LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

*With 3/4 4-5a.

8106050161

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

REACTOR CORE

2.1.1 The combination of THERMAL POWER, Main Coolant System pressure, and the highest operating loop cold leg coolant temperature shall not exceed the limits shown in Figure 2.1-1 for 4 loop operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the point defined by the combination of the highest operating loop cold leg temperature and THERMAL POWER has exceeded (is above and to the right of) the appropriate Main Coolant System pressure line, be in HOT STANDBY within 1 hour.

MAIN COOLANT SYSTEM PRESSURE

2.1.2 The Main Coolant System pressure shall not exceed 2735 psig.

APPLICABILITY: MODES 1, 2, 3, 4 and 5.

ACTION:

MODES 1 and 2

Whenever the Main Coolant System pressure has exceeded 2735 psig, be in HOT STANDBY with the Main Coolant System pressure within its limit within 1 hour.

MODES 3, 4 and 5

Whenever the Main Coolant System pressure has exceeded 2735 psig, reduce the Main Coolant System pressure to within its limit within 5 minutes.

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(INTENTIONALLY)

TABLE 2.2-1

REACTOR PROTECTIVE SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT
1. Manual Reactor Trip	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq$ 35% of RATED THERMAL POWER High Setpoint - $\leq$ 108% of RATED THERMAL POWER with 4 main coolant pumps operating
3. Intermediate Power Range, Neutron Flux	High Setpoint - $\leq$ 108% of RATED THERMAL POWER with 4 main coolant pumps operating
4. Intermediate Range, High Startup Rate	$\leq$ 5.2 decades/minutes
5. Source Range, Neutron Flux	Not Applicable
6. Low Main Coolant Flow (steam generator P)	$\geq$ 80% of Design Flow
7. Low Main Coolant Flow (main coolant pump current)	$\geq$ 240 Amperes, $\leq$ 960 Amperes

2.1 SAFETY LIMITS

BASES

2.1.1 REACTOR CORE

The restrictions of this safety limit prevent overheating of the fuel and possible cladding perforation which would result in the release of fission products to the main coolant. Overheating of the fuel cladding is prevented by restricting fuel operation to within the nucleate boiling regime where the heat transfer coefficient is large and the cladding surface temperature is slightly above the coolant saturation temperature.

Operation above the upper boundary of the nucleate boiling regime could result in excessive cladding temperatures because of the onset of departure from nucleate boiling (DNB) and the resultant sharp reduction in heat transfer coefficient. DNB is not a directly measurable parameter during operation and therefore THERMAL POWER and main coolant temperature and pressure have been related to DNB through the W-3 correlation. The W-3 DNB correlation has been developed to predict the DNB flux and the location of DNB for axially uniform and non-uniform heat flux distributions. The local DNB heat flux ratio, DNBR, defined as the ratio of the heat flux that would cause DNB at a particular core location to the local heat flux, is indicative of the margin to DNB.

The minimum value of the DNBR during steady state operation, normal operational transients, and anticipated transients is limited to 1.30. This value corresponds to a 95 percent probability at a 95 percent confidence level that DNB will not occur and is chosen as an appropriate margin to DNB for all operating conditions.

The curves of Figure 2.1-1 show the loci of points of THERMAL POWER, Main Coolant System pressure and cold leg temperature for which the minimum DNBR is no less than 1.30, or the average enthalpy at the vessel exit is equal to the enthalpy of saturated liquid. Because of flow instability, DNB may occur prematurely should the core exit quality become too great. The limiting core exit quality for preventing flow instability is taken conservatively at 0.08.

The limiting hot channel factors used in determining the thermal limit curves are higher than those calculated at full power for the range from all control rods fully withdrawn to maximum allowable control rod insertion.

2.2 LIMITING SAFETY SYSTEM SETTINGS

BASES

2.2.1 REACTOR PROTECTIVE SYSTEM INSTRUMENTATION SETPOINTS

The Reactor Trip Setpoint limits specified in Table 2.2-1 are the values at which the reactor trips are set for each parameter. The Trip Setpoints have been selected to ensure that the reactor core and Main Coolant System are prevented from exceeding their safety limits.

Manual Reactor Trip

The Manual Reactor Trip is a redundant channel to the automatic protective instrumentation channels and provides manual reactor trip capability.

Power Range and Intermediate Power Range, Nuetron Flux

The Power Range and Intermediate Power Range Neutron Flux channel high setpoint provides reactor core protection against reactivity excursio which are too rapid to be protected by pressurizer water level protective circuitry. The Power Range low setpoint provides additional protection in the power range for a power excursion beginning from low power. The trip associated with the low setpoint may be manually bypassed above 15 MWe and is manually reinstated at a power level below 15 MWe. The low setpoint trip is not assumed in the accident analysis.

The prescribed setpoint, with allowances for errors, is consistent with the trip point used in the accident analysis.

Intermediate Range, Neutron Flux, High Startup Rate

The Intermediate Range High Startup Rate trip provides protection to limit the rate of power increase during low power conditions in the event of an uncontrolled rod withdrawal.

