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January 8, 2001
IPN-01-002

U.S. Nuclear Regulatory Commission
Mail Stop O-P1-17
Washington, D.C. 20555-0001
ATTN: Document Control Desk

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Conversion to Improved Technical
Specifications - Transmittal of Final Typed Pages

REFERENCE: NRC letter, from G. Wunder to M. Kansler, "Draft Safety Evaluation Regarding Proposed Conversion to Improved Standard Technical Specifications," dated December 7, 2000

Dear Sir:

This letter provides the final typed copy of the Improved Technical Specifications (ITS) and Bases for Indian Point 3 and a certification statement, as requested by the above Reference. The resolution of NRC questions and Requests for Additional Information (RAI) is incorporated in this submittal. The enclosed ITS and Bases, reflect amendments to the Current Technical Specifications through and including Amendment 203 dated October 21, 2000. Amendment 204 issued on December 20, 2000 does not require any changes to ITS.

The initial application for conversion to ITS was submitted December 11, 1998 (IPN-98-134) and supplements were submitted December 15, 1998 (IPN-98-139) and May 17, 1999 (IPN-99-055). Letters dated August 16, 2000 (IPN-00-059), September 14, 2000 (IPN-00-069) and September 27, 2000 (IPN-00-071) provided responses to the NRC RAI dated July 9, 1999. The letter dated September 8, 2000 provided responses to the NRC RAI dated August 17, 2000. An additional letter dated November 30, 2000 (IPN-00-085) addressed the remaining comments resulting from the staff's review of the replies to RAI.

The enclosed final typed copy of the ITS and Bases includes several editorial changes and corrections that were discussed with the NRC staff on December 22, 2000. Marked pages, showing the specific changes, are provided in Attachment I. These changes do not affect the conclusions of the No Significant Hazards Evaluations previously provided in support of this proposed amendment. Proposed license conditions in support of the conversion to ITS are provided in Attachment II. Our comments on the draft Safety Evaluation will be provided in a separate transmittal.

A001

Entergy requests that the license amendment for ITS be issued not later than February 28, 2001 as stated in the above Reference. We are planning to implement in March 2001 to support a scheduled refueling outage in April 2001. We request that the amendment be issued with a 6-month implementation period to provide some flexibility, if needed, in our implementation schedule.

There are no new commitments made in this letter. If you have any questions, please contact Mr. Ken Peters at 914-736-8029.

Very truly yours,

Michael R. Kansler
Senior Vice President and
Chief Operating Officer

Attachments: As stated
Enclosure: As stated

cc: See next page

cc: Regional Administrator
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BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
ENTERGY NUCLEAR OPERATIONS, INC	)	Docket No. 50-286
Indian Point 3 Nuclear Power Plant	)	

CERTIFICATION

Michael R. Kansler, being duly sworn, certifies as follows: I am Senior Vice President and Chief Operating Officer of Entergy Nuclear Operations, Inc; that I am authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto, consisting of the proposed Improved Technical Specifications and Bases for the Indian Point 3 Nuclear Power Plant; and that all such documents are true to the best of my knowledge, information, and belief.

Michael R. Kansler

STATE OF NEW YORK
COUNTY OF WESTCHESTER
Subscribed and sworn to before me
this 9th day of January, 2001

Geraldine Strand
Notary Public

GERALDINE STRAND
Notary Public, State of New York
No 4991272
Qualified in Westchester County
Commission Expires Jan 27, 2002

ATTACHMENT I TO IPN-01-002

ITS MARKUP PAGES SHOWING
EDITORIAL CHANGES AND CORRECTIONS

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286

Summary of Editorial Changes and Corrections

Section	Page	Description of Change	Reason for Change
3.3.1	3.1.1-16	Clarified Function 13, by adding "*NR*" to the stated Allowable Value.	Designation use of narrow range steam generator instrumentation.
B 3.3.1	B 3.3.1-22, B 3.3.1-30, B 3.3.1-34 DOC 24 & 54	Deleted parenthetical note, "which is approximately 50% RTP" related to P8 setpoint.	P8 setpoint is set below 50% as described elsewhere in the Bases.
3.3.2	3.3.2-12	Clarified Function 5.b, by adding "*NR*" to the stated Allowable Value.	Designation use of narrow range steam generator instrumentation.
B 3.3.2	B 3.3.2-12	Corrected Basis for function 1.e, to reflect correct value of surveillance setpoint to *≤142* psid.	Correct value for surveillance acceptance criterion.
3.4.14, B 3.4.14	3.4.14-4, B 3.4.14-9	Corrected Frequency for SR 3.4.14.1; "if leakage testing has not been performed in the previous ~~9~~ **12** months."	Consistent with prior reply to RAI 3.4-50.
B 3.8.2	B 3.8.2-7	Added description to Bases of SR 3.8.2.1, "*SR 3.8.1.9 is not required to be met because the DG automatic trips are bypassed only on the safety injection start signal, not on the loss of power start signal.*"	Provide consistency in the Bases in that other SRs have a description on why they need not be met.
B 3.8.3	B 3.8.3-1, B 3.8.3-11, B 3.8.3-12	Removed from Bases company names from the text, i.e., Consolidated Edison and NYPA.	Detail not required and the designation of IP2 and IP3 is more appropriate.
B 3.8.3	B 3.8.3-1	Corrected description of alarm level related to the fuel oil storage tanks by replacing words as, "Each DG fuel oil storage tank has an alarm that sounds in the control room when the level in the tank ~~drops to approximately 6717 gallons~~ **approaches the level equivalent of the minimum required usable inventory**."	Consistent with the latest FSAR description and supporting calculation IP3-CALC-EG-00217, and when accounting for unusable volume and nominal setpoint the values are different for each tank.
B 3.8.3	B 3.8.3-2	Clarified description by adding "**without crediting the additional margin of** ~~and~~ 230 gallons in two day tanks . . ."	Consistent with previous Bases page discussion that the day tanks provide additional margin and are not credited to meet offsite fuel oil required volume as defined in the calculation IP3-CALC-EG-00217.
B 3.8.3	B 3.8.3-9	Corrected description of unusable fuel due to transfer pump cutoff from, "(~~760 gallons~~)" to "**(worst case 956 gallons for #33 tank and 915 gallons for #31 and #32 tanks)**."	Consistent with calculation IP3-CALC-EG-00217 that accounts for anomalies including instrumentation drift.
3.7.1	3.7.1-4	Corrected typo to "MS-**46**-4."	Typographical error.
B 3.8.9	B3.8.9-13	Corrected typo to "Bus **34**^{2}"	Typographical error.

Table 3.3.1-1 (page 4 of 8)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
10.	Reactor Coolant Pump (RCP) Breaker Position					
	a. Single Loop	1(f)	1 per RCP	I	SR 3.3.1.14	NA
	b. Two Loops	1(g)	1 per RCP	H	SR 3.3.1.14	NA
11.	Undervoltage RCPs (6.9 kV bus)	1(e)	1 per bus	H	SR 3.3.1.9 SR 3.3.1.10	NA
12.	Underfrequency RCPs (6.9 kV bus)	1(e)	1 per bus	H	SR 3.3.1.9 SR 3.3.1.10	≥ 57.22 Hz
13.	Steam Generator (SG) Water Level – Low Low	1,2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 4.0% NR
14.	SG Water Level – Low	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	NA
	Coincident with Steam Flow/ Feedwater Flow Mismatch	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	NA

(continued)

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(f) Above the P-8 (Power Range Neutron Flux) interlock.

