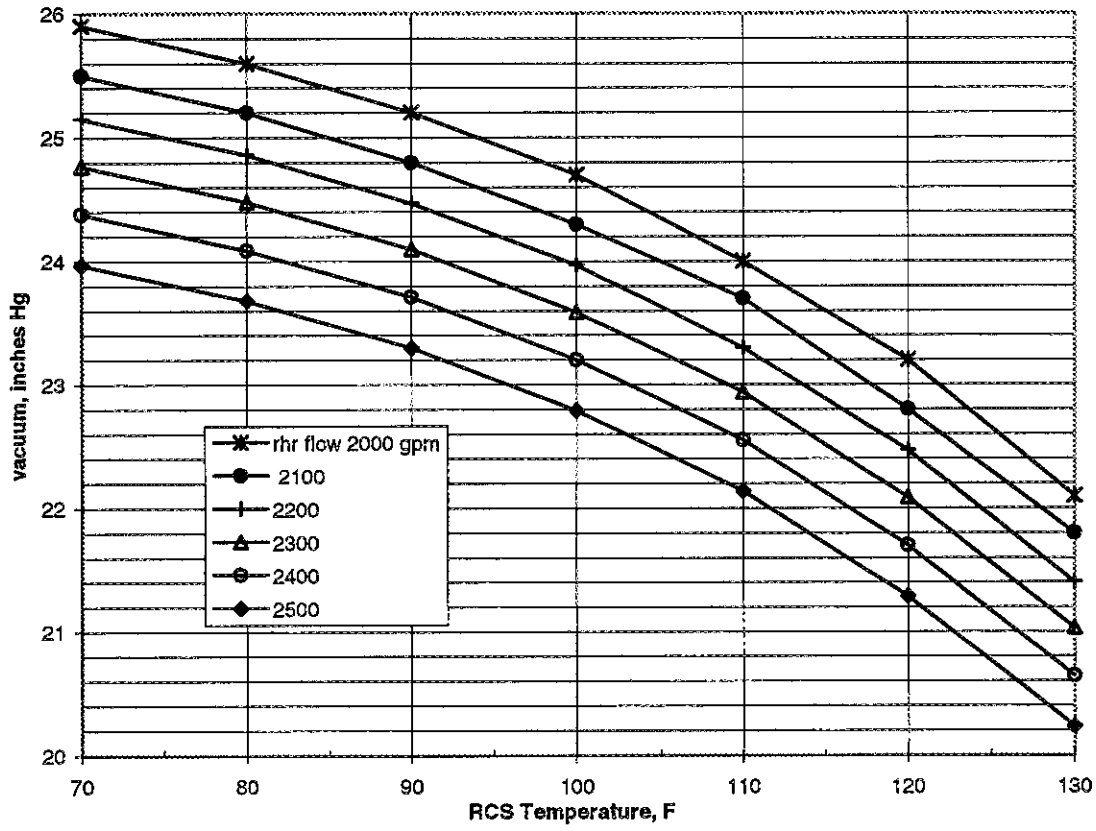
OR SECTION	SPECIFIC SYSTEMS
14.3.a	Unit 1 Reactor Building - RC Pump Area, Annulus 1-FCV-026-219 1-FCV-026-223
14.3.b	Auxiliary Building - El 692, 713, 729, 737, 757, 772, 782 0-FCV-026-191 0-FCV-026-187 0-FCV-026-183 0-FCV-026-143 and O-FCV-026-322 0-FCV-026-151 and 0-FCV-026-326 0-FCV-026-147
14.3.c	Auxiliary Building - ABGTS Filters, EGTS Filters, Unit 1 Containment Purge Air Exhaust Filters, 125V Battery and Battery Board Rooms 1-FCV-026-163 2-FCV-026-171 0-FCV-026-175 0-FCV-026-179 1-FCV-026-159 0-ISV-026-996 0-ISV-026-997 0-ISV-026-998 0-ISV-026-999
14.3.d	Control Building - El 692, Cable Spreading Room, Operator Living Area 0-FCV-026-203 0-FCV-026-207 0-FCV-026-211
14.3.e	Control Building - MCR Air Filters 0-FCV-026-215
14.3.f	Diesel Building - Corridor Area 0-FCV-026-167
14.3.g	Intake Pump Station 0-FCV-026-26
14.3.h	Turbine Building - Control Building Wall 0-FCV-026-199

Date _____ **INITIALS**

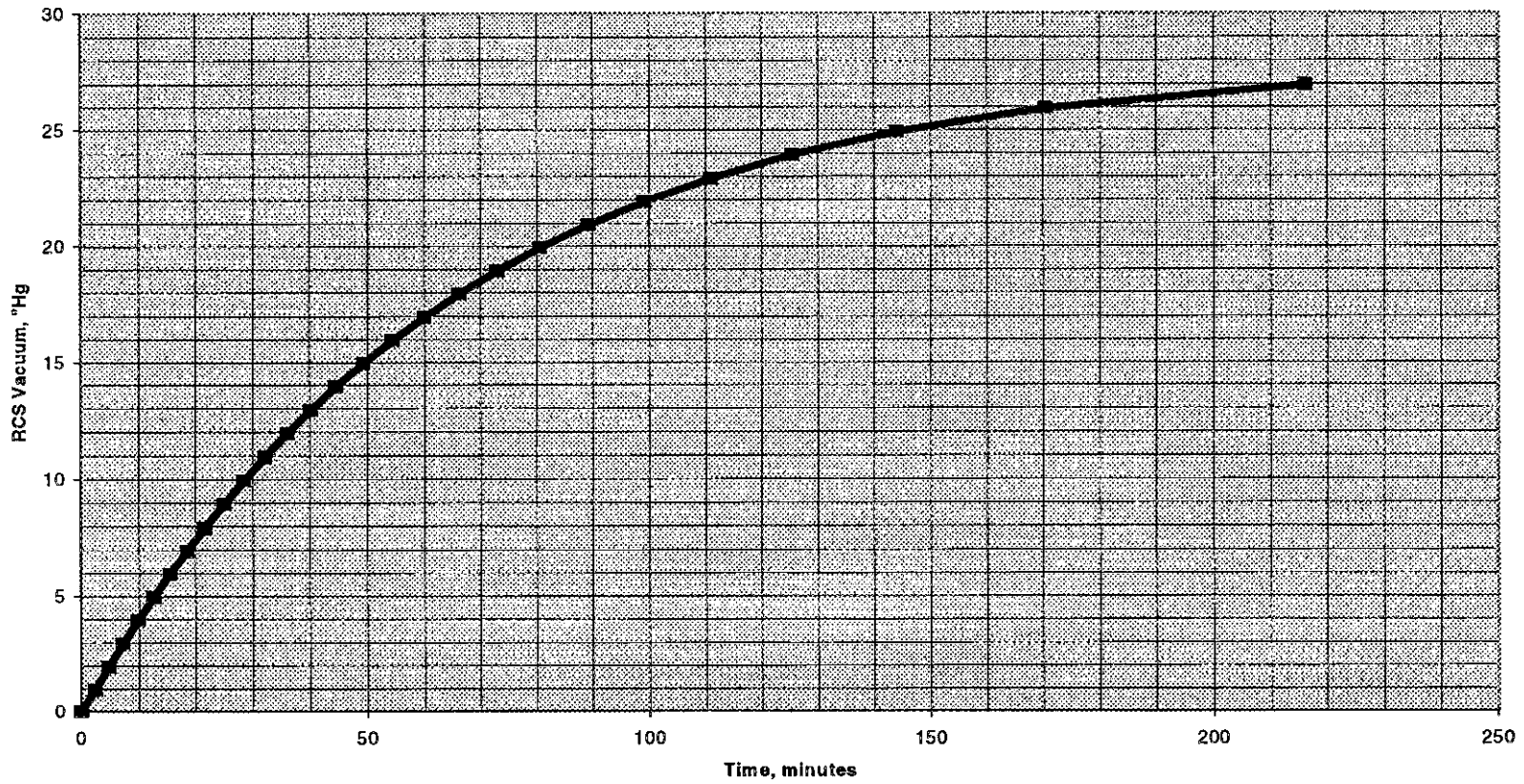
APPENDIX AD
Page 1 of 1

VACUUM vs. RCS TEMPERATURE / RHR FLOWRATE

Allowable Vacuum vs RHR Flow and RCS Temperature
Allowable Region Is Below And To The Left Of The Applicable RHR Flow Curve



APPENDIX AE
Page 1 of 1
EVACUATION TIME



3.6 CONTAINMENT SYSTEMS

3.6.1 Containment

LCO 3.6.1 Containment shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment inoperable.	A.1 Restore containment to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND	6 hours
	B.2 Be in MODE 5.	36 hours

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTES----------

1. Penetration flow path(s) may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with one containment isolation valve inoperable except for purge valve or shield building bypass leakage not within limit.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTE-------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ---------NOTE--------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable except for purge valve or shield building bypass leakage not within limit.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE--------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	4 hours
	AND	
	C.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days
D. Shield building bypass leakage not within limit.	D.1 Restore leakage within limit.	4 hours
E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	24 hours
	AND	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. (continued)	E.2	--------NOTE-------- Isolation devices in high radiation areas may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment Once per 92 days
	AND E.3	Perform SR 3.6.3.5 for the resilient seal purge valves closed to comply with Required Action E.1.	Once per 92 days
F. Required Action and associated Completion Time not met.	F.1	Be in MODE 3.	6 hours
	AND F.2	Be in MODE 5.	36 hours

3.3 INSTRUMENTATION

3.3.8 Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation

LCO 3.3.8 The ABGTS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1 Place one ABGTS train in operation.	7 days
B. One or more Functions with two channels or two trains inoperable.	B.1.1 Place one ABGTS train in operation. AND B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.12, "Auxiliary Building Gas Treatment System (ABGTS)," for one train made inoperable by inoperable actuation instrumentation. OR	Immediately Immediately (continued)

Table 3.3.8-1 (page 1 of 1)
ABGTS Actuation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Manual Initiation	1,2,3,4 (a)	2 2	SR 3.3.8.3 SR 3.3.8.3	NA NA
2.	Fuel Pool Area Radiation Monitors	(a)	2	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.4	≤ 1161 mR/hr
3.	Containment Isolation - Phase A	Refer to LCO 3.3.2, Function 3.a., for all initiating functions and requirements.			