REACTIVITY CONTROL SYSTEMS

BORATED WATER SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.1.2.11 Each of the following borated water sources shall be OPERABLE:

a. The boric acid mix tank and associated heat tracing with:

1. A minimum contained borated water volume of 1500 gallons, equivalent to a tank level of $\geq$ 3.6 feet,

2. 12 to 12.5% by weight boric acid solution,

3. A minimum solution temperature of 150°F.

b. The safety injection tank (SIT) with:

1. A minimum contained borated water volume of 117,000 gallons of water, equivalent to a tank level of $\geq$25.5 feet,

2. A minimum boron concentration of 2200 ppm, and

3. A solution temperature of 120°F to 130°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With either the boric acid mix tank or the safety injection tank inoperable, provided the other required source is OPERABLE, restore the inoperable tank to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN (all control rods inserted) equivalent to at least 5% k/k at 200°F; restore the inoperable tank to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

4.1.2.11 Each borated water source shall be demonstrated OPERABLE:

SURVEILLANCE REQUIREMENTS (Continued)

a. At least once per 7 days by:

   1. Verifying the boron concentration of the safety injection tank water, and the boric acid concentration of the boric acid mix tank water,

   2. Verifying the contained borated water volume of each water source, and

   3. Verifying the boric acid mix tank solution temperature.

b. At least once per 24 hours by verifying the SIT temperature.

3/4.2 POWER DISTRIBUTION LIMITS

PEAK LINEAR HEAT GENERATION RATE

LIMITING CONDITION FOR OPERATION

3.2.1 The peak linear heat generation rate (LHGR) shall not exceed the limits of Figure 3.2-1 during steady state operation.

APPLICABILITY: MODE 1.

ACTION:

With the peak LHGR exceeding the limits of Figure 3.2-1:

a. Within 15 minutes reduce THERMAL POWER to not more than that fraction of the THERMAL POWER allowable for the main coolant pump combination in operation, as expressed below:

$$\text{Fraction of THERMAL POWER} = \frac{\text{Limiting LHGR}}{\text{Peak Full Power LHGR}}$$

b. Within 4 hours reduce the Power Range and Intermediate Power Range Neutron Flux high trip setpoint to $\leq$ 108% of the fraction of THERMAL POWER allowable for the main coolant pump combination.

SURVEILLANCE REQUIREMENTS

4.2.1.1 The peak LHGR shall be determined to be within the limits of Figure 3.2-1 using incore instrumentation to obtain a power distribution map:

a. Prior to initial operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 1,000 EFPH,

c. The provisions of Specification 4.0.4 are not applicable.

TABLE 3.3-4 (Continued)

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM SETPOINT	MEASUREMENT RANGE	ACTION
b) Iodine Monitor	1	At all times	$\leq$ 700 cpm greater than background	$10 - 10^6$ cpm	14
c) Noble Gas Monitors	1	At all times	$\leq$ 3500 cpm greater than background	$10 - 10^6$ cpm	14
c. Radioactive Liquid Monitors					
1) Steam Generator Blowdown Monitor	1(1)	1, 2, 3 & 4	$\leq$ 6,000 cpm or 2 x background, whichever is greater	$10 - 10^4$ cpm, or $10 - 10^6$ cpm	15
3. ACCIDENT-EMERGENCY MONITORS					
a. High Level Radiation Monitor	1	At all times	< 10 R/hr	$10^{-5} - 10^5$ R/hr	

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

c. With one SCS safety valve or PR-SOV-90 inoperable and MCS temperature $\leq$ 300°F, restore the inoperable valve to OPERABLE status within 7 days or depressurize and vent the MCS to the atmosphere, the LPST or the PDCT within the next 8 hours.

d. With more than one pressurizer PORV and/or SCS safety valve inoperable and MCS temperature is $\leq$ 300°F, depressurize and vent the MCS to the atmosphere, the LPST or the PDCT within 8 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.1 The pressurizer code safety valve shall be demonstrated OPERABLE per Surveillance Requirement 4.4.3.

4.4.2.2 The MCS pressurizer PORV PR-SOV-90 low setpoint system shall be demonstrated OPERABLE at least once per:

a. 12 hours by verifying the low setpoint system keylock switch to be in the armed position.

b. 31 days by verifying valve PR-MOV-512 to be open.

c. 18 months by performance of a CHANNEL CALIBRATION and verifying that the PORV opens at 500 $\pm$ 30 psig and closes at 470 $\pm$ 30 psig.

4.4.2.3 The SCS safety valves shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that:

1. Valves SC-MOV-551, 552, 553 and 554 are locked open.

2. Safety valves SV-204 and 205 are lined up to discharge to either the LPST or the PDCT.

b. Per ASME Section XI, Summer 1975 Addenda with a setpoint of 425 psig $\pm$ 3%.

SURVEILLANCE REQUIREMENTS (Continued)

c. Inspections Following System Opening - The structural integrity of the Main Coolant System shall be demonstrated after each closing by performing a leak test, with the system pressurized to at least 2200 psig, in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, 1970 Edition, and Addenda through Winter 1970, and the Pressure/Temperature limits of Specification 3.4.8.1.

4.4.9.2 The following inspection program shall be performed at least once per ISI interval during shutdown on at least one shroud tube per quadrant.

a. Inspect the integrity of the bolts and locking devices in the lower flange at the bottom of the shroud tubes.

b. Inspect the interface between the shroud tube lower flange and the tie plate for separation.

c. Inspect the interface between the shroud tube upper flange and the top shroud tube support plate for separation.

d. Inspect the interface between the top shroud tube support plate and the lower core support plate for separation.

e. Inspect for abnormalities one of each of the types of bolts per quadrant.

4.4.9.3 The pressurizer interior shall be inspected at least once per 18 months during shutdown using the best available techniques to determine if any change has occurred in the cladding cracks that exist and whether any further cracking of the cladding has taken place.