(g) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, transients that could raise the pressurizer water level will be slow and the operator will have sufficient time to evaluate unit conditions and take corrective actions.

9. Reactor Coolant Flow-Low

a. Reactor Coolant Flow-Low (Single Loop)

The Reactor Coolant Flow - Low (Single Loop) trip Function ensures that protection is provided against violating the DNBR limit due to low flow in one or more RCS loops, while avoiding reactor trips due to normal variations in loop flow. Above the P-8 setpoint which is approximately 50% RTP, a loss of flow in any RCS loop will actuate a reactor trip. Each RCS loop has three flow detectors to monitor flow. The flow signals are not used for any control system input.

The LCO requires three Reactor Coolant Flow - Low channels per RCS loop to be OPERABLE in MODE 1 above P-8. Each reactor coolant loop is considered to be a separate function. Therefore, separate condition entry is allowed for each loop.

In MODE 1 above the P-8 setpoint, a loss of flow in one RCS loop could result in DNB conditions in the core. In MODE 1 below the P-8 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip (Function 9.b) because of the lower power level and the greater margin to the design limit DNBR.

b. Reactor Coolant Flow-Low (Two Loops)

The Reactor Coolant Flow - Low (Two Loops) trip Function ensures that protection is provided against

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

level below the P-8 setpoint ~~, approximately 50% power,~~ will not actuate a reactor trip. Three pressure switches monitor the control oil pressure in the Turbine Control System. A low pressure condition sensed by two-out-of-three pressure switches will actuate a reactor trip. These pressure switches do not provide any input to the control system. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure - High trip Function and RCS integrity is ensured by the pressurizer safety valves.

The LCO requires three channels of Turbine Trip - Low Auto-Stop Oil Pressure to be OPERABLE in MODE 1 above P-8.

Below the P-8 setpoint, a turbine trip does not actuate a reactor trip. In MODE 1 (below P-8 setpoint), 2, 3, 4, 5, or 6, there is no potential for a turbine trip that would require a reactor trip, and the Turbine Trip - Low Auto-Stop Oil Pressure trip Function does not need to be OPERABLE.

16. Safety Injection Input from Engineered Safety Feature Actuation System

The SI Input from ESFAS ensures that if a reactor trip has not already been generated by the RPS, the ESFAS automatic actuation logic will initiate a reactor trip signal upon any signal that initiates SI. This is a condition of acceptability for the LOCA. However, other transients and accidents take credit for varying levels of ESF performance and rely upon rod insertion, except for the most reactive rod that is assumed to be fully withdrawn, to ensure reactor shutdown. Therefore, a reactor trip is initiated every time an SI signal is present.

Trip Setpoint and Allowable Values are not applicable to this Function. The SI Input is provided by relay in the ESFAS. Therefore, there is no measurement signal with which to associate an LSSS.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

An Allowable Value is not applicable to the P-7 interlock because it is a logic Function. The P-10 interlock (Function 17.d) governs input from the Power Range instruments and the Turbine First Stage Pressure interlock (Function 17.e) governs input for turbine power.

The P-7 interlock is a logic Function with train and not channel identity. Therefore, the LCO requires one channel per train (i.e., two trains) of Low Power Reactor Trips Block, P-7 interlock to be OPERABLE in MODE 1.

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

c. Power Range Neutron Flux, P-8

The Power Range Neutron Flux, P-8 interlock is actuated below ~~at approximately~~ 50% power as determined by NIS power range detectors. The P-8 interlock automatically enables the Reactor Coolant Flow-Low (Single Loop) and RCP Breaker Position (Single Loop) reactor trips on low flow in one or more RCS loops whenever at least 2 of 4 of the Power Range instruments increase to above the P-8 setpoint. The LCO requirement for this trip Function ensures that protection is provided against a loss of flow in any RCS loop that could result in DNB conditions in the core when greater than approximately 50% power. On decreasing power, the reactor trip on low flow in any loop is automatically blocked whenever at least 3 of 4 the Power Range instruments decrease to below the P-8 setpoint.

The LCO requires four channels of Power Range Neutron Flux, P-8 interlock to be OPERABLE in MODE 1.

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Point Nuclear Generating Station Unit No. 3 Plant Manual, Volume VI: Precautions, Limitations, and Setpoints, March 1975. ITS 3.3.1, Function 8, Pressurizer Water Level-High, establishes the allowable value at 97.47% of span because ITS uses allowable values calculated in accordance with Engineering Standards Manual IES-3 and IES 3-B, Instrument Loop Accuracy and Setpoint Calculation Methodology (IP3) (See ITS 3.3.1, DOC L.1).

Each of the changes described above is an administrative change with no adverse impact on safety except as noted with a cross reference to the associated description and justification.

A.13 ITS 3.3.1, Function 9, Reactor Coolant Flow-Low (trip) (One Loop), replaces the following two CTS Functions:

a. CTS Table 3.5-2, Function 8(a), Low Flow One Loop (Power $\geq$ P-8); and,
b. CTS Table 3.5-2, Function 8(b), Low Flow Two Loops (Power < P-8 and $\geq$ P-10[1]).

The ITS specifies that there is one Reactor Coolant Flow-Low trip and that this trip function is modified by plant conditions as follows:

a. Trip occurs on loss of flow in one loop if $\geq$ P-8 (i.e., 50% RTP);
b. Trip does not occur until there is a loss of flow in two loops if RTP is < P-8; and,
c. Trip does not occur on a loss of flow if < P-7 (CTS P-10) (i.e., 10% RTP).

The ITS conversion modifies the CTS requirements for Reactor Coolant Flow-Low-One Loop as follows:

a. As Specified in CTS 2.3.2.B, CTS Table 3.5-2, Function 8(a), Low Flow One Loop, must be Operable when > 50% RTP (above the P-8 interlock setpoint) because a reactor trip on loss of flow in one loop is required only if > 50% RTP. ITS 3.3.1, Function 9, which includes both the one loop and two loop Reactor Coolant Flow-Low

1 Note: CTS Table 3.5-2, Function 8(b), Low Flow Two Loops (Power < P-8 and $\geq$ P-10) should read (Power < P-8 and $\geq$ P-7) as shown in Dwg 113E301, Sheet 9, Rev 8.

when required.

d. ITS SR 3.3.1.11 and ITS SR 3.3.1.13 are added to require periodic Channel Operation Test and Channel Calibrations for this interlock

e. Setpoints for this interlock are derived from ITS 3.3.1, Function 17.d, Power Range Neutron Flux (P-10) and ITS 3.3.1, Function 17.e, Turbine First Stage Pressure (P-7 Input) (See ITS 3.3.1, DOCs A.29 and A.30).

Each of the changes described above is an administrative change with no adverse impact on safety except as noted with a cross reference to the associated description and justification.