(a) During movement of irradiated fuel assemblies in the fuel handling area.

Table 1.1-2 - RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
(Page 1 of 3)

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. WASTE GAS DISPOSAL SYSTEM			
a. Noble Gas Activity Monitor (RE-90-118)	1	(9)	A
b. Pressure Measuring Device WGDT A 0-PIS-77-115 WGDT B 0-PIS-77-114 WGDT C 0-PIS-77-113 WGDT D 0-PIS-77-100 WGDT E 0-PIS-77-101 WGDT F 0-PIS-77-102 WGDT G 0-PIS-77-145 WGDT H 0-PIS-77-146 WGDT J 0-PIS-77-147	1	(9)(8)	J
2. CONDENSER VACUUM EXHAUST SYSTEM			
a. Noble Gas Activity Monitors (RE-90-119)	1	(3)	C
b. Deleted in Revision 5			
c. Flow Rate Monitor (FE-2-256)	1	(3)	B
d. Iodine/Particulate Sample Line Heat Trace [SOURCE NOTE 13]	1	(3)	K
3. SHIELD BUILDING EXHAUST SYSTEM			
a. Noble Gas Low Range Activity Monitor (RE-90-400A)	1	(2)	E
b. Iodine/Particulate Sampler and Sampler Flow Rate Measuring Device (RE-90-400 - Monitor Item 028)	1	(2)(5)	D
c. Effluent Flow Rate Measuring Device (FI-90-400)	1	(2)	B, E
d. Isokinetic Flow Control Equipment [SOURCE NOTE 11]	1	(2)(6)	G
e. Iodine/Particulate Sample Line Heat Trace [SOURCE NOTE 13]	1	(2)	G
f. Tritium flowrate measuring device (FIQ-90-801)	1	(11)	M
4. AUXILIARY BUILDING VENTILATION SYSTEM AND FUEL HANDLING AREA VENTILATION SYSTEM			
a. Noble Gas Activity Monitor (RE-90-101B)	1	(1)	C
b. Iodine/Particulate Sampler and Sampler Flow Rate Measuring Device (FIS-90-101C)	1	(1)(5)(7)	D
c. Effluent Flow Rate Measuring Device (FI-90-300/1B)	1	(1)	B, L
d. Isokinetic Flow Control Equipment [SOURCE NOTE 11]	1	(10)	H
e. Tritium flowrate measuring device (FIQ-90-800)	1	(11)	M
5. SERVICE BUILDING VENTILATION SYSTEM			
a. Noble Gas Activity Monitor (RE-90-132B)	1	(1)	C
b. Effluent Flow Rate Measuring System (FI-90-320/1B)	1	(1)	B
6. CONTAINMENT PURGE AND EXHAUST SYSTEM			
a. Noble Gas Activity Monitors (RE-90-130, RE-90-131)	1	(4)	F

Table 1.1-2 - RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
(Page 2 of 3)

Applicability Notation:

(1) At all times.
(2) At all times. Both Unit 1 and 2 Shield Building Exhaust System equipment must meet the minimum channel OPERABLE requirement, even for Unit 1 operation only. Operability of shield building noble gas activity monitor requires both flow rate and radiation inputs since the high radiation alarm is only on the effluent channel, which reads in μCi/s.
(3) In MODES 1 through 6 when Condenser Vacuum Exhaust System is in operation.
(4) At all times in MODES 1, 2, 3, 4; during core alterations; during movement of irradiated fuel assemblies within containment.
(5) Applies to charcoal and particulate filters, does not apply to detection channels.
(6) Shield Building isokinetic flow control equipment may be considered operable if one primary sample pump 1,2-PMP-90-452A or -452B and the flow control valve 1,2-FCV-90-452 are operable. If automatic flow control, 1,2-FM-090-0400A, is unavailable, isokinetic flow control must be established manually (using 1,2-FC-90-452), based on flow rates determined during most recent flow rate measurement device calibration.
(7) Auxiliary Building Exhaust iodine/particulate sampler may be considered operable with the isokinetic flow control equipment inoperable.
(8) The pressure indicator for the WGDT being released must be operable for the tank to be released.
(9) At all times during periods of release.
(10) Isokinetic sampling on the Auxiliary Building Exhaust is required when flow rate exceeds 160,000 SCFM.
(11) At all times during periods of release when irradiated TPBARs are in the Reactor or in the Spent Fuel Pool.

Compensatory Actions

ACTION A - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment provided that prior to initiating the release:
a. At least two independent samples of the tank's contents obtained by two technically qualified members of the facility staff are analyzed, and
b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations, and
c. At least two technically qualified members of the Facility Staff independently verify the discharge valve lineup;
Otherwise, suspend release of radioactive effluents via this pathway.

ACTION B - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during releases via this pathway.

ACTION C - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 12 hours and these samples are analyzed for noble gases (gamma emitters) in accordance with plant procedures. Grab samples are required only during those periods when releases are being made.

ACTION D - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue provided that within 4 hours after the channel has been declared inoperable, samples are continuously collected with auxiliary sampling equipment as required in Table 2.2-2. Continuous sampling is required only during those periods when releases are being made.

Table 1.1-2 - RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
(Page 3 of 3)

Compensatory Actions (Continued)

ACTION E - Flow Rate Channel Inoperable - With an inoperable flow element on a discharge pathway where a fan is operating (Purge A, Purge B, ABGTS, or EGTS), effluent release may continue provided: (a) "Low Rng" on RE-90-400 is selected instead of "Eff"; and (b) at least once per 12 hours associated instrument malfunction is verified not annunciated; and (c) a reading from "Low Rng" on RE-90-400 is obtained at least once per 24 hours during the release.

Radiation Monitor Inoperable - With the "EFF" and "LOW RNG" channels inoperable, effluent releases may continue provided grab samples are taken at least once per 12 hours and these samples are analyzed for noble gases (gamma emitters) in accordance with plant procedures. Grab samples are required only during those periods when releases are being made.

ACTION F - With the number of channels OPERABLE less than required by the Minimum Channel OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.

ACTION G - With the required equipment inoperable, immediately suspend any planned, routine releases via this pathway, ensure that continuous iodine/particulate sampling media are removed and analyzed [SOURCE NOTE 18], and ensure that no planned, routine releases are made until the equipment is OPERABLE.

ACTION H - With the required equipment inoperable, effluent releases may continue via this pathway provided the sampler's transmission factor(s) are corrected for the loss of this equipment.

ACTION J - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases from that WGDT must be discontinued until the channel is OPERABLE.

ACTION K - With the heat trace inoperable and auxiliary sampling equipment required for iodine and particulate collection, effluent releases via the affected pathway may continue provided that steam generator activity is evaluated weekly to determine if a path exists for release of iodine or particulate activity, and any such activity being released is quantified in accordance with plant procedures.

ACTION L- With the required equipment INOPERABLE due to the flowrate being less than 100,000 scfm, manually adjust sample loop 0-LPF-90-300 flowrate to 20 scfm +/-1 scfm within 4 hours to return the channel to operable status.

In addition, if the flow rate is less than 40,000scfm, then verify at least one Auxiliary Building or Fuel Handling exhaust fan is running.

ACTION M- With the required equipment inoperable, effluent releases may continue via the pathway provided that within 24 hours after the channel has been declared inoperable, samplers are replaced or tritium grab samples are taken once per 24 hours. Continuous sampling is required only during those periods when applicability note (11) is met.

	7.1 Gaseous Effluents	
	Mode	Initiating/Condition
GENERAL	All	**EAB dose resulting from an actual or imminent release of Gaseous Radioactivity that exceeds 1000 mrem TEDE or 5000 mrem Thyroid CDE for the actual or projected duration of the release** *(1 or 2 or 3)* 1. A **VALID** rad monitor reading exceeds the values under General in Table 7-1 for >15 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded. 2. Field survey results indicate >1000 mrem/hr gamma or an I-131 concentration of 3.9E-6 µ Ci/cc at SP 3. EP dose assessment results indicate EAB dose >1000 mrem TEDE or >5000 mrem Thyroid CDE for the actual or projected duration of the release (Figure 7-A)
SITE	All	**EAB dose resulting from an actual or imminent release of Gaseous Radioactivity that exceeds 100 mrem TEDE or 500 mrem Thyroid CDE for the actual or projected duration of the release** *(1 or 2 or 3)* 1. A **VALID** rad monitor reading exceeds the values under Site in Table 7-1 for >15 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded 2. Field survey results indicate >100 mrem/hr gamma or an I-131 concentration of 3.9E-7 µ Ci/cc at SP 3. EP dose assessment results indicate EAB dose >100 mrem TEDE or >500 mrem Thyroid CDE for the actual or projected duration of the release (Figure 7-A)
ALERT	All	**Any UNPLANNED release of Gaseous Radioactivity that exceeds 200 times the ODCM Limit for >15 minutes** *(1 or 2 or 3)* 1. A **VALID** rad monitor reading exceeds the values under Alert in Table 7-1 for >15 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded 2. Field survey results indicate >10 mrem/hr gamma at SP >15 minutes 3. EP dose assessment results indicate EAB dose >10 mrem TEDE for the duration of the release (Figure 7-A)
UNUSUAL EVENT	All	**Any UNPLANNED release of Gaseous Radioactivity that exceeds 2 times the ODCM Limit for >60 minutes** *(1 or 2 or 3)* 1. A **VALID** rad monitor reading exceeds the values under **UE** in Table 7-1 for >60 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded 2. Field survey results indicate >0.1 mrem/hr gamma at SP for >60 minutes 3. EP dose assessment results indicate EAB dose >0.1 mrem TEDE for the duration of the release (Figure 7-A)