ACCUMULATOR

LIMITING CONDITION FOR OPERATION

3.5.1 The low pressure safety injection accumulator shall be OPERABLE with:

a. Isolation valves SI-MOV-1 and SI-TV-608 open,

b. A minimum usable contained borated water volume of 700 cubic feet of borated water, equivalent to an indicated level of 261" in the accumulator.

c. A minimum boron concentration of 2200 ppm,

d. An accumulator nitrogen cover-pressure of less than 15 psig,

e. The nitrogen supply system with three supply pressure regulating valves set at 473 $\pm$ 10 psig and at least:

   1. Sixteen 48 cubic foot nitrogen bottles $\geq$ 1390 psig, or

   2. Seventeen 48 cubic foot nitrogen bottles $\geq$ 1340 psig, or

   3. Eighteen 48 cubic foot nitrogen bottles $\geq$ 1294 psig.

f. Two OPERABLE low level venting systems, and

g. Timers set to operate at 11.85 $\pm$ 0.23 seconds.

APPLICABILITY: MODES 1, 2, 3* 4* and 5*.

ACTION:

a. With the accumulator inoperable, except as a result of a closed isolation valve or as a result of one inoperable pressure regulating valve or one inoperable low level venting system, restore the inoperable accumulator to OPERABLE status within 15 minutes or be in at least HOT SHUTDOWN with main coolant pressure $<$ 1000 psig within the next 8 hours.

b. With the accumulator inoperable due to one isolation valve being closed, either immediately open the isolation valve or be in at least HOT STANDBY within one hour and be in at least HOT SHUTDOWN with main coolant pressure $<$ 1000 psig within the next 8 hours.

*Main coolant pressure $\geq$ 1000 psig.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS safety injection subsystem, the recirculation subsystem, and the long-term hot leg injection subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying that each high pressure safety injection pump:

a) Starts (unless already operating) from the control room.

b) Develops a discharge pressure of $\geq$ 850 psig on recirculation flow to the safety injection tank.

c) Operates for at least 15 minutes.

2. Verifying that each low pressure safety injection pump:

a) Starts (unless already operating) from the control room.

b) Develops a discharge pressure of $\geq$ 250 psig on recirculation flow through CS-MOV-532.

c) Operates for at least 15 minutes.

b. At least once per 31 days by:

1. Verifying that the following valves are in the indicated positions with power to the valve operators removed by opening at least two breakers in series:

Valve Number	Valve Function	Valve Position
*a. CH-MOV-522	a. Charging Header/LPSI Isolation	a. Closed
b. CH-MOV-524	b. Charging Header/Loop 4 Hot Leg Injection Long-Term Recirculation	b. Open

*May be energized and opened if charging system discharge header division valve, CH-V-607, is tagged closed.

SAFETY INJECTION TANK

LIMITING CONDITION FOR OPERATION

3.5.4 The safety injection tank (SIT) shall be OPERABLE with:

a. A minimum contained borated water volume of 117,000 gallons, equivalent to a level of $\geq$ 25.5 feet.

b. A minimum boron concentration of 2200 ppm, and

c. A water temperature of 120°F to 130°F.

APPLICABILITY: MODES 1, 2, 3, 4* and 5*

ACTION:

With the safety injection tank inoperable, restore the tank to OPERABLE status within 1 hour or be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN with main coolant pressure < 300 psig within the following 12 hours.

SURVEILLANCE REQUIREMENTS

4.5.4 The SIT shall be demonstrated OPERABLE:

a. At least once per 7 days by:

1. Verifying the contained borated water volume in the tank, and

2. Verifying the boron concentration of the water.

b. At least once per 24 hours by verifying the SIT temperature.

*Main coolant pressure $\geq$300 psig.

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall not exceed 120°F.

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

ACTION:

With the containment average air temperature > 120°F, reduce the average air temperature to within the limit within 8 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 The primary containment average air temperature shall be the weighted average of the temperatures of at least fourteen of the following twenty locations and shall be determined at least once per 24 hours:

Location

a. Each main coolant loop - 4

b. Charging floor - 1

c. Equipment hatch - 1

d. Top of V.C. - 1

e. Top of bio-shield - 4

f. Broadway - 6

g. Pressurizer compartment - 1

h. Brass drain box - 2

CONTINUOUS LEAK MONITORING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.7 The continuous leak monitoring system shall be OPERABLE within 12 hours following establishment of CONTAINMENT INTEGRITY with:

a. Containment internal pressure $\geq$ 0.75 psig

b. At least fourteen containment temperature detectors

c. At least one containment pressure detector

d. Two relative humidity detectors and/or dew probes

APPLICABILITY: MODES 1, 2, 3, 4, and 5*

ACTION:

With the continuous leak monitoring system inoperable, restore the system to OPERABLE status within 72 hours or within 24 hours after closing any containment air lock door, whichever is sooner, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN with main coolant pressure < 300 psig within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.7 The continuous leak monitoring system shall be demonstrated OPERABLE by:

a. Verifying containment internal pressure to be $\geq$ 0.75 psig at least once per 12 hours.

b. Calibrating the temperature detectors, the pressure detector(s), the relative humidity detectors and the dew probes at least once per 18 months.

*Main coolant pressure $\geq$ 300 psig.