A.28 **ITS 3.3.1, Function 17.c, Power Range Neutron Flux (P-8)**, is an interlock that automatically enables the Reactor Coolant Flow–Low (Single Loop) and RCP Breaker Position (Single Loop) reactor trip on low flow in one or more RCS loops on increasing power. This interlock automatically enforces requirements established by CTS 2.3.2.B. The P-8 interlock is actuated ~~at approximately~~ 50% RTP as determined by two-out-of-four NIS power range detectors. ITS 3.3.1, Table 3.3.1-1, maintains these requirements as follows: below

a. ITS 3.3.1, Function 17.c, P-8, is required to be Operable in Mode 1 to ensure that P-8 performs it design function of ensuring that the ITS 3.3.1 Functions enabled by this interlock are enabled before exceeding the P-8 setpoint.

b. ITS 3.3.1, Function 17.c, requires 4 Operable channels of the P-8 function. Therefore, there is no change to the existing requirements.

c. ITS 3.3.1, Required Action N.1, specifies that if a channel is inoperable, the operator must verify interlock is in the required state for plant conditions. Therefore, this requires that the ITS 3.3.1 Functions enabled by this interlock are Operable when required. Therefore, there is no change to the existing requirements.

Table 3.3.2-1 (page 5 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Feedwater Isolation					
a. Safety Injection	1,2(e)	2 trains	H	SR 3.3.2.2 SR 3.3.2.5	NA
b. SG Water Level-High High	1,2(e)	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 81% NR
6. Auxiliary Feedwater					
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.5	NA
b. SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 4.0% NR
c. Safety Injection (g)	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Loss of Offsite Power (Non SI Blackout Sequence Signal)	1,2,3	2	F	SR 3.3.2.6 SR 3.3.2.7	≥ 200 V
e. Trip of Main Boiler Feedwater Pumps	1(f), 2(f)	1 per MBFP	I	SR 3.3.2.6	NA

(continued)

(e) Except when all MBFPDVs, or MBFRVs and associated bypass valves are closed or isolated by a closed manual valve.

(f) Only required for MBFPs that are in operation.

(g) Not required if AFW pump not required to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO and APPLICABILITY (continued)

- SLB; and

- Inadvertent opening of an ADV or an SG safety valve.

High Differential Pressure Between Steam Lines provides no input to any control functions. Thus, three OPERABLE channels on each steam line are sufficient to satisfy the requirements, with a two-out-of-three logic on each steam line.

With the transmitters located inside the auxiliary feed pump room, it is possible for them to experience adverse environmental conditions during a HELB event. Therefore, the surveillance acceptance criterion reflects both steady state and adverse environmental instrument uncertainties.

Steam line high differential pressure must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is not sufficient energy in the secondary side of the unit to cause an accident.

The surveillance acceptance criterion used for this function is ≤ 132 psid.
142

f, g. <u>Safety Injection-High Steam Flow in Two Steam Lines Coincident With T_{avg}-Low or Coincident With Steam Line Pressure-Low</u>

These Functions (1.f and 1.g) provide protection against the following accidents:

- SLB; and

- the inadvertent opening of a SG safety valve.

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.14.1	-------------------NOTES------------------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. --- Verify leakage from each RCS PIV is equivalent to ≤ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure ≥ 2215 psig and ≤ 2255 psig.	24 months AND Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous ~~9~~ 12 months AND Within 24 hours following valve actuation due to automatic or manual action or flow through the valve

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.14.1 (continued)

The leakage limit is to be met at the RCS pressure associated with MODES 1 and 2. This permits leakage testing at high differential pressures with stable conditions not possible in the MODES with lower pressures.

Entry into MODES 3 and 4 is allowed to establish the necessary differential pressures and stable conditions to allow for performance of this Surveillance. The Note that allows this provision is complementary to the Frequency of prior to entry into MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if 12 leakage testing has not been performed in the previous ~~8~~ months. In addition, this Surveillance is not required to be performed on the RHR System when the RHR System is aligned to the RCS in the shutdown cooling mode of operation. PIVs contained in the RHR shutdown cooling flow path must be leakage rate tested after RHR is secured and stable unit conditions and the necessary differential pressures are established.

SR 3.4.14.2 and SR 3.4.14.3

Verifying that ACI and OPI function at the required setpoints ensures that both RHR suction isolation valves will be closed and remain closed when RCS pressure is increased after the RHR System is no longer being used for decay heat removal.

The 24 month Frequency is based on the need to perform the Surveillance under conditions that apply during a plant outage. The 24 month Frequency is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment.

REFERENCES

1. 10 CFR 50.2.

2. 10 CFR 50.55a(c).

3. 10 CFR 50, Appendix A.

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BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.9 is not required to be met because the DG automatic trips are bypassed only on the safety injection start signal, not on the loss of power start signal. SR 3.8.1.13 is excepted because starting independence is not required with the DG(s) that is not required to be operable.

This SR is modified by two Notes. The reason for the first Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 480 V ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

The reason for the second Note is that SR 3.8.1.12 includes testing with an actual or simulated ESF actuation signal. ESF actuation is not required in MODES 5 and 6 so that this portion of the surveillance is not required to be met.

REFERENCES None.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil and Starting Air

BASES

BACKGROUND

Fuel oil for the safeguards DGs is stored in three 7,700 gallon DG fuel oil storage tanks located on the south side of the Diesel Generator Building. The offsite DG fuel oil reserve is maintained in two 30,000 gallon tanks located in the Indian Point 1 Superheater Building and/or a 200,000 gallon tank in the Buchanan Substation which is located in close proximity to the IP3 site. The IP3 offsite fuel oil reserve is maintained by the operators of IP2, ~~Consolidated Edison Company,~~ in accordance with formal agreements. ~~with NYPA.~~ The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve.

Sufficient fuel for at least 48 hours of minimum safeguards equipment operation is available when any two of the DG fuel oil storage tanks are available and each contains 5,365 usable gallons of fuel oil. Additional margin is provided by 115 gallons of fuel oil in the DG day tank required by SR 3.8.1.4. The maximum DG loadings for design basis transients that actuate safety injection are summarized in FSAR 8.2 (Ref. 1). These transients include large and small break loss of coolant accidents (LOCA), main steamline break and steam generator tube rupture (SGTR).

The three DG fuel oil storage tanks are filled through a common fill line that is equipped with a truck hose connection and a shutoff valve at each tank. The overflow from any DG fuel oil storage tank will cascade into an adjacent tank. Each DG fuel oil storage tank is equipped with a single vertical fuel oil transfer pump that discharges to either the normal or emergency header. Either header can be used to fill the day tank at each diesel. Each DG fuel oil storage tank has an alarm that sounds in the control room when the level in the tank ~~drops to approximately 6,717 gallons.~~ approaches the level equivalent of the minimum required usable inventory. Each tank is also equipped with a sounding connection and a level indicator.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

effect on DG operation. Failure to meet the specified acceptance criteria requires entry into Condition E and restoration of the quality of the fuel oil in the DG fuel oil storage tank within the associated Completion Time and explained in the Bases for Condition E. This Surveillance ensures the availability of high quality fuel oil for the DGs.