7.2 Liquid Effluents	
Mode	Initiating/Condition
	Not Applicable
	Not Applicable
All	**Any UNPLANNED release of Liquid Radioactivity that exceeds 200 times the ODCM Limit for >15 minutes** *(1 or 2)* 1. A **VALID** rad monitor reading exceeds the values under Alert in Table 7-1 for >15 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded. 2. Sample results exceed 200 times the ODCM limit value for an unmonitored release of liquid radioactivity >15 minutes in duration
All	**Any UNPLANNED release of Liquid Radioactivity to the Environment that exceeds 2 times the ODCM Limit for >60 minutes** *(1 or 2)* 1. A **VALID** rad monitor reading exceeds the values under **UE** in Table 7-1 for >60 minutes, unless assessment within this time period confirms that the **Criterion** is Not exceeded. 2. Sample results exceed 2 times the ODCM limit value for an unmonitored release of liquid radioactivity >60 minutes in duration

TABLE 7-1
EFFLUENT RADIATION MONITOR EALS[1]

NOTE: The values below, **if exceeded**, indicate the need to perform the specified assessment. If the assessment can not be completed within 15 minutes (60 minutes for UE), the declaration shall be made based on the **VALID** reading. As used here, the radiation monitor indications as displayed on **ICS** are the primary indicators. If ICS is unavailable, utilize the radiation monitor readings in the control room or local indication as necessary.

Monitor	ICS Screen	Units	UE	Alert	Site	General
Total Site	EFF1	µCi/s [2]	1.5E+05	1.5E+07	2.5E+08	2.5E+09
U1 Shield Building **1-RE-90-400**	EFF1	µCi/s	6.7E+04	6.7E+06	1.0E+08	1.0E+09
U2 Shield Building **2-RE-90-400**	EFF1	µCi/s	1.5E+04	1.5E+06	2.5E+07	2.6E+08
Auxiliary Building **0-RE-90-101B**	4RM1	cpm	1.2E+04	1.2E+06	*****(1)	*****(1)
Service Building **0-RE-90-132B**	4RM1	cpm	4.3E+03	4.3E+05	9.8E+06	*****(1)
U1 Condenser Vacuum Exhaust **1-RE-90-404A** **1-RE-90-404B**	3PAM 3PAM	µCi/cc[3] µCi/cc	5.5E-02 5.5E-02	5.5E+00 5.5E+00	8.83E+01 8.83E+01	8.83E+02 8.83E+02
S/G Discharge Monitors **1-RE-90-421 thru 424 (B)**	4RM2	mR/hr[4]	NA	3.5E+02	3.5E+03	3.5E+04
Liquid Monitors **0-RE-90-122** **1-RE-90-120,121** **0-RE-90-225** **0-RE-90-212**	n/a 4RM2 4RM2 4RM2 4RM2	µCi/ml[2] cpm cpm cpm cpm	1.8E-05 1.1E+06 1.0E+06 9.2E+05 1.5E+04	1.8E-03 *****(1) *****(1) *****(1) 1.5E+06	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
RELEASE DURATION	minutes		60	15	15	15
ASSESSMENT METHOD: ICS or radiation monitor (RM) readings in the MCR or local indication as necessary						

Note: (1) Table values are calculated values. The ***** indicates the monitor is off scale.

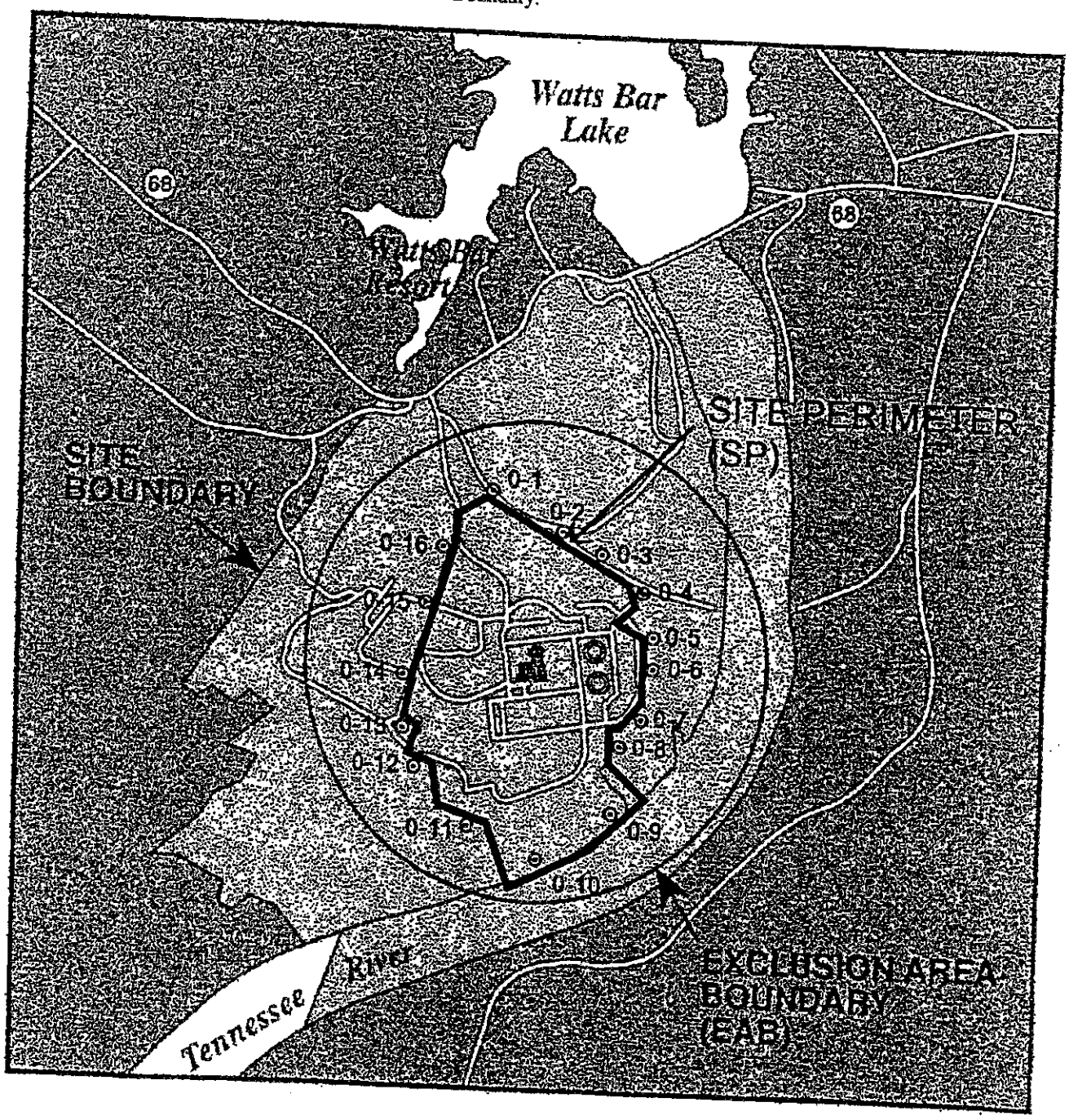
(2) These releases rate values in µCi/s and µCi/ml are provided on the gaseous and liquid release points for Information Only. Actual monitor readings are given in the table corresponding to the monitor for the four emergency classifications.

(3) This eberline channel reads out in cpm in the **MCR**. Indications of a radioactivity release via this pathway would be S/G blowdown monitors or other indications of primary-to-secondary leakage such as S/G level increase or pressurizer level decrease. ICS calculates µCi/cc and has a visual indication of an alarm condition when the indications exceeds 5.5E-02µCi/cc. This channel was included in the table to provide a means to further assess a release detected by other indications and to provide a path for possible escalation.

(4) These unit values are based on flow rates through one [1] PORV of 970,000 lb/hr at 1,185 psig, 600°F. Before using these values, ensure a release to the environment is ongoing (e.g. PORV).

Figure 7-A
EXCLUSION AREA, SITE BOUNDARY and SITE PERIMETER

NOTE: The Site Boundary used here is consistent with the definition in the Offsite Dose Calculation Manual. Do Not confuse this boundary with the SITE PERIMETER defined in these EALs, or with other definitions of "Site Boundary."



Note: Numbered points are [SP] radiological survey point for all sectors.