TABLE 3.6-1

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	TESTABLE DURING PLANT OPERATION (Yes or No)	ISOLATION TIME (Seconds)
A. AUTOMATIC ISOLATION VALVE			
TV-401A	No. 1 SG Blowdown	Yes	30
TV-401B	No. 2 SG Blowdown	Yes	30
TV-401C	No. 3 SG BLowdown	Yes	30
TV-401D	No. 4 SG Blowdown	Yes	30
TV-408	Containment Cooling Water Return	Yes	30
TV-409	Containment Heater Condensate Return	Yes	30
VD-SOV-301	Air Particulate Monitor - In	Yes	30
VD-SOV-302	Air Particulate Monitor - Out	Yes	30
TV-202	Main Coolant Drain	Yes	30
TV-203	Main Coolant Vent	Yes	30
TV-204	Valve Stem Leakoff	Yes	30
TV-205	Component Cooling Return	No	30
TV-206	Main Coolant Sample	Yes	30
TV-207	Neutron Shield Tank Sample	Yes	30
TV-209	Containment Drain	Yes	30
TV-213	LP Sample	Yes	30

CONTAINMENT ISOLATION VALVES (Cont'd)

VALVE NUMBER	FUNCTION	TESTABLE DURING PLANT OPERATION (Yes or No)	ISOLATION TIME (Seconds)
B. CHECK VALVES (Cont'd)			
SW-V-820*	Service Water to Containment Cooler #1	NA	NA
SW-V-821*	Service Water to Containment Cooler #2	NA	NA
SW-V-822*	Service Water to Containment Cooler #3	NA	NA
SW-V-823*	Service Water to Containment Cooler #4	NA	NA
HC-V-1199*	Steam Supply to Containment Heaters	NA	NA
C. MANUAL VALVES			
SC-MOV-551+553*	Shutdown Cooling - In	No	NA
SC-MOV-552+554*	Shutdown Cooling - Out	No	NA
CH-MOV-522*	MC Feed to Loop Fill Header	NA	NA
CS-V-601	Shield Tank Cavity Fill	NA	NA
CA-V-746	Containment Air Charge	NA	NA
HV-V-5	Containment H2 Vent System	NA	NA
HV-V-6	Containment H2 Vent System	NA	NA
HV-V-34	Containment H2 Vent System	NA	NA
CA-V-834	Containment H2 Vent System	NA	NA
CA-V-688	Containment H2 Vent System Air Supply	NA	NA

*Not subject to Type C tests

CONTAINMENT ISOLATION VALVES (Cont'd)

VALVE NUMBER	FUNCTION	TESTABLE DURING PLANT OPERATION (Yes or No)	ISOLATION TIME (Seconds)
C. MANUAL VALVES (Cont'd)			
CS-CV-216	Fuel Chute Dewatering Pump Discharge	NA	NA
VD-V-752	Neutron Shield Tank - Outer Test	NA	NA
VD-V-754	Neutron Shield Tank - Inner Test	NA	NA
BF-V-4-1	Air Purge Inlet	NA	NA
BF-V-4-2	Air Purge Outlet	NA	NA
HC-V-602	Air Purge Bypass	NA	NA
SI-MOV-516	ECCS Recirculation	No	NA
SI-MOV-517	ECCS Recirculation	No	NA
BF-CV-1000*	SG#1 Feedwater Regulator	No	NA
BF-CV-1100*	SG#2 Feedwater Regulator	No	NA
BF-CV-1200*	SG#3 Feedwater Regulator	No	NA
BF-CV-1300*	SG#4 Feedwater Regulator	No	NA
PU-V-543	Purification System Containment Sump Suction	NA	NA
PU-V-544	Purification System Containment Sump Suction	NA	NA
VD-V-1093	SG#1 Emergency Feed (SI)	No	NA
VD-V-1094	SG#2 Emergency Feed (SI)	No	NA
VD-V-1095	SG#3 Emergency Feed (SI)	No	NA
VD-V-1096	SG#4 Emergency Feed (SI)	No	NA

*Not subject to Type C tests

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	TESTABLE DURING PLANT OPERATION (Yes or No)	ISOLATION TIME (Seconds)
D. Other			
18" Bolted Manway**		NA	NA
Demineralized Water Supply (Blank flanged)		NA	NA
Cavity Purification (Blank flanged)		NA	NA
LP Vent Header (Blank flanged)		NA	NA
Personnel Airlock		NA	NA
Electrical Penetrations		NA	NA
Equipment Hatch**		NA	NA
Containment Leg Expansion Joints**		NA	NA
Fuel Chute Expansion Joints**		NA	NA
Fuel Chute (Blank flanged)		NA	NA
Pressurizer Heise Gauge Line*		NA	NA

* Not subject to Type C Tests
** Not Subject to Type B Tests

3/4.7.1 TURBINE CYCLE

SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.1 All main steam line code safety valves associated with each steam generator of an unisolated main coolant loop shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With 4 main coolant loops and associated steam generators in operation and with one or more main steam line code safety valves inoperable:

   1. Operation in MODES 1, 2 and 3 may proceed provided, that within 4 hours, either:

      a) The inoperable valve(s) is restored to OPERABLE status, or

      b) Three Power Range Neutron Flux channels are OPERABLE** with:

         1) The Power Range coincidence selector switch in the single position,

         2) The trip setpoints reduced per:

            (a) Table 3.7-1 for 4 loop operation.

         3) One Intermediate Power Range Neutron Flux channel in the tripped condition.

   2. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.1 Each main steam line code safety valve shall be demonstrated OPERABLE, with lift settings and orifice sizes as shown in Table 4.7-1, in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition, and Addenda through Summer, 1975.

** One Power Range Neutron Flux channel may be made inoperable for up to 2 hours for required surveillance per Specification 4.3.1.1.

