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

YANKEE ATOMIC ELECTRIC COMPANY

DOCKET NO. 50-29

YANKEE NUCLEAR POWER STATION (YANKEE-ROWE)

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 54
License No. DPR-3

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The applications for amendment by Yankee Atomic Electric Company (the licensee) dated November 30, 1976 (Proposed Change No. 119, Supplement 1), September 8, 1978 (Proposed Change No. 163) and October 30, 1978 (Proposed Change No. 164), as supplemented by letter dated November 10, 1978, two (2) letters dated November 21, 1978, and a letter dated November 27, 1978, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C(2) of Facility License No. DPR-3 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 54, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 6, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 54

FACILITY OPERATING LICENSE NO. DPR-3

DOCKET NO. 50-29

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages include the captioned amendment number and contain vertical lines indicating the area of change. Overleaf pages (*) are included for document completeness.

Remove	Insert
V - VI	V - VI*
IX - X	IX* - X
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MODERATOR TEMPERATURE COEFFICIENT

LIMITING CONDITION FOR OPERATION

3.1.1.4 The moderator temperature coefficient (MTC) shall be:

a. Negative at hot zero power;

b. More negative than -0.2×10^{-4} $\Delta k/k/°F$ at RATED THERMAL POWER; and

c. Less negative than -3.82×10^{-4} $\Delta k/k/°F$.

APPLICABILITY: MODES 1 and 2*#.

ACTION:

With the moderator temperature coefficient outside any one of the above limits, be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.1.4.1 The MTC shall be determined to be within its limits by confirmatory measurements. MTC measured values shall be extrapolated and/or compensated to permit direct comparison with the above limits.

4.1.1.4.2 The MTC shall be determined at the following frequencies and THERMAL POWER conditions during each fuel cycle:

a. Prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading.

b. When restarting from the first shutdown longer than 72 hours after >60% of core life.

*With $K_{eff} \geq 1.0$

#See Special Test Exception 3.10.4

REACTIVITY CONTROL SYSTEMS

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - REFUELING

LIMITING CONDITION FOR OPERATION

3.1.2.1 As a minimum, the flow path from the boric acid mix tank via a gravity feed connection and at least two charging pumps to the Main Coolant System shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTION:

With the above required flow path inoperable, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the above required flow path is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.1.2.1 The above required flow path shall be demonstrated OPERABLE:

a. At least once per 7 days by:

   1. Cycling each testable power operated or automatic valve in the flow path through at least one complete cycle of full travel.

   2. Verifying that the temperature of the heat traced portion of the flow path is $\geq$ 150°F.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

REACTIVITY CONTROL SYSTEMS

3/4.1.3 MOVABLE CONTROL RODS

CONTROL ROD OPERABILITY

LIMITING CONDITION FOR OPERATION

3.1.3.1 All control rods which are inserted in the core shall be OPERABLE and positioned within ± 8 inches (indicated position) of every other rod in their group.

APPLICABILITY: MODES 1* and 2*.

ACTION:

a. With one or more control rods inoperable due to being immovable as a result of excessive friction or mechanical interference or known to be untrippable, determine that the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied within 1 hour and be in at least HOT STANDBY within 6 hours.

b. With more than one control rod inoperable or misaligned from any other rod in its group by more than ± 8 inches (indicated position), be in at least HOT STANDBY within 6 hours.

c. With one control rod inoperable or misaligned from any other rod in its group by more than ± 8 inches (indicated position), POWER OPERATION may continue provided that within one hour either:

   1. The rod is restored to OPERABLE status within the above alignment requirements, or

   2. The rod is declared inoperable and the SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is satisfied. POWER OPERATION may then continue provided that:

      a) An analysis of the potential ejected rod worth is performed within 3 days and the rod worth is determined to be ≤ 0.93% $\Delta\rho$ at zero power and ≤ 0.5% $\Delta\rho$ at RATED THERMAL POWER for the remainder of the fuel cycle, and

*See Special Test Exceptions 3.10.2 and 3.10.4.

LIMITING CONDITION FOR OPERATION (Continued)

b) The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 is determined at least once per 12 hours, and

c) A power distribution map is obtained from the movable incore detectors and F_Q and $F^N_{\Delta H}$ are verified to be within their limits within 72 hours.

d) The THERMAL POWER level is reduced to ≤ 75% of THERMAL POWER allowable for the Main Coolant pump combination within one hour and within the next 4 hours the Power Range and Intermediate Power Range Neutron Flux high trip setpoint is reduced to ≤ 108% of the 75% of allowable THERMAL POWER, or

e) The remainder of the rods in the group with the inoperable rod are aligned to within ± 8 inches of the inoperable rod within one hour while maintaining the rod sequence and insertion limits of Figures 3.1-1 and 3.1-2; the THERMAL POWER level shall be restricted pursuant to Specification 3.1.3.5 during subsequent operation.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The position of each control rod shall be determined to be within the limit by verifying the individual rod positions at least once per 4 hours.