The periodic tests of the fuel oil stored in the DG fuel oil storage tanks verify that the length of time or conditions of storage has not degraded the fuel in a manner that could impact DG OPERABILITY. Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure. Particulate concentrations must meet the acceptance criteria of Specification 5.5.12. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. Each DG fuel oil storage tank must be considered and tested separately.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

The IP3 offsite fuel oil reserve is maintained by the operators of IP2, ~~Consolidated Edison Company,~~ in accordance with formal agreements ~~with NYPA~~. The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve. Fuel oil properties of new and stored fuel are controlled in accordance with IP2 Technical Specifications and FSAR in order to meet requirements for the Operability of IP2 and IP3 DGs.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.4 (continued)

IP2. IP3

Required testing of the properties of new and stored fuel in the offsite DG fuel oil reserve is performed by IP2 in accordance with programs established by ~~Consolidated Edison Company. NYPA~~ performs periodic verification that fuel oil stored in the offsite DG fuel oil reserve meet the requirements of Specification 5.5.12.

Failure to meet the specified acceptance criteria, whether identified by IP2 or IP3, requires entry into Condition D or E and restoration of the quality of the fuel oil in the offsite DG fuel oil reserve within the associated Completion Time and explained in the Bases for Conditions D and E.

SR 3.8.3.5

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of four engine starts without recharging. Failure of the engine to start within approximately 15 seconds indicates a malfunction at which point the overcrank relays terminate the start cycle. In this condition, sufficient starting air will still be available so that the DG can be manually started. The pressure specified in this SR is intended to reflect the lowest value at which the four starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

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BASES

BACKGROUND (continued)

Each emergency diesel is equipped with a 175-gallon day tank with an operating level that provides sufficient fuel for approximately one hour of DG operation. A decrease in day tank level to approximately 115 gallons (65% full) will cause the normal and emergency fill valves on that day tank to open and the transfer pump in the corresponding DG fuel oil storage tank to start. Once started, the pump will continue to run until that day tank is filled. However, any operating transfer pump will fill any day tank with a normal or emergency fill valve that is open. When a day tank is at approximately 158 gallons (90% full), a switch initiates closing of the day tank normal and emergency fill valves.

Technical Specifications require sufficient fuel oil to operate 2 of the 3 required DGs at minimum safeguards load for 7 days. The Technical Specification required volume of fuel oil includes the 26,826 gallons of usable fuel oil in the reserve tanks, and 10,730 usable gallons in two DG fuel oil storage tanks (assuming a failure makes the oil in the third DG fuel oil storage tank unavailable), ~~and~~ without crediting the additional margin of 230 gallons in two day tanks (assuming a failure makes the oil in the day tank associated with the third DG unavailable).

If the DGs require fuel oil from the fuel oil reserve tank(s), the fuel oil will be transported by truck to the DG fuel oil storage tanks. A truck with appropriate hose connections and capable of transporting oil is available either on site or at the Buchanan Substation. Commercial oil supplies and trucking facilities are also available in the vicinity of the plant.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Requirements for DG fuel oil testing methodology, frequency, and acceptance criteria are maintained in the program required by Specification 5.5.12, Diesel Fuel Oil Testing Program.

Each DG has an air start system with adequate capacity for four successive start attempts on the DG without recharging the air start receiver(s). The air starting system is designed to shutdown and lock out any engine which does not start during the initial start attempt so that only enough air for one automatic start is used. This conserves air for subsequent DG start attempts.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

takes into account the reduced DG loading required to respond to events in MODES 5 and 6 is sufficient to support the two DGs required to be operable in MODES 5 and 6 and during movement of irradiated fuel while a fuel transfer from the offsite DG fuel oil reserve or from another offsite source is planned and conducted under accident conditions.

(worst case 956 gallons for #33 tank and 915 gallons for #31 and #32 tanks)

This minimum volume required by SR 3.8.3.2.a and SR 3.8.3.2.b is the usable volume and does not include allowances for fuel not usable due to the fuel oil transfer pump cutoff switch ~~(760 gallons)~~ and ~~the required safety~~ margin (20 gallons per tank). If the installed level indicators are used to measure tank volume, an additional allowance of 50 gallons for instrument uncertainty associated with the level indicators must be included. Appropriate adjustments are required for SR 3.8.3.2.b if the required volume is found in more than one DG fuel oil storage tank.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.3

This surveillance verifies that the properties of new and stored fuel oil meet the acceptance criteria established by Specification 5.5.12, "Diesel Fuel Oil Testing Program." Specific sampling and testing requirements for diesel fuel oil in accordance with applicable ASTM Standards are specified in the administrative program developed to ensure Specification.

New fuel oil is sampled prior to addition to the DG fuel oil storage tanks and stored fuel oil is periodically sampled from the DG fuel oil storage tanks. Requirements and acceptance

(continued)

Table 3.7.1-2 (page 1 of 1)
Main Steam Safety Valve Lift Settings

VALVE NUMBER				LIFT SETTING (psig ± 3%)
STEAM GENERATOR				
#31	#32	#33	#34	
MS-45-1	MS-45-2	MS-45-3	MS-45-4	1065
MS-46-1	MS-46-2	MS-46-3	46 MS-~~45~~-4	1080
MS-47-1	MS-47-2	MS-47-3	MS-47-4	1095
MS-48-1	MS-48-2	MS-48-3	MS-48-4	1110
MS-49-1	MS-49-2	MS-49-3	MS-49-4	1120

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	Safeguards Power Train 5A (DG 33)	Safeguards Power Train 2A/3A (DG 31)	Safeguards Power Train 6A (DG 32)	
AC Electrical Power Distribution subsystems	480 V	bus 5A[1] MCC 36A MCC 36E	bus 2A[1] bus 3A[1] MCC 36C	bus 6A[1] MCC 36B MCC 36D	
AC vital[(4)] instrument buses (VIBs)	120 V	bus 31 bus 31A	bus 33 bus 33A	bus 32 bus 32A	bus 34[3] bus 34A[3]
DC buses	125 V	bus 31[2]	bus 33[2]	bus 32[2]	bus ~~32[2]~~ 34[2]

(1) Tie breakers must be open between buses 5A and 2A and between buses 3A and 6A.

(2) Tie breakers between DC buses must be open.

(3) The AC Power supply to the VIB 34 and VIB 34A is supplied from MCC 36B or MCC 36C as described in the Bases for LCO 3.8.7, Inverters - Operating.

(4) Each bus pair (e.g., 31 and 31A) constitutes a single vital instrument bus.

ATTACHMENT II TO IPN-01-002

PROPOSED LICENSE CONDITIONS
FOR
CONVERSION TO IMPROVED TECHNICAL SPECIFICATIONS

1. This amendment authorizes the relocation of certain Technical Specification requirements and detailed information to licensee-controlled documents as described in Section E, "Relocated Specifications from the CTS", and Table LA, "Removed Details and Less Restrictive Administrative Changes to the CTS" of the NRC staff's Safety Evaluation enclosed with this amendment. The relocation of requirements and detailed information shall be completed on or before the implementation date of this amendment.

2. For SRs that are new in this amendment, the first performance is due at the end of the first surveillance interval that begins on the date of implementation of this amendment.

3. For SRs that existed prior to this amendment whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after implementation of this amendment.

4. For SRs that existed prior to this amendment that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the implementation of this amendment.

5. For SRs that existed prior to this amendment whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the implementation of this amendment.