7.3 Radiation Levels

	Mode	Initiating/Condition
GENERAL		*Refer to "Fission Product Barrier Matrix" or "Gaseous Effluents" (7.1)*
SITE		*Refer to "Fission Product Barrier Matrix" or "Gaseous Effluents" (7.1)*
ALERT	All	**UNPLANNED increases in Radiation levels within the Facility that impedes Safe Operations or establishment or maintenance of Cold Shutdown** *(1 or 2)* 1. **VALID** area Radiation Monitor readings or survey results exceed 15 mrem/hr in the Control Room or CAS 2. *(a and b)* a. **VALID** area radiation monitor readings exceed values listed in Table 7-2 b. Access restrictions impede operation of systems necessary for Safe Operation or the ability to establish Cold Shutdown *See UNUSUAL EVENT Note Below*
UNUSUAL EVENT	All	**UNPLANNED increase in Radiation levels within the Facility** 1. **VALID** area Radiation Monitor readings increase by a factor 1000 over normal levels *Note: In Either the **UE** or **ALERT** EAL, the SED must determine the cause of increase in Radiation Levels and Review Other **INITIATING/CONDITIONS** for Applicability (e.g., a dose rate of 15 mrem/hr in the Control Room could be caused by a release associated with a DBA).*

7.4 Fuel Handling

Mode	Initiating/Condition
	Refer to "Gaseous Effluents" (7.1)
	Refer to "Gaseous Effluents" (7.1)
All	**Major damage to Irradiated Fuel, or Loss of water level that has or will uncover Irradiated Fuel outside the Reactor Vessel** *(1 and 2)* 1. VALID alarm on 0-RE-90-101 or 0-RE-90-102 or 0-RE-90-103 or 1-RE-90-130/131 or 1-RE-90-112 or 1-RE-90-400 or 2-RE-90-400 2. *(a or b)* a. Plant personnel report damage of Irradiated Fuel sufficient to rupture Fuel Rods b. Plant personnel report water level drop has or will exceed makeup capacity such that Irradiated Fuel will be uncovered
All	**UNPLANNED loss of water level in Spent Fuel Pool or Reactor Cavity or Transfer Canal with fuel remaining covered** *(1 and 2 and 3)* 1. Plant personnel report water level drop in Spent Fuel Pool, or Reactor Cavity, or Transfer Canal 2. **VALID** alarm on 0-RE-90-102 or 0-RE-90-103 or 1-RE-90-59 or 1-RE-90-60 3. Fuel remains covered with water.

Table 7-2

ALERT - RADIATION LEVELS

2500

Monitor No.	Location Building and Elevation	Monitor Reading *
1&2 RE-90-1	Auxiliary El. 757.0 (spent fuel pool)	2.5×10^3 mR/hr
1-RE-90-2	Auxiliary El. 757.0 (personnel air lock)	2.5×10^0 R/hr
0-RE-90-3	Auxiliary El. 729.0 (waste pac. area)	2.5×10^3 mR/hr
0-RE-90-4	Auxiliary El. 713.0 (decon room)	1.5×10^3 mR/hr
0-RE-90-5	Auxiliary El. 737.0 (spt. fuel pool pmp. ar.)	1.5×10^3 mR/hr
1&2-RE-90-6	Auxiliary El. 737.0 (comp. cl. wtr. ht. ex. ar.)	1.5×10^3 mR/hr
1&2-RE-90-7	Auxiliary El. 713.0 (sample room)	2×10^3 mR/hr
1&2-RE-90-8	Auxiliary El. 713.0 (aux. feed pump area)	1.5×10^3 mR/hr
0-RE-90-9	Auxiliary El. 692.0 (wst. cond. evap. tk. ar.)	1.5×10^3 mR/hr
1&2-RE-90-10	Auxiliary El. 692.0 (cvcs area)	1.5×10^3 mR/hr
0-RE-90-11	Auxiliary El. 676.0 (ctmt. spry. & rhr pmp ar.)	1.5×10^3 mR/hr
1-RE-90-61	Auxiliary El. 736.0 (RB low. cmpt. inst. rm.)	2.5×10^3 mR/hr
0-RE-90-230	Turbine El. 685.0 (conden. demin.)	1.5×10^3 mR/hr
0-RE-90-231	Turbine El. 685.0 (conden. demin.)	1.5×10^3 mR/hr

Note: *These monitors read out in mR/hr. It is assumed that this is equivalent to mrem/hr.

WATTS BAR NUCLEAR PLANT

NRC Site-Specific Written Examination RO
7/23/2004

REFERENCES

APPENDIX 29
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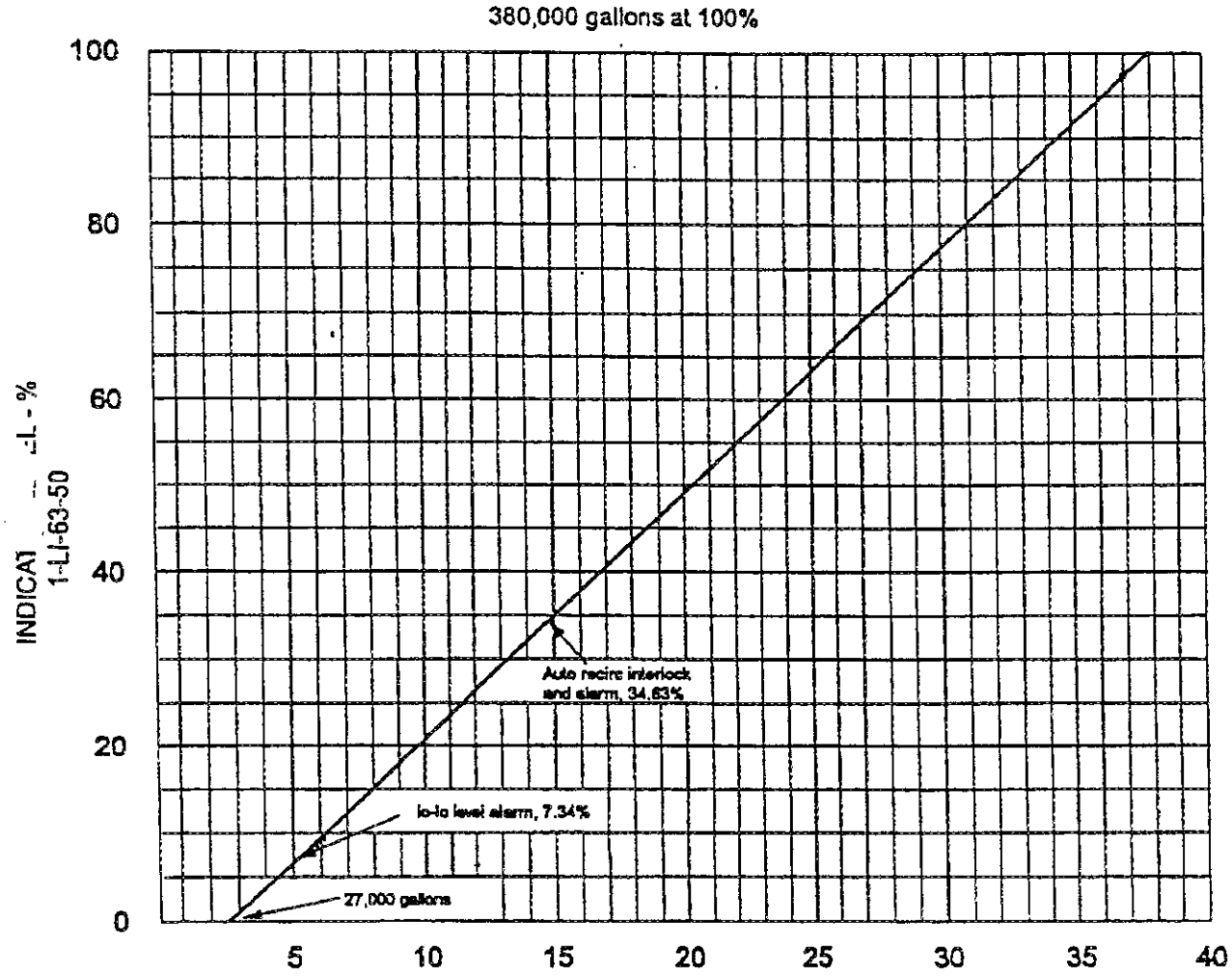
REFUELING WATER STORAGE TANK



NOTE: Auto recirc lo interlock alarms at 1-XA-55-6C-126C. Lo-Lo level alarms at 1-XA-55-6C-126D.
Lo level makeup alarms at 1-XA-55-6C-127D at approximately 97% or 372000 gallons.
Hi level shutoff alarms at 1-XA-55-6C-127C at approximately 98% or 375000 gallons.

C:\FLWM\RWST.PRE
TVA Drawing 47W309-3

APPENDIX C

Page 1 of 3

ACTION REQUIRED FOR SG TUBE LEAK

The following shall be used to determine recommended action for different leak rates or rates-of-change. The actions are based on EPRI guidelines considering the probability of a tube rupture occurring in a SG following a rise in leak rate:

NOTE 1 Leakage is confirmed when two independent radiation monitors trend in the same direction. Precise duplication of leak rates, as indicated by the monitors, is not important. Confirmation time should be kept to a minimum.

NOTE 2 Leakage rate-of-change is determined at least once per 30 minutes using the difference in leak rate divided by the change in time.

NOTE 3 Action Level 3 applies to leakage spikes exceeding 150 gpd that are confirmed as being real. The rate-of-change limit applies to progressively rising leak rates and not to leak rate spikes followed by leak rate drops.

OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 3: Leak rate is greater than or equal to 75 gpd in any one SG **AND** leakage rate-of-change has risen by greater than or equal to 30 gpd/hr. **OR** Leak rate is greater than or equal to 150 gpd in any one SG,	If confirmed leakage is greater than 75 gpd and the leakage rate-of-change has risen greater than 30 gpd/hr, commence prompt and controlled plant shutdown to $\leq$ 50% power within one hour and be within Mode 3 within the next 2 hours (3 hours total). If leakage exceeds 150 gpd in any one SG, initiate shutdown to be in MODE 3 within 6 hours. Monitor radiation monitor readings every 15 minutes. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication. Initiate Attachment 2, Minimize Secondary System Contamination. Evaluate Appendix D, Contingency Plans.