4.1.3.1.2 Each control rod not fully inserted shall be determined to be OPERABLE by movement of at least 4 inches in any one direction at least once per 31 days.

4.1.3.1.3 The maximum reactivity insertion rate due to withdrawal of the highest worth control rod group shall be determined not to exceed 1.5×10^{-4} $\Delta k/k$ per second at least once per 18 months.

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.

*Operation in the 3-Loop mode is not permitted until appropriate LOCA analyses for this mode have been approved by the NRC.

SURVEILLANCE REQUIREMENTS (Continued)

4.2.1.2 The below factors shall be included in the calculation of peak full power LHGR:

a. Heat flux power peaking factor, F_q^N, measured using incore instrumentation at a power $\geq$ 10%.

b. Effect of inserting the control group from its position at the time of measurement to its insertion limit, F_I as shown in Figure 3.2-2. The rod insertion limit is shown in Figure 3.1-1.

c. The multiplier for xenon redistribution is a function of core lifetime as given in Figure 3.2-3. In addition, if control rod Group C is inserted below 75 inches, allowable power may not be regained until power has been at a reduced level defined below for at least twenty four hours with control rod Group C between 75 and 90 inches.

Reduced power = allowable fraction of full power times multiplier given in Figure 3.2-4.

Exceptions:

1. If the rods are inserted below 75 inches and power does not go below the reduced power calculated above, hold at the lowest attained power level for at least twenty four hours with control rod Group C between 75 and 90 inches before returning to allowable power.

2. If the rods are inserted below 75 inches and zero power is held for more than 48 hours, no reduced power level need be held on the way to the allowable fraction of full power.

d. Shortened stack height factor, 1.009.

e. Measurement uncertainty:

1. 1.05, when at least 17 incore detection system neutron detector thimbles are OPERABLE, or

2. 1.068, when less than 17 incore detection system neutron detector thimbles are OPERABLE.

SURVEILLANCE REQUIREMENTS (Continued)

f. Power level uncertainty, 1.03.

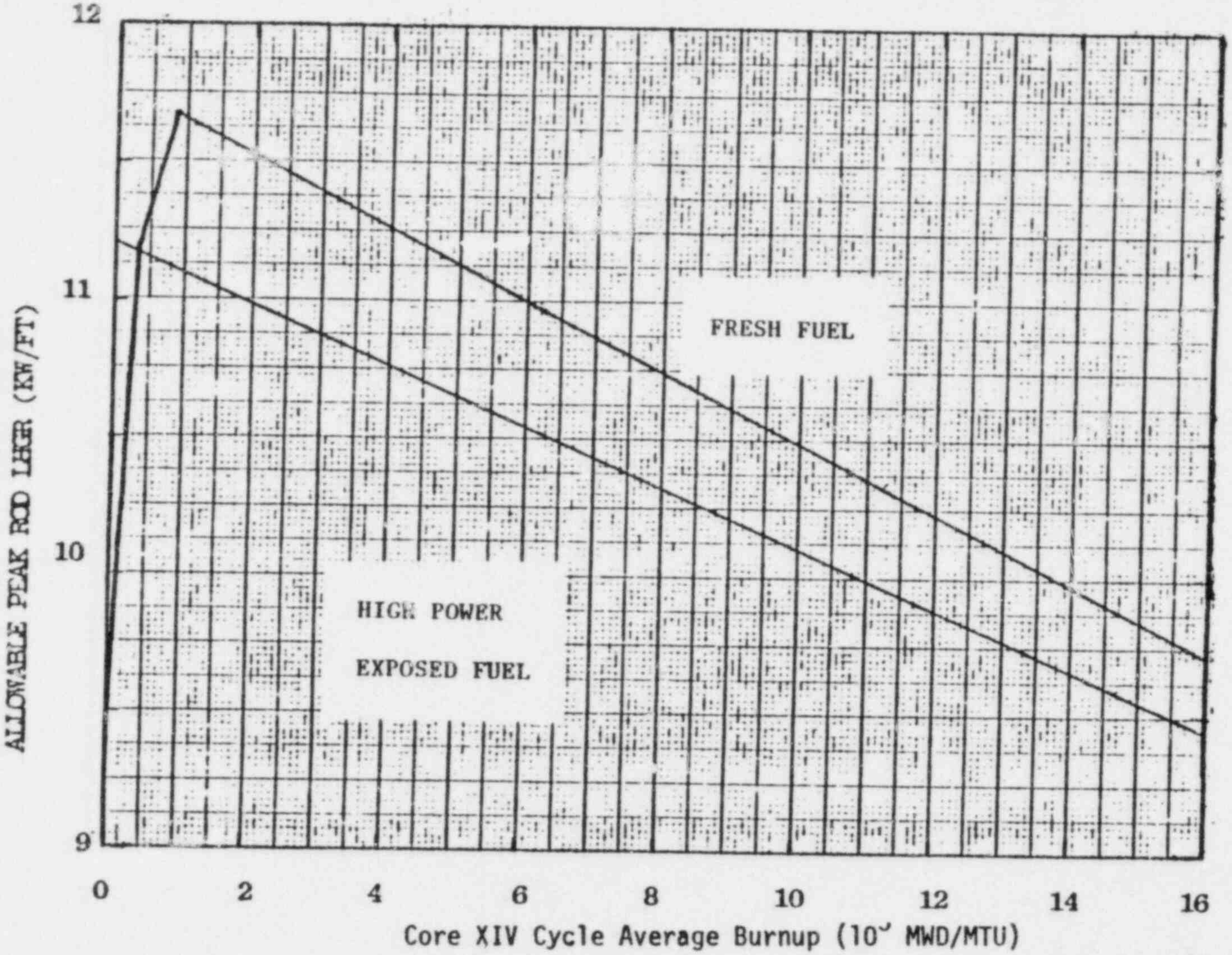
g. Heat flux engineering factor, F_q^E, 1.04.