ENCLOSURE TO IPN-01-002

FINAL TYPED PAGES OF PROPOSED IMPROVED TECHNICAL SPECIFICATIONS AND BASES FOR INDIAN POINT 3

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS

(continued)

TABLE OF CONTENTS

Reporting Requirments (continued)

1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known input. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the

(continued)

1.1 Definitions

CHANNEL CALIBRATION (continued)

recently installed sensing element. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping calibrations or total channel steps so that the entire channel is calibrated.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.

CHANNEL OPERATIONAL TEST (COT)

A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy.

CORE ALTERATION

CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

CORE OPERATING LIMITS REPORT (COLR)

The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.

(continued)

1.1 Definitions (continued)

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in Table III of TID-14844, AEC, 1962, "Calculation of Distance Factors for Power and Test Reactor Sites," or those listed in Table E-7 of Regulatory Guide 1.109, Rev.1, NRC, 1977, or ICRP 30, Supplement to Part 1, page 192-212, Table titled, "Committed Dose Equivalent in Target Organs or Tissues per Intake of Unit Activity".

$\bar{E}$ – AVERAGE DISINTEGRATION ENERGY

$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 10 minutes, making up at least 95% of the total noniodine activity in the coolant.

L_a

The maximum allowable primary containment leakage rate, L_a, shall be 0.1% of primary containment air weight per day at the calculated peak containment pressure (P_a).

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except for leakage into closed systems and reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

(Leakage into closed systems is leakage that can be accounted for and contained by a

(continued)

1.1 Definitions

LEAKAGE (continued)

system not directly connected to the atmosphere. Leakage past the pressurizer safety valve seats and leakage past the safety injection pressure isolation valves are examples of reactor coolant system leakage into closed systems.)

2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System;

b. Unidentified LEAKAGE

All LEAKAGE (except for leakage into closed systems and RCP seal water injection or leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except SG LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MASTER RELAY TEST

A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.

MODE

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant loop temperature, and reactor

(continued)

1.1 Definitions

MODE (continued)	vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).
PHYSICS TESTS	PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are: a. Described in FSAR Chapter 13, Initial Tests and Operations; b. Authorized under the provisions of 10 CFR 50.59; or c. Otherwise approved by the Nuclear Regulatory Commission.
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3025 MWt.

(continued)

1.1 Definitions (continued)

SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the hot zero power level.
SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing each slave relay and verifying the OPERABILITY of each slave relay. The SLAVE RELAY TEST shall include, as a minimum, a continuity check of associated testable actuation devices.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

(continued)

1.1 Definitions (continued)

TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy.

Table 1.1-1 (page 1 of 1)
MODES

MODE	TITLE	REACTIVITY CONDITION (k_{eff})	% RATED THERMAL POWER[a]	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥ 0.99	> 5	NA
2	Startup	≥ 0.99	≤ 5	NA
3	Hot Standby	< 0.99	NA	≥ 350
4	Hot Shutdown[b]	< 0.99	NA	$350 > T_{avg} > 200$
5	Cold Shutdown[b]	< 0.99	NA	≤ 200
6	Refueling[c]	NA	NA	NA

(a) Excluding decay heat.

(b) All reactor vessel head closure bolts fully tensioned.

(c) One or more reactor vessel head closure bolts less than fully tensioned.

1.0 USE AND APPLICATION

1.2 Logical Connectors

PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Specifications (TS) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TS are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

(continued)

1.2 Logical Connectors (continued)

EXAMPLES

The following examples illustrate the use of logical connectors.

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Verify . . . AND A.2 Restore . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

(continued)

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO not met.	A.1 Trip . . . OR A.2.1 Verify . . . AND A.2.2.1 Reduce . . . OR A.2.2.2 Perform . . . OR A.3 Align . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.

BACKGROUND

Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each

(continued)

1.3 Completion Times

DESCRIPTION (continued)

additional failure, with Completion Times based on initial entry into the Condition.

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

a. Must exist concurrent with the first inoperability; and

b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery..." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

(continued)

1.3 Completion Times (continued)

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Condition A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has not expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition A.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-2 (continued)

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO
C. One Function X train inoperable. AND One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. OR C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-3 (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

The Completion Times of Conditions A and B are modified by a logical connector with a separate 10 day Completion Time measured from the time it was discovered the LCO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. The separate Completion Time modified by the phrase "from discovery of failure to meet the LCO" is designed to prevent indefinite continued operation while not meeting the LCO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock". In this instance, the Completion Time "time zero" is specified as commencing at the time the LCO was initially not met, instead of at the time the associated Condition was entered.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (including the extension) expires while one or more valves are still inoperable, Condition B is entered.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

NOTE

Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-5 (continued)

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-6 (continued)

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed, and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

(continued)

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

(continued)

1.3 Completion Times

EXAMPLES

EXAMPLE 1.3-7 (continued)

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

IMMEDIATE COMPLETION TIME

When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE

The purpose of this section is to define the proper use and application of Frequency requirements.

DESCRIPTION

Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR as well as certain Notes in the Surveillance column that modify performance requirements.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the stated Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then SR 3.0.3 becomes applicable.

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by SR 3.0.2. "Thereafter" indicates future performances must be established per SR 3.0.2, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

(continued)

1.4 Frequency

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----------------NOTE------------------- Not required to be performed until 12 hours after ≥ 25% RTP. --------------------------------------- Perform channel adjustment.	7 days

The interval continues, whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches ≥ 25% RTP to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was < 25% RTP, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power ≥ 25% RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

In MODES 1 and 2, the combination of THERMAL POWER, Reactor Vessel inlet temperature, and pressurizer pressure shall not exceed the SLs specified in Figure 2.1-1.

2.1.2 RCS Pressure SL

In MODES 1, 2, 3, 4, 5, and in MODE 6 when the reactor vessel head is on, the RCS pressure shall be maintained ≤ 2735 psig.

2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, 5, or 6, restore compliance within 5 minutes.

This curve does not provide allowable limits for normal operation.
(see LCO 3.4.1, Pressure, Temperature and Flow DNB limits, for DNB limits)