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TABLE 3.7-4

SAFETY RELATED SNUBBERS*

SNUBBER NO.	SYSTEM SNUBBER INSTALLED ON AND LOCATION	ACCESSIBLE (A) or INACCESSIBLE (I)	HIGH RADIATION ZONE DURING SHUTDOWN**	ESPECIALLY DIFFICULT TO REMOVE
HSS 19A	Pressurizer relief valve,	A	No	No
HSS 19B	pressurizer cubicle	A	No	No
HSS 20A		A	No	No
HSS 20B		A	No	No
236	S/G No. 1, Right side	I	Yes	Yes
221	S/G No. 1, Left side	I	Yes	Yes
445	S/G No. 2, Right side	I	Yes	Yes
441	S/G No. 2, Left side	I	Yes	Yes
446	S/G No. 3, Right side	I	Yes	Yes
443	S/G No. 3, Left side	I	Yes	Yes
447	S/G No. 4, Right side	I	Yes	Yes
437	S/G No. 4, Left side	I	Yes	Yes

* Snubbers may be added to safety related systems without prior license amendment to Table 3.7-4 provided that a proposed revision to Table 3.7-4 is included with the next license amendment request.

** Modifications to this table due to changes in high radiation areas shall be submitted with the next license amendment request.

3/4.8.1 AC SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following AC electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Three separate and independent diesel generators:

1. Each with separate day fuel tank containing a minimum volume of 210 gallons of fuel, equivalent to a 3/4 full tank, and

2. With a fuel storage system containing a minimum volume of 8000 gallons of fuel, equivalent to a tank level of 4'6.5".

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

ACTION:

a. With either an offsite circuit or diesel generator of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.5 within one hour and at least once per 8 hours thereafter; restore at least two offsite circuits and three diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one offsite circuit and one diesel generator of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirements 4.8.1.1.1.a and 4.8.1.1.2.a.5 within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30

LIMITING CONDITION FOR OPERATION (Continued)

hours. Restore at least two offsite circuits and three diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two of the above required offsite AC circuits inoperable, demonstrate the OPERABILITY of three diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.5 within one hour and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With less than two of the above required diesel generators OPERABLE demonstrate the OPERABILITY of two offsite AC circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least two of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore three diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments, indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring unit power supply from one independent circuit to the second independent circuit.

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following AC electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the onsite Class 1E distribution system, and

b. One diesel generator with:

1. Day fuel tank containing a minimum volume of 210 gallons of fuel, equivalent to a 3/4 full tank, and

2. A fuel storage system containing a minimum volume of 4000 gallons of fuel, equivalent to a tank level of 2'4.5".

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required AC electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required AC electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required AC electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for Requirement 4.8.1.1.2.a.4.

ELECTRICAL POWER SYSTEMS

AC DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following AC electrical busses shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator.

a. 1 - 2400 volt bus #2 or #3

b. 2 - 480 volt buses

c. 1 - 480 volt emergency buses #1, 2 or 3

d. 2 - 480 volt buses, emergency MCC #1 and emergency MCC #2

e. 1 - 120 volt vital bus

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above complement of AC buses OPERABLE and energized, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified AC buses shall be determined OPERABLE and energized from AC sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ECCS SUBSYSTEMS (Continued)

With the Main Coolant System temperature and pressure below 330°F, and 1000 psig, respectively, one OPERABLE ECCS safety injection subsystem, with the OPERABLE recirculation subsystem and the OPERABLE long term hot leg injection subsystem, is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor, the decreased probability of a LOCA and the limited core cooling requirements because of the negligible energy stored in the primary coolant under these conditions.

The Surveillance Requirements provided to ensure OPERABILITY of each componen ensures that, at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained.

Complete system tests cannot be performed when the reactor is operating because of their inter-relation with operating systems. The method of assuring operability of these systems is a combination of complete system tests performed during refueling shutdowns and monthly tests of active system components (pumps and valves) during reactor operation. The test interval is based on the judgement that more frequent testing would not significantly increase reliability.

Some subsystems power operated valves fail to meet single failure criteria and removal of power to these valves is required.

In order to eliminate potential for reactor vessel low temperature overpressurization by the inadvertent operation of ECCS pumps, the pump circuit breakers are opened and locked in the racked-out position or removed from the breaker cubicles. Also selected SIS isolation valves are positioned to remove the possibility of an overpressurization event during that portion of MCS heatup and cooldown when an inadvertent injection could result in an overpressure event.

3/4.5.4 SAFETY INJECTION TANK

The OPERABILITY of the Safety Injection Tank (SIT) as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA. The limits on SIT minimum volume and boron concentration ensure that 1) sufficient water is available within containment to permit recirculation cooling flow to the core, and 2) the reactor will remain subcritical in the cold condition following mixing of the SIT and the Main Coolant System water volumes with all control rods inserted except for the most reactive control assembly. These assumptions are consistent with the LOCA analyses, which is based on allowing a minimum of 77,000 gallons to be injected by the safety injection subsystems before the recirculation is manually established. LOCA analyses show that an injection of 77,000 gallons is sufficient to limit core temperatures and containment pressure for the full spectrum of pipe ruptures. This leaves up to 40,000 gallons in the SIT as reserve. The boron concentration of 2200 ppm is the highest value assumed in any accident analysis. The SIT water temperature of 120°F - 130°F ensures that the reactor vessel is not subjected to conditions that could exceed the NDT provisions of the ASME Code after a severe transient.

3/4.6.1.3 CONTAINMENT AIR LOCK (Continued)

not become excessive due to door seal damage during the intervals between air lock leakage tests. The surveillance testing requirements are consistent with the requirements of Appendix "J" to 10 CFR 50 except for the licensee's reliance on the containment continuous leak monitoring system to detect excessive air lock door seal leakage between air lock leakage tests. The licensee was granted an exemption by letter dated January 14, 1974 to use this monitoring system rather than leak test the air lock door seal after each opening.

3/4.6.1.4 INTERNAL PRESSURE

The limitations on containment internal pressure ensure that the containment peak pressure does not exceed the design pressure of 34.5 psig during LOCA conditions.