h. Core average linear heat generation rate at full power, 4.40 kw/ft.

4.2.1.3 At least once per 1000 EFPH the following limits shall be determined by calculation not to be exceeded at RATED THERMAL POWER:

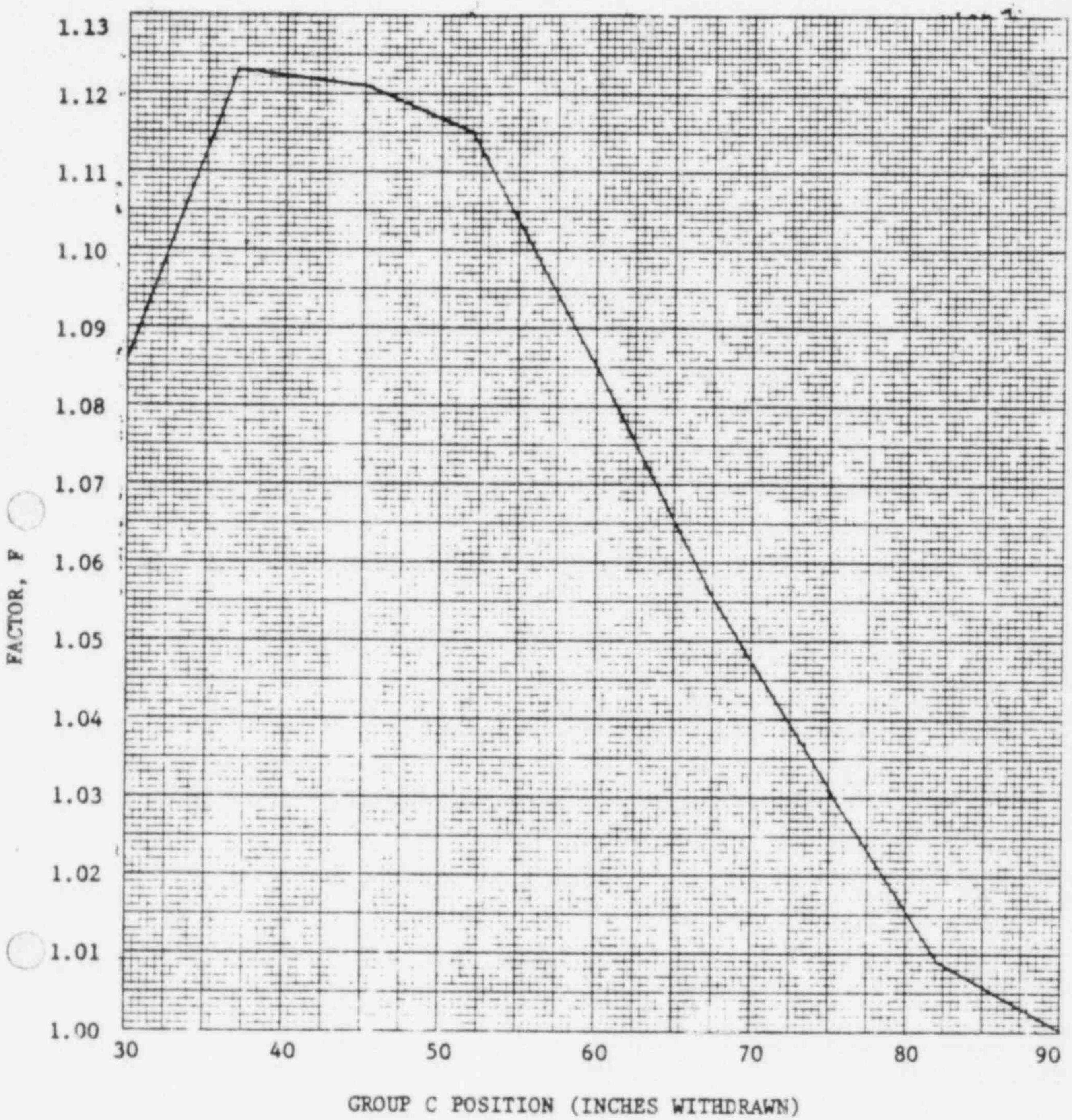
a. Hottest channel exit coolant temperature $\leq$ 602°F, and