APPENDIX C

Page 2 of 3

ACTION REQUIRED FOR SG TUBE LEAK

The following shall be used to determine recommended action for different leak rates or rates-of-change. The actions are based on EPRI guidelines considering the probability of a tube rupture occurring in a SG following a rise in leak rate:

NOTE 1 Leakage is confirmed when two independent radiation monitors trend in the same direction. Precise duplication of leak rates, as indicated by the monitors, is not important. Confirmation time should be kept to a minimum. The 24 hours time limit to be in Mode 3, starts at the time the 75 gpd limit was exceeded using the initial radiation monitor indication.

NOTE 2 Leakage rate-of-change is determined at least once per 30 minutes using the difference in leak rate divided by the change in time.

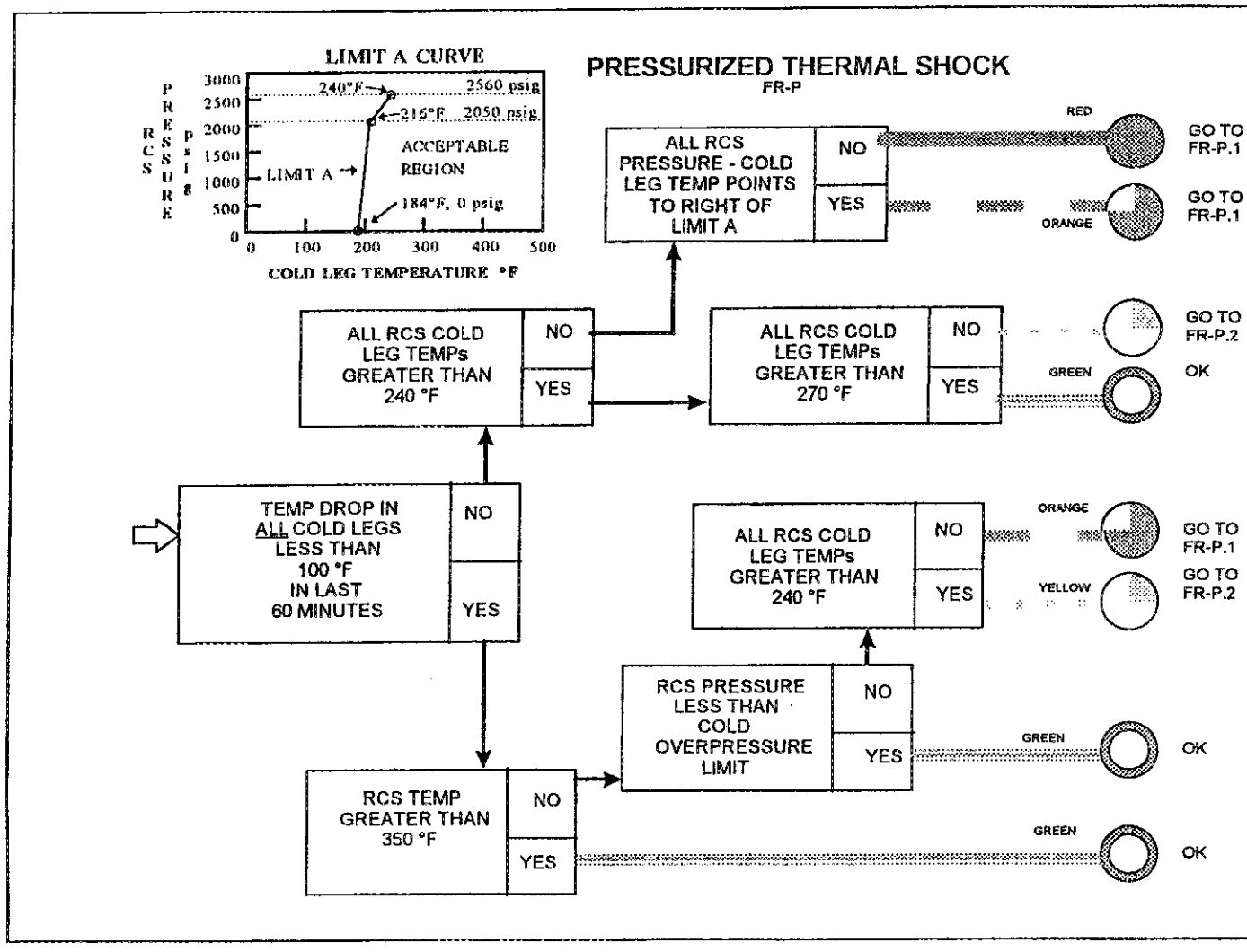
OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 2: Leak rate is greater than or equal to 75 gpd in any one SG (sustained for greater than or equal to 1 hour), **AND** Leakage rate-of-change has risen by less than 30 gpd/hr.	If leakage is $\geq$ 75 gpd in any one SG (sustained for greater than or equal to 1 hour) and the leakage rate-of-change has risen by less than 30 gpd/hr, initiate shutdown to be in MODE 3 within 24 hours. Monitor radiation monitor readings every 15 minutes. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Go to Action Level 3 if leakage rate-of-change exceeds 30 gpd/hr. Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication. Initiate Attachment 2, Minimize Secondary System Contamination. Evaluate Appendix D, Contingency Plans.

APPENDIX C

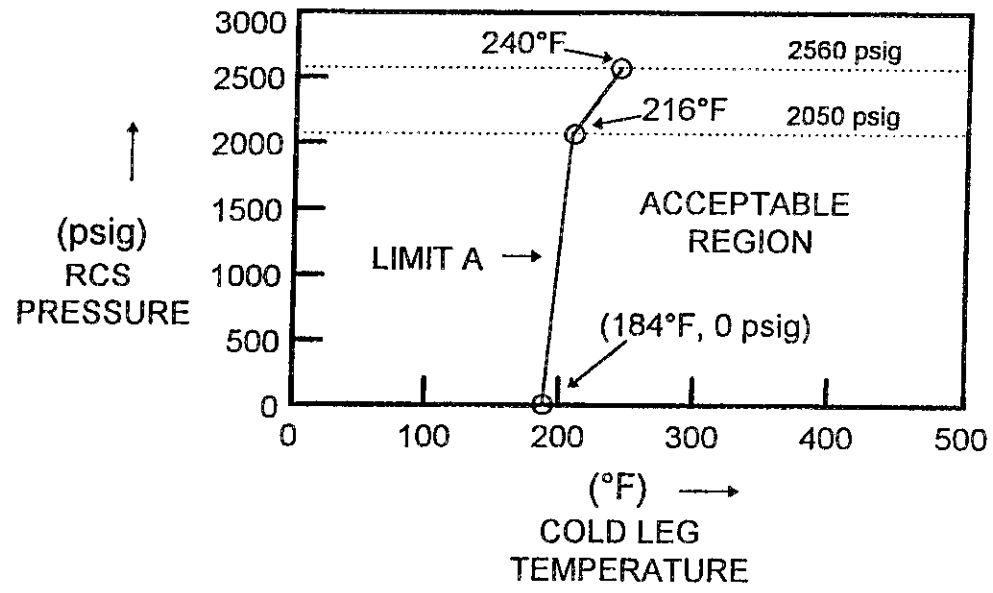
Page 3 of 3

ACTION REQUIRED FOR SG TUBE LEAK

OPERATING CONDITION	RECOMMENDED ACTION
ACTION LEVEL 1: Leak rate greater than or equal to 30 gpd but less than 75 gpd,	Raise frequency of grab sample. Monitor radiation monitor readings every 15 minutes until stable per Appendix A. Identify leaking SG, quantify leakage and determine leakage rate-of-change. Evaluate Attachment 2, Minimize Secondary System Contamination, for implementation. Notify Chemistry to adjust setpoints on radiation monitors 1-RM-119, 1-RM-120 and 1-RM-121 to ~30 gpd above baseline to detect leak rate rise (but not over 75 gpd). Coordinate with Chemistry for gpd/cpm conversion factor to facilitate estimating leak rate changes directly from radiation monitor indication.
INCREASED MONITORING: Leak rate is greater than or equal to 5 gpd but less than 30 gpd.	Elevate repair of any out-of-service leakage monitoring equipment to highest (non-emergency) priority. Notify Chemistry to adjust radiation monitors 1-RM-119, 1-RM-120 and 1-RM-121 setpoints to provide prompt indication of leakage rise. Monitor radiation monitor indications hourly until stable per Appendix A. Identify leaking SG, quantify leakage and determine leakage rate-of-change.