The maximum peak pressure expected to be obtained from a LOCA event is 31.6 psig. The limit of 3.0 psig fr initial positive containment pressure will limit the total pressure to 31.6 psig which is less than the design pressure and is consistent with the accident analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that the overall containment average air temperature does not exceed the initial temperature condition assumed in the accident analysis for a LOCA.

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within its design pressure of 1035 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section VIII of the ASME Boiler and Pressure Code, 1956 Edition. The total relieving capacity for all valves on all of the steam lines is 3.1×10^6 lbs/hr which is 129 percent of the total secondary steam flow of 2.4×10^6 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per OPERABLE steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are derived on the following bases:

For 4 loop operation

$$SP = \frac{(X) - (Y)(V)}{X} \times (108)$$

Where:

SP = Reduced reactor trip setpoint in percent of RATED THERMAL POWER

V = Maximum number of inoperable safety valves per steam Generator

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations are based on a steam generator initial RT_{NDT} plus 60°F and are sufficient to prevent brittle fracture.

3/4.7.3 PRIMARY PUMP SEAL WATER SYSTEM

(Deleted)

3/4.7.4 SERVICE WATER SYSTEM

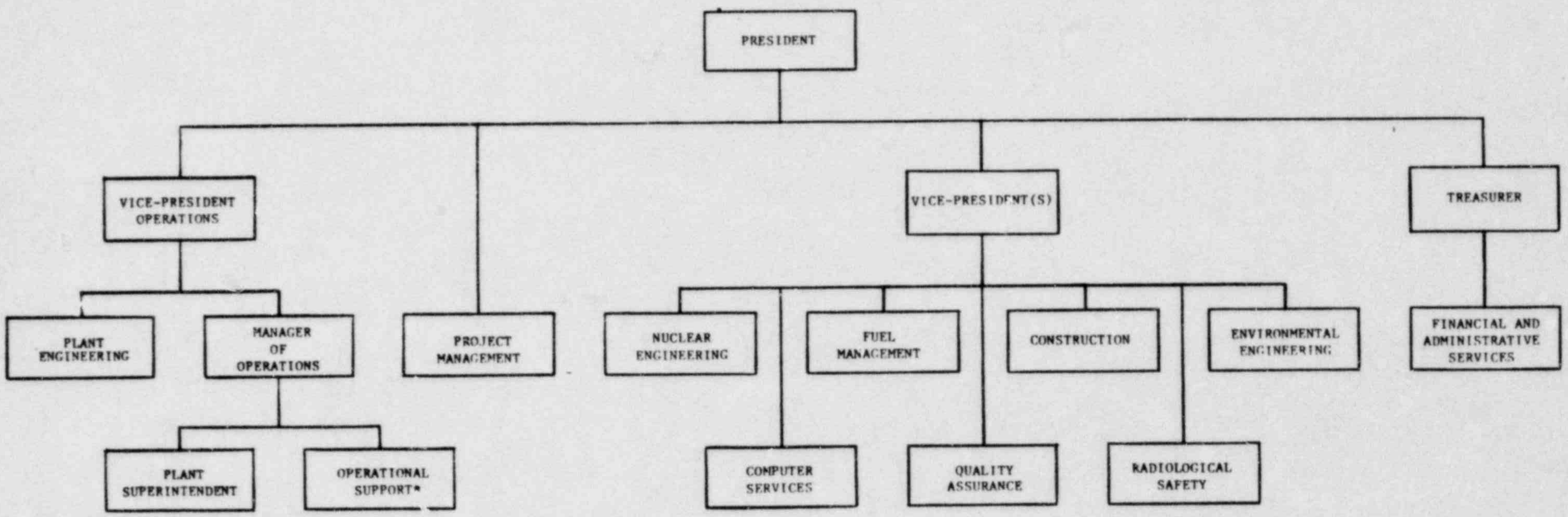
(Deleted)

3/4.7.5 CONTROL ROOM VENTILATION SYSTEM EMERGENCY SHUTDOWN

The operability of the control room ventilation system emergency shutdown enhances the opportunity for the control room to remain habitable for Operations personnel during and following accident conditions.