b. Maximum clad surface temperature in hottest channel $\leq$ 637°F.



<u>CORE XIV ALLOWABLE PEAK ROD LHGR VERSUS CYCLE BURNUP</u>

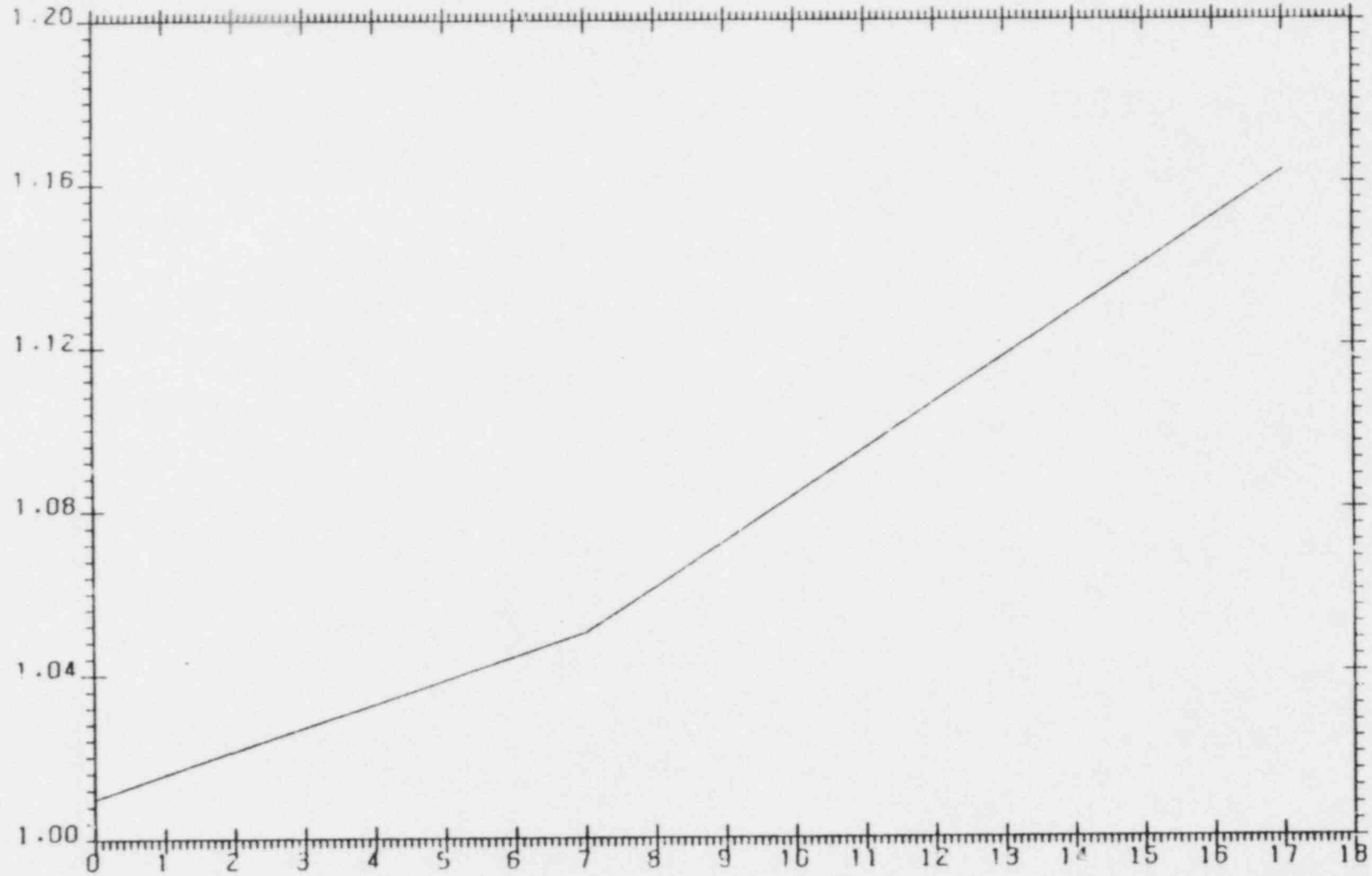
Figure 3.2-1



$$F_I = \frac{F \text{ @ Limit}}{F \text{ @ Measurement}}$$

FIGURE 3.2-2

Factor F as a Function of Rod Insertion



Exposure (CWD/MTU)

Figure 3.2-3

Core XIV Multiplier for Xenon Redistribution As a Function of Exposure

Exposure (GWD/MTU)

Figure 3.2-4

Core XIV Multiplier for Reduced Power As a Function of Exposure

POWER DISTRIBUTION LIMITS

HEAT FLUX HOT CHANNEL FACTOR-F_q

LIMITING CONDITION FOR OPERATION

3.2.2 F_q shall be limited by the following relationships:

$$F_q \leq \left[\frac{2.76}{P}\right] \text{ for } P > 0.5$$

$$F_q \leq [5.52] \text{ for } P \leq 0.5$$

where $P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

APPLICABILITY: MODE 1

ACTION:

With F_q exceeding its limit:

a. Reduce THERMAL POWER at least 1% for each 1% F_q exceeds the limit within 15 minutes and similiarly reduce the Power Range and Intermediate Power Range Nuetron Flux-High Trip Setpoints within the next 4 hours.

b. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER above the reduced limit required by a, above; THERMAL POWER may then be increased provided F_q is demonstrated through incore mapping to be within its limit.

3/4.3.2 ENGINEERED SAFEGUARDS SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safeguards System (ESS) instrumentation channels and sensors shown in Table 3.3-2 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-3.

APPLICABILITY: As shown in Table 3.3-2.

ACTION:

a. With an ESS instrumentation channel sensor trip setpoint less conservative than the value shown in the Trip Setpoint column of Table 3.3-3, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-2 until the channel is restored to OPERABLE status with the sensor trip setpoint adjusted consistent with the Trip Setpoint value.