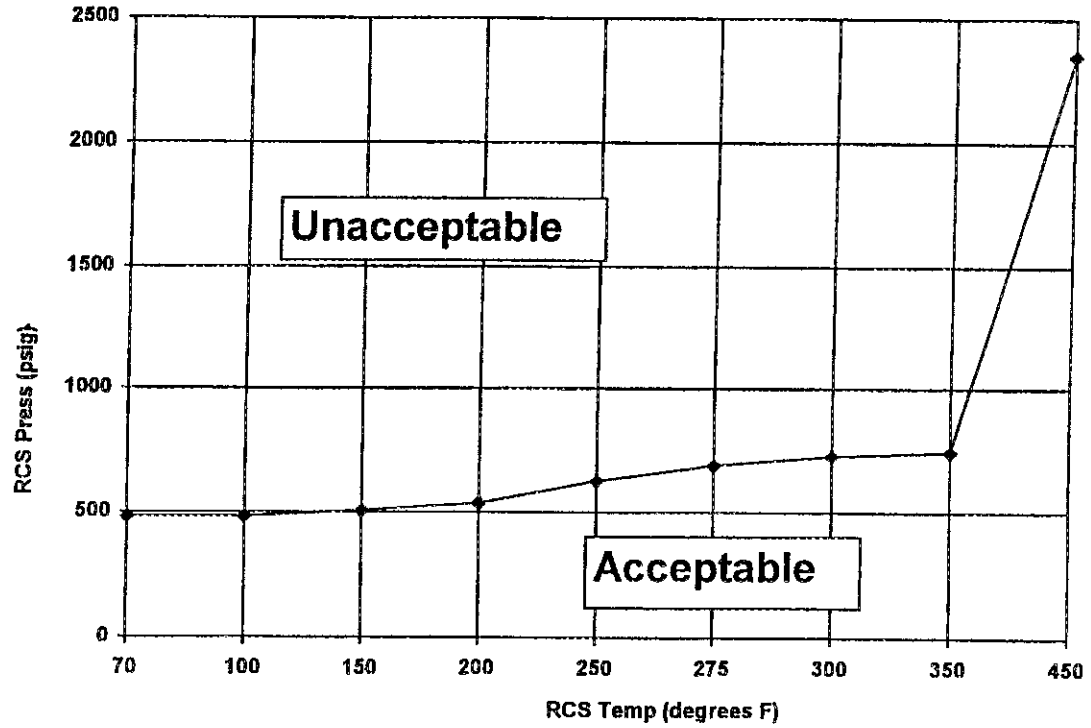

LIMIT A CURVE
RCS PRESSURE psig
3000
2500
2000
1500
1000
500
0
240°F
2560 psig
216°F
2050 psig
ACCEPTABLE REGION
LIMIT A
184°F, 0 psig
0
100
200
300
400
500
COLD LEG TEMPERATURE °F
PRESSURIZED THERMAL SHOCK
FR-P
ALL RCS PRESSURE - COLD LEG TEMP POINTS TO RIGHT OF LIMIT A
NO
YES
RED
GO TO FR-P.1
ORANGE
GO TO FR-P.1
ALL RCS COLD LEG TEMPS GREATER THAN 240 °F
NO
YES
ALL RCS COLD LEG TEMPS GREATER THAN 270 °F
NO
YES
GREEN
GO TO FR-P.2
OK
TEMP DROP IN ALL COLD LEGS LESS THAN 100 °F IN LAST 60 MINUTES
NO
YES
ALL RCS COLD LEG TEMPS GREATER THAN 240 °F
NO
YES
ORANGE
GO TO FR-P.1
YELLOW
GO TO FR-P.2
RCS PRESSURE LESS THAN COLD OVERPRESSURE LIMIT
NO
YES
GREEN
OK
RCS TEMP GREATER THAN 350 °F
NO
YES
GREEN
OK

LIMIT A CURVE
FIGURE 2



COLD OVERPRESSURE LIMIT CURVE

FIGURE 1



14.1 Fire Detection (Early Warning Fire Detection and Notification Only) (OR)

The minimum number of fire detectors are identified on Table 14.1 and shall be Operable when the safety-related or FSSD equipment in that area is required to be Operable.

NOTE 1: The action statements below apply to only the Function A fire detectors as defined in Table 14.I. The action statements of Section 14.3 and 14.4 apply to the Function B fire detectors that are associated with automatic suppression systems.

NOTE 2: Inoperable fire detectors may cause alarms or troubles on the associated local control panels that cause a masking condition addressed in Section 14.5.

NOTE 3: The central processing unit (CPU) for the fire detection system shall be operable when the fire detection system identified in Operating Requirement 14.1 is required to be operable.

NOTE 4: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

14.1.1 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable in any accessible area, within one hour restore the inoperable equipment -OR- establish a roving fire watch once per hour.

14.1.2 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable inside containment, within eight hours, restore the inoperable equipment -OR- either establish a roving fire watch once per 8-hours -OR- monitor the air temperature for the area affected once per hour using the following:

AREA	INSTRUMENT(S)
Upper Containment	U-9019 on Plant Computer
Lower Containment	U-9020 on Plant Computer

14.1.3 Restore the inoperable detector(s) to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures. Also, determine if any continuous fire watch routes are to be augmented as specified in Section 13.0.A.

14.1.4 With the CPU inoperable, within one hour establish the following compensatory action:

a. Fire detection zones containing Function A detectors in accessible areas shall be continuously monitored at the panel. Exempted from this action are zones inside the Main Control Room and zones associated with supervisory functions (i.e., pressure switches, valve position, fire door position, etc.).

b. For fire detection zones containing Function A detectors in inaccessible areas, the air temperature shall be monitored once per hour -OR- the local panel shall be monitored once per hour.

c. For fire detection zones containing function B detectors or for zones providing a supervisory function in accessible or inaccessible areas, the local fire detection panel shall be monitored hourly.

14.1.5 Restore the inoperable CPU to operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.

14.2 Water Supply

The Fire Suppression Water Supply System shall be Operable at all times as follows:

NOTE: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

a. Three fire suppression pumps consisting of the diesel driven pump (2500 gpm at 125 psig (288 feet of head)) AND two electric driven pumps, each with a minimum capacity of 1590 gpm at 300 feet of head (130 psig), with their discharge aligned to the fire suppression system header, AND

b. An Operable flow path from the suction supplies, through distribution piping, sectionalizing, control or isolation valves up to but not including the first valve off the headers, leading to the yard hydrant (Section 14.7), the fire hose station/standpipes (Section 14.6), and each water based suppression system (Section 14.3).

14.3 Water Based Fire Suppression

The water based fire suppression systems in the following areas (See Table 14.3 for specific systems) and their associated fire detectors shall be Operable whenever the protected safety-related or FSSD equipment is required to be Operable:

a. Unit 1 Reactor building - RC pump area, Annulus.
b. Auxiliary building - Elev. 692, 713, 729, 737, 757, 772, and 782.
c. Auxiliary building - ABGTS filters, EGTS filters, Containment Purge Air Exhaust Filters, 125V battery and battery board rooms.
d. Control building - Elev. 692, cable spreading room, operator living area.
e. Control building - MCR air filters.
f. Diesel building - Corridor area.
g. Intake Pumping Station
h. Turbine Building - Control Building Wall

Note 1: The action statements of this section apply to the Function B fire detectors that are associated with an automatic suppression system. Refer to Table 14.1 for the specific number of fire detectors associated with the water based fire suppression systems in the areas noted below.

Note 2: Inoperable fire detectors may cause alarm or trouble conditions on the associated local control panels that may cause a masking condition addressed in Section 14.5.

Note 3: In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

14.3.1. With either suppression and/or associated Function B fire detectors inoperable in any of the locations noted above (a-h) in which redundant safe shutdown systems or components could be damaged by a single fire, within one hour, restore the inoperable equipment or:

a. For accessible areas, within one hour establish the following:

1. A continuous fire watch AND backup suppression equipment for those areas, if detection or both suppression and detection are inoperable, -OR-

2. A roving fire watch and backup suppression equipment for those areas, except for 737' elevation of the Auxiliary Building, if only the suppression is inoperable.

3. A continuous fire watch and backup suppression equipment for the 737' elevation of the Auxiliary Building if suppression or detection or both are inoperable. This watch shall be limited to the 737' elevation of the Auxiliary Building.

b. For inaccessible areas, as noted, within one hour establish the following:

1. For the Unit 1 Reactor Building, Lower Containment, within one hour establish a continuous fire watch -OR- monitor the air temperature in the area once per hour using U-9020 on Plant Computer.

2. For other inaccessible areas with detection inoperable OR both suppression and detection inoperable, within one hour establish backup suppression equipment and:

a. A continuous fire watch, OR

b. Provide alternate compensatory actions.

3. For other inaccessible areas with inoperable suppression only, within one hour establish backup fire suppression equipment AND:

a. An hourly roving fire watch, OR

b. Provide alternate compensatory actions.

14.3.2 With either inoperable suppression or associated Function B fire detectors in any of the locations noted above (a-h) in which redundant safe shutdown systems or components are NOT exposed to the damage of a single fire, within one hour establish a roving fire watch AND backup suppression equipment for those areas.

14.3.3 Restore the inoperable suppression and/or associated detection to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures. Also, determine if any continuous fire watch routes are to be augmented as specified in Section 13.0.A.