3/4.7.6 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

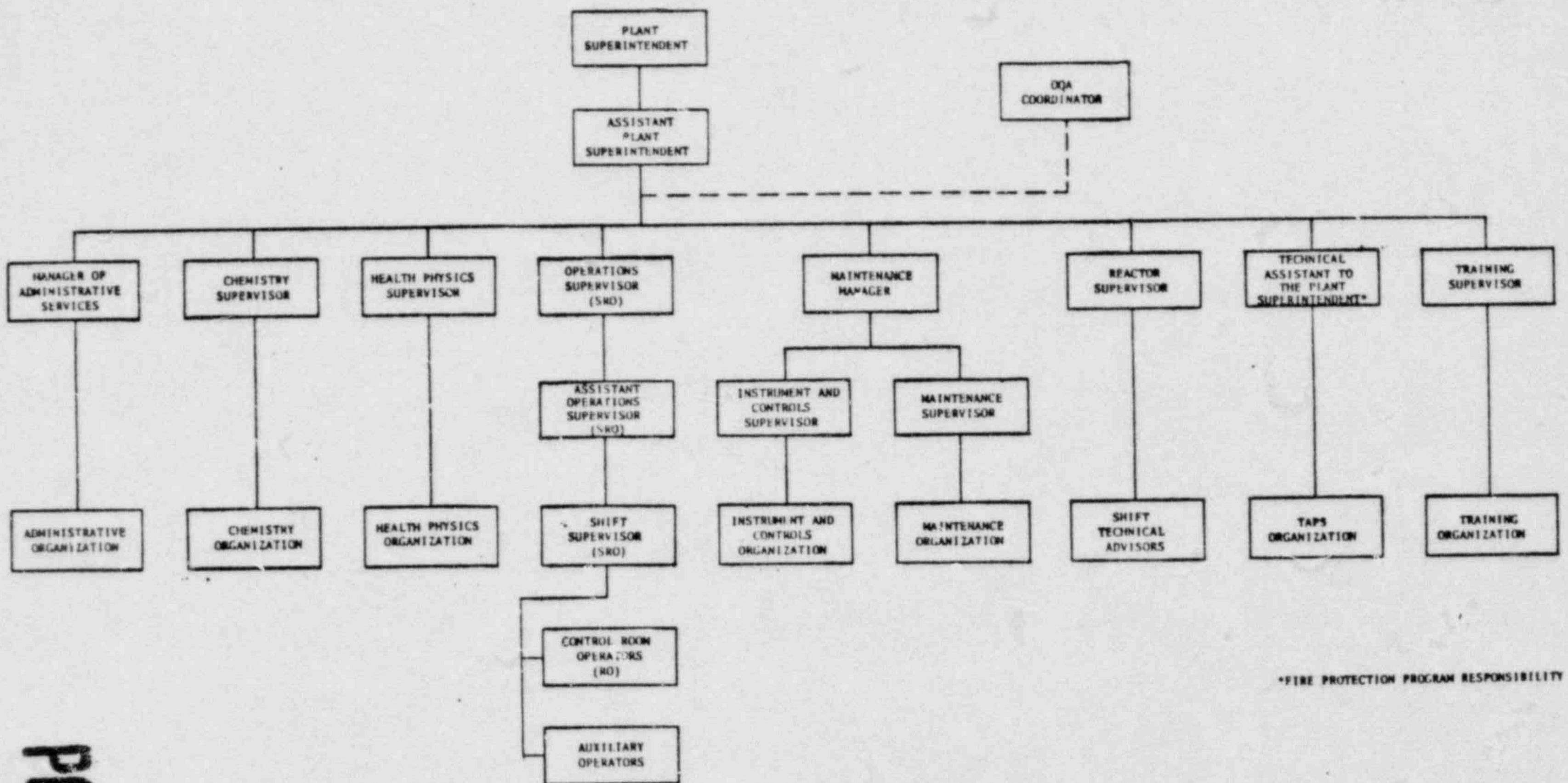


* INCLUDES FIRE PROTECTION AND SECURITY RESPONSIBILITIES

Figure 6.2-1

OFFSITE ORGANIZATION

POOR ORIGINAL



*FIRE PROTECTION PROGRAM RESPONSIBILITY

Figure 6.2-2
FACILITY ORGANIZATION

6.3 FACILITY STAFF QUALIFICATIONS

6.3.1 Each member of the facility staff listed below shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the Shift Technical Advisor who shall have a bachelor's degree or equivalent in a scientific or engineering discipline with specific training in plant design, and response and analysis of the plant for transients and accidents.

a. Plant Superintendent

b. Assistant Plant Superintendent

c. Chemistry Supervisor

d. Operations Supervisor

e. Reactor Supervisor

f. Maintenance Manager

g. Maintenance Supervisor

h. Instrument and Controls Supervisor

i. Shift Supervisors

j. Health Physics Supervisor

k. Shift Technical Advisor

6.4 TRAINING

6.4.1 A retraining and replacement training program for the facility NRC licensed staff shall be maintained under the direction of the Training Coordinator and shall meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and Appendix "A" of 10 CFR Part 55.

6.4.2 A training program for the Fire Brigade shall be maintained under the direction of a member of the plant staff appointed to perform the duties of Fire Protection Coordinator and shall meet or exceed the requirements of Section 27 of the NFPA Code-1976, except for Fire Brigade training sessions which shall be held at least quarterly.

6.5 REVIEW AND AUDIT

6.5.1 PLANT OPERATION REVIEW COMMITTEE

FUNCTION

6.5.1.1 The Plant Operation Review Committee (PORC) shall function to advise the Plant Superintendent on all matters related to nuclear safety.

COMPOSITION

6.5.1.2 The Plant Operation Review Committee shall be composed of the:

Chairman:	Plant Superintendent
Vice Chairman:	Assistant Plant Superintendent
Member:	Operations Supervisor
Member:	Maintenance Manager
Member:	Maintenance Supervisor
Member:	Reactor Supervisor
Member:	Chemistry Supervisor
Member:	Instrument and Control Supervisor
Member:	Health Physics Supervisor

ALTERNATES

6.5.1.3 All alternate members shall be appointed in writing by the PORC Chairman to serve on a temporary basis; however, no more than two alternates shall participate as voting members in PORC activities or count toward a PORC quorum at any one time.

MEETING FREQUENCY

6.5.1.4 The PORC shall meet at least once per calendar month and as convened by the PORC Chairman or Vice Chairman.

QUORUM

6.5.1.5 A quorum of the PORC shall consist of a minimum of five people as follows:

a. The Chairman or Vice Chairman plus four members, or

b. The Chairman and Vice Chairman plus three members.

RESPONSIBILITIES

6.5.1.6 The Plant Operation Review Committee shall be responsible for:

a. Review of 1) all procedures required by Specification 6.8 and changes thereto, 2) any other proposed procedures or changes thereto as determined by the Plant Superintendent to affect nuclear safety.