b. With an ESS instrumentation channel inoperable, take the ACTION shown in Table 3.3-2.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESS instrumentation channel and sensor shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the OPERATIONAL MODES and at the frequencies shown in Table 4.3-2.

4.3.2.2 The total bypass function of all bypasses shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by bypass operation.

TABLE 3.3-2

ENGINEERED SAFEGUARDS SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS AND SENSORS	CHANNELS AND SENSORS TO TRIP	MINIMUM CHANNELS AND SENSORS OPERABLE	APPLICABLE MODES	ACTION
1. SAFETY INJECTION					
a. Actuation Channel #1	1	1	1	1, 2, 3(2)(3)	10
1) RPS Low Main Coolant Pressure Channel	1	1	1	1, 2, 3(2)(3)	10
2) High Containment Pressure Sensor	1	1	1	1, 2, 3(2)(3)	10
3) Manual Initiation	1	1	1	1, 2, 3, 4, 5(1)	10
b. Actuation Channel #2	1	1	1	1, 2, 3(2)	10
1) Low Main Coolant Pressure Sensor	1	1	1	1, 2, 3(2)	10
2) High Containment Pressure Sensor	1	1	1	1, 2, 3(2)	10
3) Manual Initiation	1	1	1	1, 2, 3, 4, 5(1)	10
2. CONTAINMENT ISOLATION					
a. Manual Initiation	1	1	1	1, 2, 3, 4, 5(1)	10
b. Actuation Channel	1	1	1	1, 2, 3, 4, 5(1)	10
1) High Containment Pressure Sensor	2	1	2	1, 2, 3, 4, 5(1)	10

TABLE 3.3-2 (Continued)

TABLE NOTATION

(1) Trip function may be bypassed in this MODE with main coolant pressure < 300 PSIG.

(2) Trip function may be bypassed in this MODE with main coolant pressure < 1800 PSIG.

(3) Automatic initiation of Actuation Channel #1 may be bypassed in this MODE during functional test of the Main Coolant System pressure channel.