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 1 OF 10)

A. Diesel Generator Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
1	Diesel Gen. Rm. 2B-B, El. 742	0/5	
2	Diesel Gen. Rm. 2B-B, El. 742	0/5	
3	Diesel Gen. Rm. 1B-B, El. 742	0/5	
4	Diesel Gen. Rm. 1B-B, El. 742	0/5	
5	Diesel Gen. Rm. 2A-A, El. 742	0/5	
6	Diesel Gen. Rm. 2A-A, El. 742	0/5	
7	Diesel Gen. Rm. 1A-A, El. 742	0/5	
8	Diesel Gen. Rm. 1A-A, El. 742	0/5	
9	Lube Oil Storage Rm., El. 742	0/1	
10	Lube Oil Storage Rm., El. 742	0/1	
11	Fuel Oil Transfer Rm., El. 742	0/1	
12	Fuel Oil Transfer Rm., El. 742	0/1	
13	Diesel Gen. Corridor, El. 742		0/6
14	Air Intake & Exhaust Rm. 2B, El. 760	10/0	
15	Air Intake & Exhaust Rm. 1B, El. 760	10/0	
16	Air Intake & Exhaust Rm. 2A, El. 760	10/0	
17	Air Intake & Exhaust Rm. 1A, El. 760	10/0	
18	Diesel Gen. 2B-B Relay Bd. El. 742		3/0
19	Diesel Gen. 1B-B Relay Bd. El. 742		3/0
20	Diesel Gen. 2A-A Relay Bd. El. 742		3/0
21	Diesel Gen. 1A-A Relay Bd. El. 742		3/0
22	Diesel Gen. Board Rm. 2B-B, El. 760	0/2	
23	Diesel Gen. Board Rm. 2B-B, El. 760		0/2
24	Diesel Gen. Board Rm. 1B-B, El. 760	0/2	
25	Diesel Gen. Board Rm. 1B-B, El. 760		0/2
26	Diesel Gen. Board Rm. 2A-A, El. 760	0/2	
27	Diesel Gen. Board Rm. 2A-A, El. 760		0/2
28	Diesel Gen. Board Rm. 1A-A, El. 760	0/2	
29	Diesel Gen. Board Rm. 1A-A, El. 760		0/2
36	DGB Tr B Conduit Entry, El. 742		0/1
37	DGB Tr A Conduit Entry, El. 742		0/1
432	DGB Conduit Interface Room		9/0

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 2 OF 10)

B. Control Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
30	Cable Spreading Rm. C7-C11, El. 729		0/15
31	Cable Spreading Rm. C7-C11, El. 729		0/15
32	Cable Spreading Rm. C7-C11, El. 729		0/15
33	Cable Spreading Rm. C7-C11, El. 729		0/15
34	Cable Spreading Rm. C3-C7, El. 729		0/15
35	Cable Spreading Rm. C3-C7, El. 729		0/15
48	Control Bldg. Corridor, El. 692		0/4
49	Control Bldg. Corridor, El. 692		0/4
50	Mech. Equip Rm., Col. C1, El. 692		0/2
51	Mech. Equip Rm., Col. C1, El. 692		0/2
52	Mech. Equip Rm., Col. C3, El. 692		0/2
53	Mech. Equip Rm., Col. C3, El. 692		0/2
54	Battery Rm., El. 692		0/3
55	Battery Rm., El. 692		0/3
56	Battery Bd. Rm., El. 692		2/0
57	Battery Bd. Rm., El. 692		2/0
58	Battery Bd. Rm., El. 692		2/0
59	Battery Bd. Rm., El. 692		2/0
60	Battery Rm., El. 692		0/3
61	Battery Rm., El. 692		0/3
62	Battery Rm., El. 692		0/3
63	Battery Rm., El. 692		0/3
64	Battery Bd. Rm., El. 692		2/0
65	Battery Bd. Rm., El. 692		2/0
66	Communications Rm., El. 692		0/4
67	Communications Rm., El. 692		0/4
68	Mech. Equip Rm., Col. C11, El. 692		0/2
69	Mech. Equip Rm., Col. C11, El. 692		0/2
149	Cable Spreading Rm. C3-C7, El. 729		0/15
150	Cable Spreading Rm. C3-C7, El. 729		0/15
214	Mech. Equip Rm., Col. C1-C2, El. 755		0/5
215	Mech. Equip Rm., Col. C1-C2, El. 755		0/5
216	CR Fltr. B, Duct Det., El. 755		0/1
217	CR Fltr. B, Duct Det., El. 755		0/1

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 3 OF 10)

B. Control Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
218	CR Fltr. A, Duct Det., El. 755		0/1
219	CR Fltr. A, Duct Det., El. 755		0/1
220	Main CR, El. 755		27/0
221	Tech Support Center, El. 755		0/6
222	Tech Support Center, El. 755		0/6
223	PSO Eng. Shop, El. 755		0/1
224	PSO Eng. Shop, El. 755		0/1
225	Relay Bd. Rm., El. 755		11/0
226	Electric Cont. Bds., El. 755		12/0
227	Operation Living Area, E. 755	0/4	0/4
228	Operation Living Area, E. 755		0/8
229	Main Control Bds., El. 755		8/0
267	Aux. Instr. Rm., Unit 1, El. 708		0/8
268	Aux. Instr. Rm., Unit 1, El. 708	0/10	
269	Computer Rm., El. 708		0/4
270	Computer Rm., El. 708	0/4	
271	Aux. Instr. Rm., Unit 2, El. 708		0/8
272	Aux. Instr. Rm., Unit 2, El. 708	0/10	
273	Computer Rm. Corridor, El. 708		3/0
298	Common Main Cont. Bds. & M15, El. 755		12/0
387	Control/Turbine Bldg. Wall	0/26	
412	Duplex Relay Bds., El. 755		4/0

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 4 OF 10)

C. Auxiliary Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
39	Cont. Spray Pump 1A-A, El. 676		2/0
40	Cont. Spray Pump 1B-B, El. 676		2/0
43	RHR Pump 1A-A, El. 676		2/0
44	RHR Pump 1B-B, El. 676		2/0
47	Corridor of Aux. Bldg., El. 676		11/0
70	A5-A11, Col. W-X, El. 692		0/6
71	A5-A11, Col. W-X, El. 692		0/6
72	Aux. FW Pump Turbine 1A-S, El. 692		0/1
73	Aux. FW Pump Turbine 1A-S, El. 692		0/1
76	S.I & Charging Pump Rms., El. 692		0/5
77	S. I. Pump Rm. 1A, El. 692		0/1
78	S. I. Pump Rm. 1B, El. 692		0/1
79	Charging Pump Rm. 1C, El. 692		0/1
80	Charging Pump Rm. 1B, El. 692		0/1
81	Charging Pump Rm. 1A, El. 692		0/1
88	Aux. Bldg. Corridor A1-A8, El. 692		0/8
89	Aux. Bldg. Corridor A1-A8, El. 692		0/8
90	Aux. Bldg. Corridor A8-A15, El. 692		0/12
91	Aux. Bldg. Corridor A81-A15, El. 692		0/12
92	Aux. Bldg. Corridor U-W, El. 692		0/4
93	Aux. Bldg. Corridor U-W, El. 692		0/4
94	Pipe Gallery, El. 692		0/2
95	Pipe Gallery, El. 692		0/2
98	Cntmt. Purge Air Fltr., A & B, Duct Det., El. 713		0/2
99	Cntmt. Purge Air Fltr., A & B, Duct Det., El. 713		0/2
102	Pipe Gallery, El. 713		0/4
103	Pipe Gallery, El. 713		0/4
106	Aux. Bldg. Corridor A5-11, Col. T-W, El. 713		0/8
107	Aux. Bldg. Corridor A5-11, Col. T-W, El. 713		0/8
108	Radio Chemical Lab. Area, El. 713		0/3
109	Radio Chemical Lab. Area, El. 713		0/3
110	Aux. Bldg. A1-A8, Col. Q-U, El. 713		0/24

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 5 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
111	Aux. Bldg. A1-A8, Col. Q-U, El. 713		0/22
112	Aux. Bldg. A8-A15, Col. Q-U, El. 713		0/15
113	Aux. Bldg. A8-A15, Col. Q-U, El. 713		0/15
114	Waste Packaging Area, El. 729		0/3
115	Waste Packaging Area, El. 729		0/3
116	Cask Loading Area, El. 729	0/2	
117	Cask Loading Area, El. 729	0/2	
118	New Fuel Storage Area		4/0
120	Aux. Bldg. Gas Trtmt. Fltr., U1, El. 737		0/1
121	Aux. Bldg. Gas Trtmt. Fltr., U1, El. 737		0/1
123	Vol. Control Tank Rm. 1A, El 713		0/3
125	Vol. Control Tank Rm. 1A, El 713		0/3
128	Post Accident Samp. Fac. U1, El. 729		0/3
129	Post Accident Samp. Fac. U1, El. 729		0/3
130	Ventilation & Purge Air Rm., U2, El. 737		0/5
131	Ventilation & Purge Air Rm., U2, El. 737		0/5
132	Ventilation & Purge Air Rm., U2, El. 737		0/5
133	Ventilation & Purge Air Rm., U2, El. 737		0/5
134	Aux. Bldg. A5-A11, Col. U-W, El. 737		0/7
135	Aux. Bldg. A5-A11, Col. U-W, El. 737		0/7
136	Heating & Vent Rm., U1, El. 737		0/5
137	Heating & Vent Rm., U1, El. 737		0/5
138	Heating & Vent Rm., U2, El. 737		0/5
139	Heating & Vent Rm., U2, El. 737		0/5
140	Hot Instrument Shop, El. 737		0/1
141	Hot Instrument Shop, El. 737		0/1
142	Aux. Bldg. A1-A8, Col. Q-U, El. 737		0/13
143	Aux. Bldg. A1-A8, Col. Q-U, El. 737		0/13
144	Aux. Bldg. A8-A15, Col. Q-U, El. 737		0/10
145	Aux. Bldg. A8-A15, Col. Q-U, El. 737		0/10
146	N_2 Storage, El. 729		4/0
147	Aux. Bldg Gas Trtmt. Fltr, U2, El. 737		0/1