REPORTABLE OCCURRENCES

6.9.4 REPORTABLE OCCURRENCES, including corrective actions and measures to prevent recurrence, shall be reported to the NRC. Supplemental reports may be required to fully describe final resolution of occurrence. In case of corrected or supplemental reports, a licensee event report shall be completed and reference shall be made to the original report date.

a. Prompt Notification With Written Followup. The types of events listed below shall be reported as expeditiously as possible, but within 24 hours, by telephone and confirmed by telegraph, mailgram, or facsimile transmission to the Director of the appropriate Regional Office, or his designate no later than the first working day following the event, with a written followup report within two weeks. The written followup report shall include, as a minimum, a completed copy of a licensee event report form. Information provided on the licensee event report form shall be supplemented, as needed, by additional narrative material to provide a complete explanation of the circumstances surrounding the event.

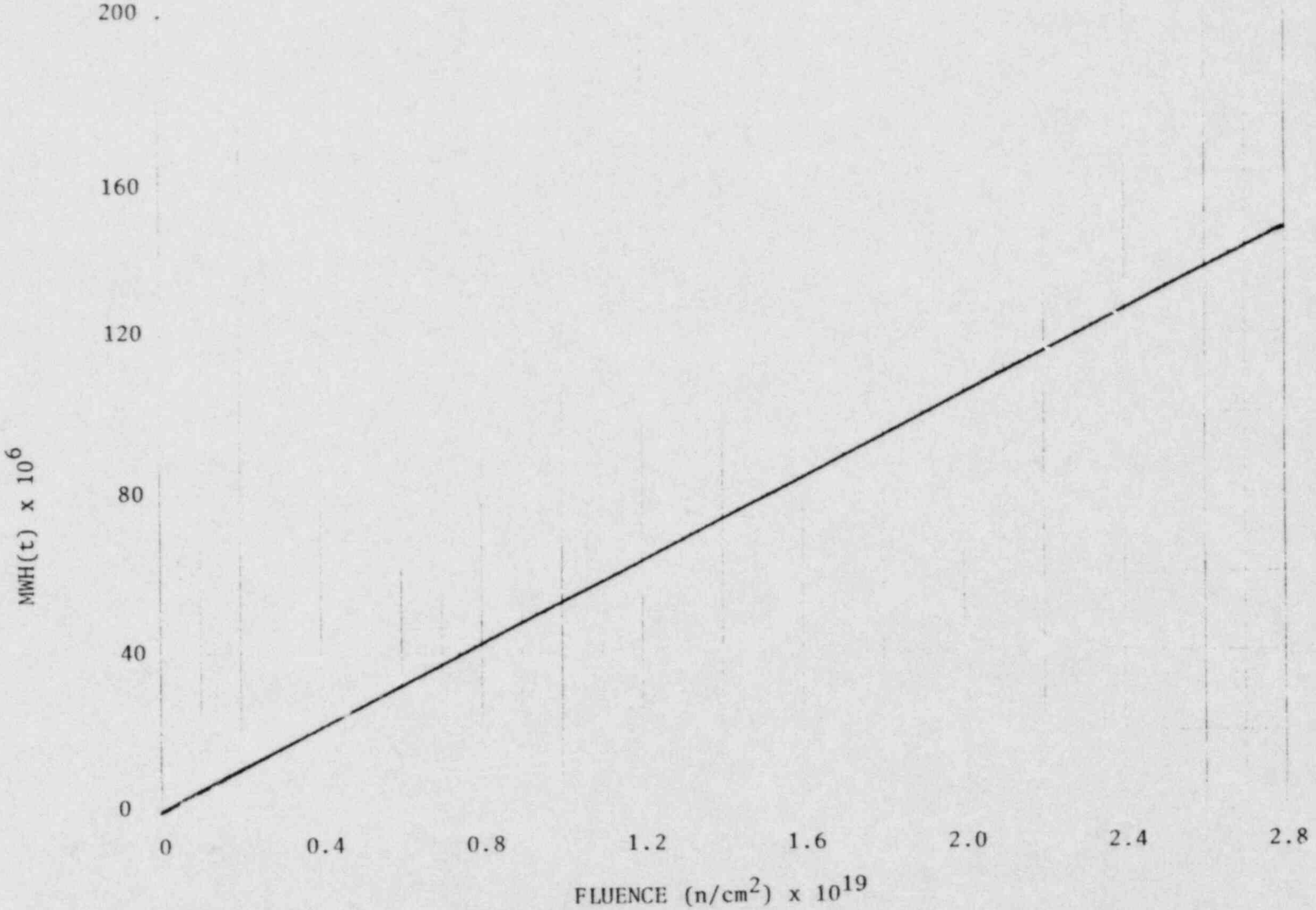
(1) Failure of the reactor protection system or other systems subject to limiting safety system settings to initiate the required protective function by the time a monitored parameter reaches the setpoint specified as the limiting safety system setting in the Technical Specifications or failure to complete the required protective function.

Note: Instrument drift discovered as a result of testing need not be reported under this item but may be reportable under items a(5), a(6), or b(1) below.

(2) Operation of the unit or affected systems when any parameter or operation subject to a limiting condition is less conservative than the least conservative aspect of the limiting condition for operation established in the Technical Specifications.

Note: If specified action is taken when a system is found to be operating between the most conservative and the least conservative aspects of a limiting condition for operation listed in the Technical Specifications, the limiting condition for operation is not considered to have been violated and need not be reported under this item, but it may be reportable under item b(2) below.

(3) Abnormal degradation discovered in fuel cladding, reactor coolant pressure boundary, or primary containment.



BASES FIGURE B 3/4.4-1 REACTOR VESSEL INSIDE WALL FLUENCE EXPOSURE
AS A FUNCTION OF POWER GENERATION