ACTION STATEMENTS

ACTION 10 - With the number of OPERABLE channels or sensors one less than the Total Number of Channels or sensors, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one safety injection channel high containment pressure sensor may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

TABLE 3.3-3

ENGINEERED SAFEGUARDS SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT
1. SAFETY INJECTION	
a. Actuation Channel #1	
1) RPS Low Main Coolant Pressure Channel	$\geq$ 1700 psig
2) High Containment Pressure Sensor	$\leq$ 5 psig
3) Manual Initiation	Not Applicable
b. Actuation Channel #2	
1) Low Main Coolant Pressure Sensor	$\geq$ 1700 psig
2) High Containment Pressure Sensor	$\leq$ 5 psig
3) Manual Initiation	Not Applicable
2. CONTAINMENT ISOLATION	
a. Manual Initiation	Not Applicable
b. Actuation Channel	
1) High Containment Pressure Sensor	$\leq$ 5 psig

TABLE 4.3-2

ENGINEERED SAFEGUARDS SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. SAFETY INJECTION				
a. Actuation Channel #1	S	NA	M(1)	1, 2, 3#
1) RPS Low Main Coolant Pressure Channel	S	R(3)	M(2)	1, 2, 3#
2) High Containment Pressure Sensor	S	R(3)	M(3)	1, 2, 3#
3) Manual Initiation	N.A.	N.A.	R	1, 2, 3, 4, 5*
b. Actuation Channel #2	S	N.A.	M(1)	1, 2, 3#
1) Low Main Coolant Pressure Sensor	S	R(3)	M(3)	1, 2, 3#
2) High Containment Pressure Sensor	S	R(3)	M(3)	1, 2, 3#
3) Manual Initiation	N.A.	N.A.	R	1, 2, 3, 4, 5*
2. CONTAINMENT ISOLATION				
a. Manual Initiation	N.A.	N.A.	R	1, 2, 3, 4, 5*
b. Actuation Channel	S	N.A.	M(4)	1, 2, 3, 4, 5*
1) High Containment Pressure Sensor	S	R(3)	M(3)	1, 2, 3, 4, 5*

TABLE 4.3-2 (Continued)

TABLE NOTATION

(1) When shutdown with main coolant pressure < 1000 psig, if not performed within the previous 31 days.

(2) When shutdown longer than 24 hours, if not performed in the previous 31 days.

(3) The test shall include exercising the sensor by applying either a vacuum or pressure to the appropriate side of the sensor.

(4) When in COLD SHUTDOWN with main coolant pressure < 300 psig, if not performed within the previous 31 days.

* Not required in this MODE with main coolant pressure < 300 PSIG.

\# Not required in this MODE with main coolant pressure < 1700 PSIG.

TABLE 4.4-3 (Continued)

INSERVICE INSPECTION PROGRAM - CLASS I COMPONENTS

Section XI Examination Category (1)	Components and Parts to be Examined	Methods	Percent of Welds or Components to be Examined for Each 10 Year Interval
	Pump Pressure Boundary		
G-2	Pressure retaining bolting	Visual	100%
K-2	Supports and hangers	Visual	100%
L-2	Pump casing	Visual	One pump of each class (if opened for maintenance)
	Valve Pressure Boundary		
G-2	Pressure retaining bolting	Visual	100%
K-2	Supports and hangers	Visual	100%
M-2	Valve bodies	Visual	100% of one valve of each class (if opened for maintenance)

(1) Those examination categories not applicable or accessible are not listed.

LIMITING CONDITION FOR OPERATION

3.4.10 Each steam generator in a non-isolated main coolant loop shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more steam generators in non-isolated main coolant loops inoperable, restore the inoperable generator(s) to OPERABLE status prior to increasing T_{avg} above 200°F.

SURVEILLANCE REQUIREMENTS

4.4.10.1 Steam Generator Sample Selection and Inspection - Each steam generator shall be determined OPERABLE during shutdown by selecting and inspecting at least the minimum number of steam generators specified in Table 4.4-4.

4.4.10.2 Steam Generator Sample Selection and Inspection - The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 4.4-5. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 4.4.10.3 and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 4.4.10.4. The tubes slected for each inservice inspection shall include at least 3% of the total number of tubes in all steam generators; the tubes selected for these inspections shall be selected on a random basis except:

a. Where experience in similar plants with similar water chemistry indicates critical areas to be inspected, then at least 50% of the tubes inspected shall be from these critical areas.

b. The first sample of tubes selected for each inservice inspection of each steam generator shall include:

   1. All nonplugged tubes that previously had detectable wall penetrations (>20%).

   2. Tubes in those areas where experience has indicated potential problems.

3. A tube inspection (pursuant to Specification 4.4.10.4.a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.

c. The tubes selected as the second and third samples (if required by Table 4.4-5) during each inservice inspection may be subjected to a partial tube inspection provided:

1. The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found.

2. The inspections include those portions of the tubes where imperfections were previously found.

The results of each sample inspection shall be classified into one of the following three categories:

Category	Inspection Results
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

Note: In all inspections, previously degraded tubes must exhibit significant (>10%) further wall penetrations to be included in the above percentage calculations.