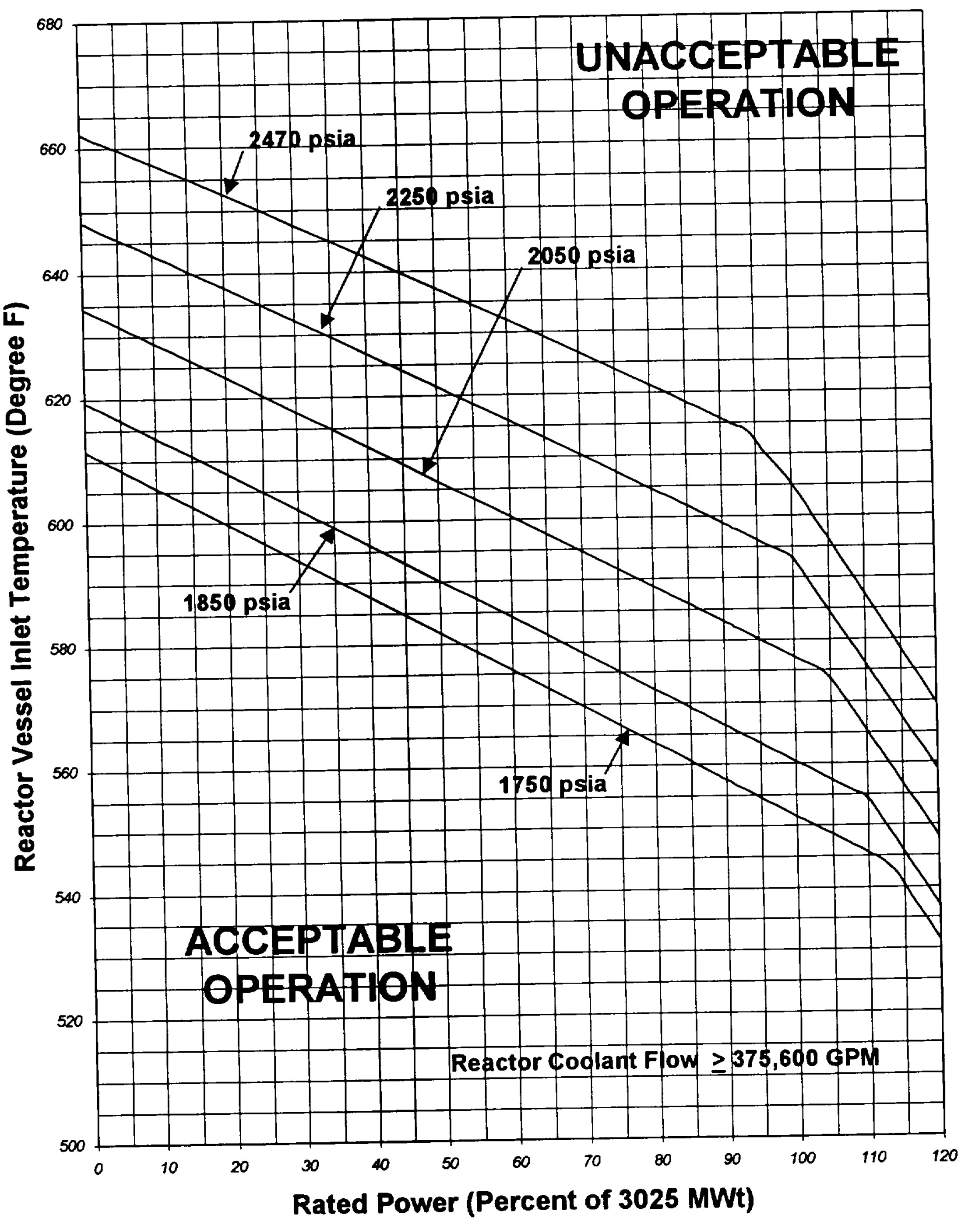

Figure 2.1-1
Rated Power (Percent of 3025 MWt)
100 PERCENT RATED POWER IS EQUIVALENT TO 3025 MWt
Pressures and temperatures do not include allowance for instrument error.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

LCO 3.0.2

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

(continued)

3.0 LCO APPLICABILITY (continued)

LCO 3.0.4

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3, and 4.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

(continued)

3.0 LCO APPLICABILITY (continued)

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.14, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

LCO 3.0.7

Test Exception LCOs, such as 3.1.8, allow specified Technical Specification (TS) requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other TS requirements remain unchanged. Compliance with Test Exception LCOs is optional. When a Test Exception LCO is desired to be met but is not met, the ACTIONS of the Test Exception LCO shall be met. When a Test Exception LCO is not desired to be met, entry into a MODE or other specified condition in the Applicability shall be made in accordance with the other applicable Specifications.

3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SR 3.0.1	SRs shall be met during the MODES or other specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LCO except as provided in SR 3.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.
SR 3.0.2	The specified Frequency for each SR is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met. For Frequencies specified as "once," the above interval extension does not apply. If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance. Exceptions to this Specification are stated in the individual Specifications.
SR 3.0.3	If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the LCO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is less. This delay period is permitted to allow performance of the Surveillance. If the Surveillance is not performed within the delay period, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered. When the Surveillance is performed within the delay period and the Surveillance is not met, the LCO must immediately be declared not met, and the applicable Condition(s) must be entered.

(continued)

3.0 SR APPLICABILITY (continued)

SR 3.0.4	Entry into a MODE or other specified condition in the Applicability of an LCO shall not be made unless the LCO's Surveillances have been met within their specified Frequency. This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. SR 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, 3 and 4.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 Shutdown Margin (SDM)

LCO 3.1.1 SDM shall be within the limits specified in the COLR.

APPLICABILITY: MODE 2 with $k_{eff} < 1.0$,
MODES 3, 4, and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.1.1 Verify SDM is within the limits specified in the COLR.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Core Reactivity

LCO 3.1.2 The measured core reactivity shall be within ± 1% Δk/k of predicted values.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Measured core reactivity not within limit.	A.1	Re-evaluate core design and safety analysis, and determine that the reactor core is acceptable for continued operation.	7 days
	<u>AND</u>		
	A.2	Establish appropriate operating restrictions and SRs.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.2.1	------------------NOTE------------------ The predicted reactivity values may be adjusted (normalized) to correspond to the measured core reactivity prior to exceeding a fuel burnup of 60 effective full power days (EFPD) after each fuel loading. -- Verify measured core reactivity is within ± 1% Δk/k of predicted values.	Once prior to entering MODE 1 after each refueling AND -----NOTE------ Only required after 60 EFPD -------------- 31 EFPD thereafter

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Moderator Temperature Coefficient (MTC)

LCO 3.1.3 The MTC shall be maintained within the limits specified in the COLR. The maximum upper limit shall be ≤ 0.0 Δk/k°F at hot zero power.

APPLICABILITY: MODE 1 and MODE 2 with $k_{eff} \geq 1.0$ for the upper MTC limit. MODES 1, 2, and 3 for the lower MTC limit.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. MTC not within upper limit.	A.1	Establish administrative withdrawal limits for control banks to maintain MTC within limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 2 with $k_{eff} < 1.0$.	6 hours
C. MTC not within lower limit.	C.1	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.3.1	Verify MTC is within upper limit.	Once prior to entering MODE 1 after each refueling
SR 3.1.3.2	------------------NOTES-------------------- 1. Not required to be performed until 7 effective full power days (EFPD) after reaching the equivalent of an equilibrium RTP all rods out (ARO) boron concentration of 300 ppm. 2. If the MTC is more negative than the 300 ppm Surveillance limit (not LCO limit) specified in the COLR, SR 3.1.3.2 shall be repeated once per 14 EFPD during the remainder of the fuel cycle. 3. SR 3.1.3.2 need not be repeated if the MTC measured at the equivalent of equilibrium RTP-ARO boron concentration of ≤ 60 ppm is less negative than the 60 ppm Surveillance limit specified in the COLR. --- Verify MTC is within lower limit.	Once each cycle