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 6 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
148	Aux. Bldg Gas Trtmt. Fltr, U2, El. 737		0/1
156	Reactor Bldg. Access Rm., El. 757		0/2
157	Reactor Bldg. Access Rm., El. 757		0/2
160	Spare Room (Reverse Osmosis), El. 757, A4-V		0/4
161	Spare Room (Reverse Osmosis), El. 757, A4-V		0/4
162	EGTS Rm., El. 757		0/3
163	EGTS Rm., El. 757		0/3
164	EGTS Fltr. A, El. 757		0/1
165	EGTS Fltr. A, El. 757		0/1
166	EGTS Fltr. B, El. 757		0/1
167	EGTS Fltr. B, El. 757		0/1
168	Reactor Bldg. Equip. Hatch, El. 757 Unit 1		0/1
169	Reactor Bldg. Equip. Hatch, El. 757 Unit 1		0/1
170	Reactor Bldg. Equip. Hatch, El. 757 Unit 2		0/1
171	Reactor Bldg. Equip. Hatch, El. 757 Unit 2		0/1
172	Unit 1 Mech. Eqpt. Rm., El. 757		0/1
173	Unit 1 Mech. Eqpt. Rm., El. 757		0/1
174	Unit 2 Mech. Eqpt. Rm., El. 757		0/1
175	Unit 2 Mech. Eqpt. Rm., El. 757		0/1
176	480V Shtdn Bd. Rm. 1A1, El. 757		0/2
177	480V Shtdn Bd. Rm. 1A1, El. 757		0/2
178	480V Shtdn Bd. Rm. 1A2, El. 757		0/2
179	480V Shtdn Bd. Rm. 1A2, El. 757		0/2
180	480V Shtdn Bd. Rm. 1B1, El. 757		0/2
181	480V Shtdn Bd. Rm. 1B1, El. 757		0/2
182	480V Shtdn Bd. Rm. 1B2, El. 757		0/3
183	480V Shtdn Bd. Rm. 1B2, El. 757		0/3
184	6.9 kV Shtdn. Bd. Rm. A, El. 757		0/7
185	6.9 kV Shtdn. Bd. Rm. A, El. 757		0/7
186	6.9 kV Shtdn. Bd. Rm. B, El. 757		0/7
187	6.9 kV Shtdn. Bd. Rm. B, El. 757		0/7
188	480V Shtdn Bd. Rm. 2A1, El. 757		0/2
189	480V Shtdn Bd. Rm. 2A1, El. 757		0/2
190	480V Shtdn Bd. Rm. 2A2, El. 757		0/3

(continued)

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 8 OF 10)

C. Auxiliary Building (continued)		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
245	480V XFMR Rm. 2A, El. 772		0/3
246	480V XFMR Rm. 2A, El. 772		0/3
247	480V XFMR Rm. 2B, El. 772		0/3
248	480V XFMR Rm. 21B, El. 772		0/3
249	125V Batt. Rm., I, El. 772		2/0
251	125V Batt. Rm., II, El. 772		2/0
253	125V Batt. Rm., III, El. 772		2/0
255	125V Batt. Rm., IV, El. 772		2/0
257	480V Bd. Rm., 1B, El. 772		0/4
258	480V Bd. Rm., 1B, El. 772		0/4
259	480V Bd. Rm., 1A, El. 772		0/4
260	480V Bd. Rm., 1A, El. 772		0/4
261	480V Bd. Rm., 2A, El. 772		0/4
262	480V Bd. Rm., 2A, El. 772		0/4
263	480V Bd. Rm., 2B, El. 772		0/4
264	480V Bd. Rm., 2B, El. 772		0/4
296	Aux. CR Bds. L-4B, 4D, & 11B, El. 757		8/0
330	Pipe Chase, U1, El. 737, 713, 692		20/0
441	125V Batt. Rm., V, El. 772		0/2
442	125V Batt. Rm., V, El. 772		0/2
455	Post Accident Samp. Fac., U1, El.737		0/1
456	Post Accident Samp. Fac., U1, El.737		0/1

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
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D. Additional Equipment Building		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
122	Add. Eqpt. Bldg., U1, El. 729		6/0
154	Add. Eqpt. Bldg., U1, El. 763.5		6/0
231	Add. Eqpt. Bldg., El. 786.5		4/0
232	Add. Eqpt. Bldg., El. 775.25		4/0

E. Intake Pumping Station		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
250	ERCW Pump Rm., El. 741	4/0	
277	Strainer Rm., El. 722		18/0
278	ERCW Pump Rm., El. 741	4/0	
405	Elect. Bd. Rm., El. 711		0/5
406	Elect. Bd. Rm., El. 711		0/5

F. Containment Unit 1 #		Total Number of Instruments **	
ZONE	INSTRUMENT LOCATION	HEAT (A/B)	SMOKE (A/B)
352	Lower Compt. Coolers, El. 716		4/0
354	Upper Compt. Coolers, El. 801		4/0
356	RCP 2, El. 716	0/2	
357	RCP 2, El. 716	0/2	
360	RCP 1, El. 716	0/2	
361	RCP 1, El. 716	0/2	
364	RCP 3, El. 716	0/2	
365	RCP 3, El. 716	0/2	
368	RCP 4, El. 716	0/2	
369	RCP 4, El. 716	0/2	
372	Reactor Bldg. Annulus		0/26
373	Reactor Bldg. Annulus		0/25
457	Reactor Bldg. Annulus		0/9
458	Reactor Bldg. Annulus		0/8

The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A containment leakage rate tests.

** - See Table Notation , Page 10 of 10

TABLE 14.1 FIRE DETECTION INSTRUMENTATION
(PAGE 10 OF 10)

TABLE NOTATION

** A/B: A is a number of Function A (early warning fire detection and notification only) instruments.

B is a number of Function B (actuation of fire suppression systems and early warning notification) instruments.

TABLE 14.3 WATER BASED FIRE SUPPRESSION
(PAGE 1 OF 1)

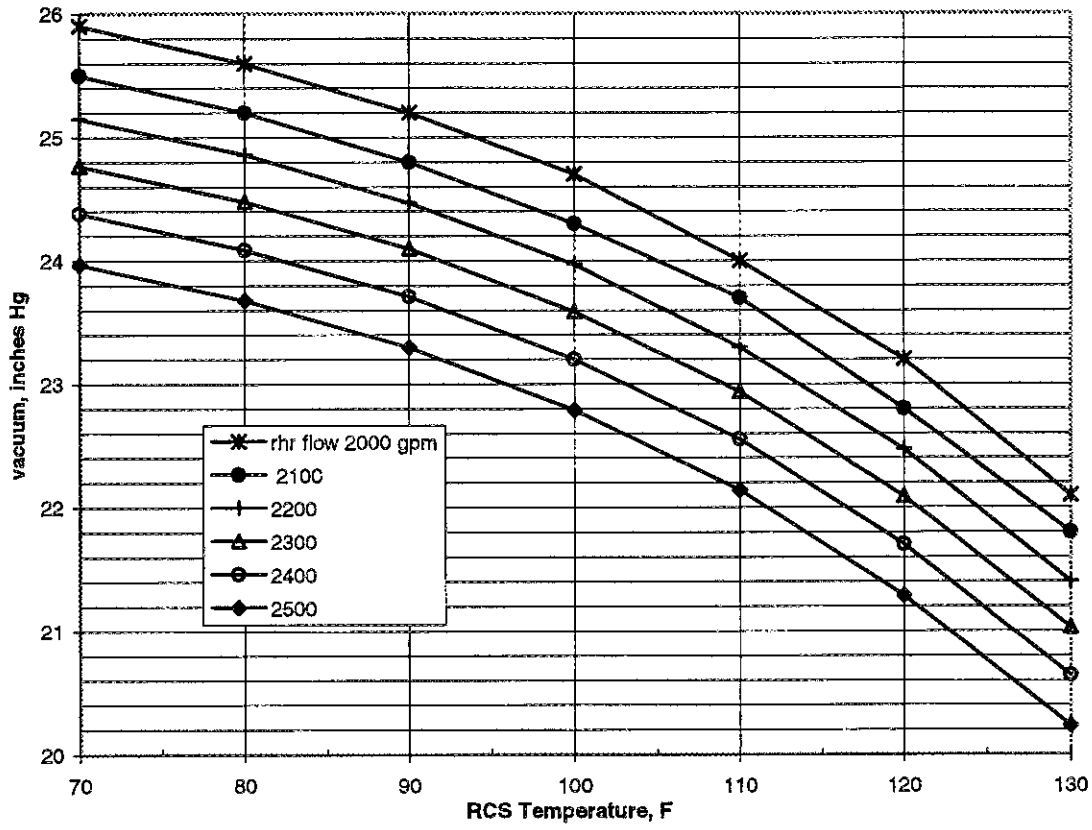
OR SECTION	SPECIFIC SYSTEMS
14.3.a	Unit 1 Reactor Building - RC Pump Area, Annulus 1-FCV-026-219 1-FCV-026-223
14.3.b	Auxiliary Building - El 692, 713, 729, 737, 757, 772, 782 0-FCV-026-191 0-FCV-026-187 0-FCV-026-183 0-FCV-026-143 and O-FCV-026-322 0-FCV-026-151 and 0-FCV-026-326 0-FCV-026-147
14.3.c	Auxiliary Building - ABGTS Filters, EGTS Filters, Unit 1 Containment Purge Air Exhaust Filters, 125V Battery and Battery Board Rooms 1-FCV-026-163 2-FCV-026-171 0-FCV-026-175 0-FCV-026-179 1-FCV-026-159 0-ISV-026-996 0-ISV-026-997 0-ISV-026-998 0-ISV-026-999
14.3.d	Control Building - El 692, Cable Spreading Room, Operator Living Area 0-FCV-026-203 0-FCV-026-207 0-FCV-026-211
14.3.e	Control Building - MCR Air Filters 0-FCV-026-215
14.3.f	Diesel Building - Corridor Area 0-FCV-026-167
14.3.g	Intake Pump Station 0-FCV-026-26
14.3.h	Turbine Building - Control Building Wall 0-FCV-026-199

Date _____ **INITIALS**

APPENDIX AD
Page 1 of 1

VACUUM vs. RCS TEMPERATURE / RHR FLOWRATE

Allowable Vacuum vs RHR Flow and RCS Temperature
Allowable Region Is Below And To The Left Of The Applicable RHR Flow Curve



APPENDIX AE
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EVACUATION TIME