SURVEILLANCE REQUIREMENTS (Continued)

4.4.10.3 Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

a. Inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degraded has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.

b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-5 at 40 month intervals fall in Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.10.3.a; the interval may then be extended to a maximum of once per 40 months.

c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-5 during the shutdown subsequent to any of the following conditions:

   1. Primary-to-secondary tubes leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.5.2.

   2. A loss-of-coolant accident requiring actuation of the engineered safeguards.

   3. A main steam line or feedwater line break.

4.4.10.4 Acceptance Criteria

a. As used in this Specification:

1. Imperfection means an exception to the dimensions, finish or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections.

2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube.

3. Degraded Tube means a tube containing imperfections $\geq$ 20% of the nominal wall thickness caused by degradation.

4. % Degradation means the percentage of the tube wall thickness affected or removed by degradation.

5. Defect means an imperfection of such severity that it exceeds the plugging limit. A tube containing a defect is defective.

6. Plugging Limit means the imperfection depth at or beyond which the tube shall be removed from service because it may become unserviceable prior to the next inspection and is equal to (40)% of the nominal tube wall thickness.

7. Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of a loss-of-coolant accident or a steam line or feedwater line break as specified in 4.4.10.3.c, above.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) past the top (fifth) support and, where practical, completely around the U-bend to the top support of the cold leg.

b. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 4.4-5.

4.4.10.5 Reports

a. Following each inservice inspection of steam generator tubes, the number of tubes plugged in each steam generator shall be reported to the Commission within 15 days.

b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a Special Report pursuant to Specification 6.9.6 within 12 months following the completion of the inspection. This Special Report shall include:

   1. Number and extent of tubes inspected.

   2. Location and percent of wall-thickness penetration for each indication of an imperfection.

   3. Identification of tubes plugged.

c. Results of steam generator tube inspections which fall into Category C-3 and require prompt notification of the Commission shall be reported pursuant to Specification 6.9.4 prior to resumption of plant operation. The written followup of this report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

TABLE 4.4-4

MINIMUM NUMBER OF STEAM GENERATORS TO BE

INSPECTED DURING INSERVICE INSPECTION

Preservice Inspection	No
No. of Steam Generators per Unit	Four
First Inservice Inspection	All
Second & Subsequent Inservice Inspections	One[1]

Table Notation:

1. The inservice inspection may be limited to one steam generator on a rotating schedule encompassing 3 N % of the tubes (where N is the number of steam generators in the plant if the results of the first or previous inspections indicate that all steam generators are performing in a like manner. Note that under some circumstances, the operating conditions in one or more steam generators may be found to be more severe than those in other steam generators. Under such circumstances the sample sequence shall be modified to inspect the most severe conditions.

TABLE 4.4-5

STEAM GENERATOR TUBE INSPECTION

1st SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Plug defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N/A	N/A
			C-2	Plug defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
					C-2	Plug defective tubes
					C-3	Perform action for C-3 result of first sample
			C-3	Perform action for C-3 result of first sample	N/A	N/A
	C-3	Inspect all tubes in this S.G., plug defective tubes and inspect 2S tubes in each other S.G. Prompt notification to NRC pursuant to specification 6.9.4	All other S.G.s are C-1	None	N/A	N/A
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample	N/A	N/A
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug defective tubes. Prompt notification to NRC pursuant to specification 6.9.4	N/A	N/A

$S = 3 \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

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 useable 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 system, and

g. Timers set to operate between 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.

LIMITING CONDITION FOR OPERATION (Continued)

c. With one inoperable supply pressure regulating valve or with one inoperable low level venting system, restore the inoperable regulating valve or venting system to OPERABLE status within 8 hours 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 following 8 hours.