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Rod Group Alignment Limits

LCO 3.1.4 All shutdown and control rods shall be OPERABLE, with rod group alignment limits as follows:

a. When THERMAL POWER is > 85% RTP, the difference between each individual indicated rod position and its group step counter demand position shall be within the limits specified in Table 3.1.4-1 for the group step counter demand position; and

b. When THERMAL POWER is ≤ 85% RTP, the difference between each individual indicated rod position and its group step counter demand position shall be within 24 steps.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more rod(s) untrippable.	A.1.1	Verify SDM is within the limits specified in the COLR.	1 hour
	<u>OR</u>		
	A.1.2	Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>		
	A.2	Be in MODE 3.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One rod not within alignment limits.	B.1 Restore rod to within alignment limits.	1 hour
	<u>OR</u>	
	B.2.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
	<u>OR</u>	
	B.2.1.2 Initiate boration to restore SDM to within limit.	1 hour
	<u>AND</u>	
	B.2.2 Reduce THERMAL POWER to ≤ 75% RTP.	2 hours
	<u>AND</u>	
	B.2.3 Verify SDM is within the limits specified in the COLR.	Once per 12 hours
	<u>AND</u>	
	B.2.4 Perform SR 3.2.1.1.	72 hours
	<u>AND</u>	
	B.2.5 Perform SR 3.2.2.1.	72 hours
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B (continued)	B.2.6 Re-evaluate safety analyses and confirm results remain valid for duration of operation under these conditions.	5 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours
D. More than one rod not within alignment limit.	D.1.1 Verify SDM is within the limits specified in the COLR. **OR** D.1.2 Initiate boration to restore required SDM to within limit. **AND** D.2 Be in MODE 3.	1 hour 1 hour 6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	------------------ NOTE ------------------ Not required to be met for individual control rods until 1 hour after completion of control rod movement. -- Verify individual rod positions within alignment limit.	 12 hours
SR 3.1.4.2	Verify rod freedom of movement (trippability) by moving each rod not fully inserted in the core $\geq$ 10 steps in one direction.	92 days
SR 3.1.4.3	Verify rod drop time of each rod, from the fully withdrawn position, is $\leq$ 1.8 seconds from the loss of stationary gripper coil voltage to dashpot entry, with: a. $T_{avg} \geq 500°F$; and b. All reactor coolant pumps operating.	Prior to reactor criticality after each removal of the reactor head

Table 3.1.4-1

Maximum Permissible Rod Misalignment
(Indicated Rod Position minus Group Step Counter Demand Position)
When > 85 % RTP

Step Counter Demand Position (steps)	Maximum Permissible Deviations (IRPI Position minus Step Counter Demand Position) (steps)
≤ 212	≥ -12 and ≤ +12
213 to 225	≥ -12 and ≤ +17
226	≥ -13 and ≤ +17
227	≥ -14 and ≤ +17
228	≥ -15 and ≤ +17
229	≥ -16 and ≤ +17
≥ 230	≥ -17 and ≤ +17

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Shutdown Bank Insertion Limits

LCO 3.1.5 Each shutdown bank shall be within insertion limits specified in the COLR.

APPLICABILITY: MODE 1,
MODE 2 with any control bank not fully inserted.

-------------------------NOTE-------------------------
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more shutdown banks not within limits.	A.1.1 Verify SDM is within the limits specified in the COLR. **<u>OR</u>** A.1.2 Initiate boration to restore SDM to within limit. **<u>AND</u>** A.2 Restore shutdown banks to within limits.	1 hour 1 hour 2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.5.1	Verify each shutdown bank is within the limits specified in the COLR.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Control Bank Insertion Limits

LCO 3.1.6 Control banks shall be within the insertion, sequence, and overlap limits specified in the COLR.

APPLICABILITY: MODE 1,
MODE 2 with $k_{eff} \geq 1.0$.

-----------------------------NOTE-----------------------------
This LCO is not applicable while performing SR 3.1.4.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Control bank insertion limits not met.	A.1.1 Verify SDM is within the limits specified in the COLR.	1 hour
	OR	
	A.1.2 Initiate boration to restore SDM to within limit.	1 hour
	AND	
	A.2 Restore control bank(s) to within limits.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Control bank sequence or overlap limits not met.	B.1.1 Verify SDM is within the limits specified in the COLR. **OR** B.1.2 Initiate boration to restore SDM to within limit. **AND** B.2 Restore control bank sequence and overlap to within limits.	1 hour 1 hour 2 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.6.1	Verify estimated critical control bank position is within the limits specified in the COLR.	Within 4 hours prior to achieving criticality

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.6.2	Verify each control bank insertion is within the limits specified in the COLR.	12 hours
SR 3.1.6.3	Verify sequence and overlap limits specified in the COLR are met for control banks not fully withdrawn from the core.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Rod Position Indication

LCO 3.1.7 The Individual Rod Position Indication (IRPI) System and the Demand Position Indication System shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each inoperable rod position indicator and each demand position indicator.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One IRPI per group inoperable for one or more groups.	A.1	Verify the position of the rods with inoperable position indicators indirectly by using movable incore detectors.	Once per 8 hours
	<u>OR</u>		
	A.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. More than one IRPI per group inoperable.	B.1	Place the control rods under manual control.	Immediately
	<u>AND</u>		
	B.2	Monitor and record RCS Tavg.	Once per 1 hour
	<u>AND</u>		
	B.3	Verify the position of the rods with inoperable position indicators indirectly by using the movable incore detectors.	Once per 8 hours
	<u>AND</u>		
	B.4	Restore inoperable position indicators to OPERABLE status such that a maximum of one IRPI per group is inoperable.	24 hours
C. One or more rods with inoperable position indicators have been moved in excess of 24 steps in one direction since the last determination of the rod's position.	C.1	Verify the position of the rods with inoperable position indicators indirectly by using movable incore detectors.	4 hours
	<u>OR</u>		
	C.2	Reduce THERMAL POWER to $\leq$ 50% RTP.	8 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. One demand position indicator per bank inoperable for one or more banks.	D.1.1	Verify by administrative means all IRPIs for the affected banks are OPERABLE.	Once per 8 hours
	<u>AND</u>		
	D.1.2	Verify the most withdrawn rod and the least withdrawn rod of the affected banks are ≤ 12 steps apart when > 85% RTP and ≤ 24 steps apart when ≤ 85% RTP.	Once per 8 hours
	<u>OR</u>		
	D.2	Reduce THERMAL POWER to ≤ 50% RTP.	8 hours
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify each IRPI agrees within 12 steps of the group demand position for the full indicated range of rod travel.	Prior to reactor criticality after each removal of the reactor vessel head

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 PHYSICS TESTS Exceptions - MODE 2

LCO 3.1.8 During the performance of PHYSICS TESTS, the requirements of

LCO 3.1.3, "Moderator Temperature Coefficient (MTC)";
LCO 3.1.4, "Rod Group Alignment Limits";
LCO 3.1.5, "Shutdown Bank Insertion Limits";
LCO 3.1.6, "Control Bank Insertion Limits"; and
LCO 3.4.2, "RCS Minimum Temperature for Criticality"

may be suspended, provided:

a. RCS lowest loop average temperature is ≥ 540°F; and

b. SDM is within the limits specified in the COLR; and

c. THERMAL POWER IS ≤ 5% RTP.