SURVEILLANCE REQUIREMENTS

4.5.1 The accumulator shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying the contained borated water volume, accumulator nitrogencover-pressure and the supply pressure-regulator discharge pressure, and

2. Verifying that accumulator isolation valves SI-MOV-1 and SI-TV-608 are open.

b. At least once per 31 days and within 6 hours after each solution volume increase of $\geq$ 1% by verifying the boron concentration of the accumulator solution.

c. At least once per 31 days by:

1. Verifying the nitrogen supply bottle pressures.

2. Verifying the actuation of each accumulator time delay relay. The acceptable rundown time is 11.85 $\pm$ 0.23 seconds.

d. At least once per 18 months during shutdown by:

1. Verifying OPERABILITY of the nitrogen supply system by observing operation of each regulating valve.

2. Verifying OPERABILITY of each low level venting system when the level switch column water level is lowered; at the same time, verify closure of SI-MOV-1 and SI-TV-608.

3. Verify that SI-TV-604, SI-TV-605 and SI-TV-606 open when NS-SOV-46 is energized and again when NS-SOV-37 is energized.

LE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	TESTABLE DURING PLANT OPERATION (Yes or No)	ISOLATION TIME (Seconds)
B. CHECK VALVES (Continued)			
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			NA
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
CA-V-688	Containment H2 Vent System Air Supply	NA	NA
CS-MOV-500	Fuel Chute Lock Valve	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
C. Manual Valves (Cont'd)			
CS-CV-215	Fuel Chute Equalizing	NA	NA
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	30
BF-CV-1100*	SG#2 Feedwater Regulator	No	30
BF-CV-1200*	SG#3 Feedwater Regulator	No	30
BF-CV-1300*	SG#4 Feedwater Regulator	No	30
PR-V-623	Main Coolant Heise Pressure Gauge	NA	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

For normal opening and reclosing, the structural integrity of the Main Coolant System is unchanged. Therefore, satisfactory performance of a system leak test at 2200 psig following each opening and subsequent reclosing is acceptable demonstration of the system's structural integrity. These leak tests will be conducted within the pressure-temperature limitations for Inservice Leak and Hydrostatic Testing of Figure 3.4-4 and 3.4-5.

3/4 4.10 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integirty of this portion of the MCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The unit is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary coolant system (primary-to-secondary leakage = 1 gallon per minute of total leakage). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 1 gallon per minute total leakage can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. Plugging will be required for all tubes with imperfections exceeding the plugging limit of 40 % of the tube nominal wall thickness. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.

Whenever the results of any steam generator tubing inservice inspection fall into Category C-3, these results will be promptly reported to the Commission pursuant to Specification 6.9.4 prior to resumption of plant operation. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

(d) Total dissolved gas radioactivity (in curies) and average concentration released to the unrestricted area.

(e) Total volume (in liters) of liquid waste released.

(f) Total volume (in liters) of dilution water used prior to release from the restricted area.

(g) Total gross radioactivity (in curies) by nuclide released based on representative isotopic analyses performed.

(h) Percent of Technical Specification limit for total radioactivity.

(3) Solid Wastes

(a) The total amount of solid waste shipped (in cubic feet).

(b) The total estimated radioactivity (in curies) involved.

(c) Disposition including date and destination

6.9.6 Special reports shall be submitted to the Director of the Office of Inspection and Enforcement Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

a. Inservice Inspection Program Reviews, Specification 4.4.9.1.

b. ECCS Actuation, Specifications 3.4.2 and 3.5.3.

c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.3.

d. Sealed Source leakage in excess of limits, Specification 4.7.6.3.

e. Radioactive Solid Waste Disposal, Specification 3.7.7.1.

f. Fire Detection Instrumentation, Specification 3.3.3.4.

g. Fire Suppression Systems, Specifications 3.7.10.1, 3.7.10.2 and 3.7.10.3.

h. Environmental Monitoring Program, Specifications 3.7.8.

i. Steam Generator Inservice Inspection Results, Specification 4.4.10.5.

6.10 RECORD RETENTION

6.10.1 The following records shall be retained for at least five years:

a. Records and logs of facility operation covering time interval at each power level.

b. Records and logs of principal maintenance activities, inspection, repair and replacement of principla items of equipment related to nuclear safety.

c. All REPORTABLE OCCURRENCE reports submitted to the COMMISSION.

d. Records of surviellance activities, inspections and calibrations required by these Technical Specifications.

e. Records of reactor tests and experiments.

f. Records of changes made to Operating Procedures.

g. Records of radioactive shipments.

h. Records of sealed source leak tests and results.

i. Records of annual physical inventory of all sealed source material of record.

6.10.2 The following records shall be retained for the duration of the Facility Operating License:

a. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the Final Hazards Summary Report.

b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.

c. Records of facility radiation and contamination surveys.

d. Records of radiation exposure for all individuals entering radiation control areas.

e. Records of gaseous and liquid radioactive material released to the environs.

f. Records of transient or operational cycles for those facility components identified in Table 5.7-1.