APPLICABILITY: MODE 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDM not within limit.	A.1 Initiate boration to restore SDM to within limit.	15 minutes
	<u>AND</u>	
	A.2 Suspend PHYSICS TESTS exceptions.	1 hour
B. THERMAL POWER not within limit.	B.1 Open reactor trip breakers.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. RCS lowest loop average temperature not within limit.	C.1 Restore RCS lowest loop average temperature to within limit.	15 minutes
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	15 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.8.1	Perform a CHANNEL OPERATIONAL TEST on power range and intermediate range channels per SR 3.3.1.7, SR 3.3.1.8, and Table 3.3.1-1.	Prior to initiation of PHYSICS TESTS
SR 3.1.8.2	Verify the RCS lowest loop average temperature is ≥ 540°F.	30 minutes
SR 3.1.8.3	Verify THERMAL POWER is ≤ 5% RTP.	30 minutes
SR 3.1.8.4	Verify SDM is within the limits specified in the COLR.	24 hours

3.2 POWER DISTRIBUTION LIMITS

3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$)

LCO 3.2.1 $F_Q(Z)$ shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. $F_Q(Z)$ not within limit.	A.1	Reduce THERMAL POWER $\geq$ 1% RTP for each 1% $F_Q(Z)$ exceeds limit.	15 minutes after each $F_Q(Z)$ determination
	<u>AND</u>		
	A.2	Reduce Power Range Neutron Flux – High trip setpoints $\geq$ 1% for each 1% $F_Q(Z)$ exceeds limit.	72 hours after each $F_Q(Z)$ determination
	<u>AND</u>		
	A.3	Reduce Overpower ΔT trip setpoints $\geq$ 1% for each 1% $F_Q(Z)$ exceeds limit.	72 hours after each $F_Q(Z)$ determination
	<u>AND</u>		
	A.4	Perform SR 3.2.1.1.	Prior to increasing THERMAL POWER above the limit of Required Action A.1

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

-------------------------------------NOTE-------------------------------------
During power escalation at the beginning of each cycle, THERMAL POWER may be increased until an equilibrium power level has been achieved, at which a power distribution map is obtained.

SURVEILLANCE		FREQUENCY
SR 3.2.1.1	Verify $F_Q(Z)$ is within limit.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP __AND__ Once within 12 hours after achieving equilibrium conditions after exceeding, by ≥ 10% RTP, the THERMAL POWER at which $F_Q(Z)$ was last verified __AND__ 31 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.2 Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$)

LCO 3.2.2 $F^N_{\Delta H}$ shall be within the limits specified in the COLR.

APPLICABILITY: MODE 1.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Required Actions A.2 and A.3 must be completed whenever Condition A is entered. --------------------	A.1.1	Restore $F^N_{\Delta H}$ to within limit.	4 hours
	OR		
	A.1.2.1	Reduce THERMAL POWER to < 50% RTP.	4 hours
$F^N_{\Delta H}$ not within limit.		**AND**	
	A.1.2.2	Reduce Power Range Neutron Flux - High trip setpoints to ≤ 55% RTP.	72 hours
	AND		
	A.2	Perform SR 3.2.2.1.	24 hours
	AND		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.3	--------NOTE-------- THERMAL POWER does not have to be reduced to comply with this Required Action. -------------------- Perform SR 3.2.2.1.	Prior to THERMAL POWER exceeding 50% RTP AND Prior to THERMAL POWER exceeding 75% RTP AND 24 hours after THERMAL POWER reaching ≥ 95% RTP
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.2.1	Verify $F^N_{\Delta H}$ is within limits specified in the COLR.	Once after each refueling prior to THERMAL POWER exceeding 75% RTP AND 31 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.3 AXIAL FLUX DIFFERENCE (AFD) (Constant Axial Offset Control (CAOC) Methodology)

LCO 3.2.3 The AFD:

a. Shall be maintained within the target band about the target flux difference. The target band is specified in the COLR.

b. May deviate outside the target band with THERMAL POWER < 90% RTP but ≥ 50% RTP, provided AFD is within the acceptable operation limits and cumulative penalty deviation time is ≤ 1 hour during the previous 24 hours. The acceptable operation limits are specified in the COLR.

c. May deviate outside the target band with THERMAL POWER < 50% RTP.

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

1. The AFD shall be considered outside the target band when two or more OPERABLE excore channels indicate AFD to be outside the target band.

2. With Thermal Power ≥ 50% RTP, penalty deviation time shall be accumulated on the basis of a 1 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

3. With Thermal Power < 50% RTP and > 15% RTP, penalty deviation time shall be accumulated on the basis of a 0.5 minute penalty deviation for each 1 minute of power operation with AFD outside the target band.

4. A total of 16 hours of operation may be accumulated with AFD outside the target band without penalty deviation time during surveillance of power range channels in accordance with SR 3.3.1.6, provided AFD is maintained within acceptable operation limits.

APPLICABILITY: MODE 1 with THERMAL POWER > 15% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. THERMAL POWER ≥ 90% RTP. <u>AND</u> AFD not within the target band.	A.1	Restore AFD to within target band.	15 minutes
B. Required Action and associated Completion Time of Condition A not met.	B.1	Reduce THERMAL POWER to < 90% RTP.	15 minutes
C. ---------NOTE--------- Required Action C.1 must be completed whenever Condition C is entered. -------------------- THERMAL POWER < 90% and ≥ 50% RTP with cumulative penalty deviation time > 1 hour during the previous 24 hours. <u>OR</u> THERMAL POWER < 90% and ≥ 50% RTP with AFD not within the acceptable operation limits.	C.1	Reduce THERMAL POWER to < 50% RTP.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.3.1	Verify AFD is within target band for each OPERABLE excore channel.	7 days
SR 3.2.3.2	------------------NOTE------------------ Assume logged values of AFD exist during the preceding time interval. -- Verify AFD is within target band and log AFD for each OPERABLE excore channel.	-----NOTE------ Only required to be performed if AFD monitor alarm is inoperable -------------- Once within 15 minutes and every 15 minutes thereafter when THERMAL POWER ≥ 90% RTP <u>AND</u> Once within 1 hour and every 1 hour thereafter when THERMAL POWER < 90% RTP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.2.3.3	Update target flux difference of each OPERABLE excore channel by: a. Determining the target flux difference in accordance with SR 3.2.3.4, or b. Using linear interpolation between the most recently measured value, and either the predicted value for the end of cycle or 0% AFD.	Once within 31 EFPD after each refueling <u>AND</u> 31 EFPD thereafter
SR 3.2.3.4	------------------NOTE------------------ The initial target flux difference after each refueling may be determined from design predictions. -- Determine, by measurement, the target flux difference of each OPERABLE excore channel.	Once within 31 EFPD after each refueling <u>AND</u> 92 EFPD thereafter

3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02.

APPLICABILITY: MODE 1 with THERMAL POWER > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. QPTR not within limit.	A.1	Reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours after each QPTR determination
	<u>AND</u>		
	A.2	Determine QPTR after achieving equilibrium conditions from a THERMAL POWER reduction per Required Action A.1.	Once per 12 hours
	<u>AND</u>		
	A.3	Perform SR 3.2.1.1 and SR 3.2.2.1.	24 hours after achieving equilibrium conditions from a Thermal Power reduction per Required Action A.1. <u>AND</u> Once per 7 days thereafter

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
	AND		
A. (continued)	A.4	Re-evaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND		
	A.5	--------NOTES-------- 1. Perform Required Action A.5 only after Required Action A.4 is completed. 2. Required Action A.6 shall be completed whenever Required Action A.5 is performed. -------------------- Normalize excore detectors to restore QPTR to within limits.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND		(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.6	--------NOTE-------- Perform Required Action A.6 only after Required Action A.5 is completed. -------------------- Perform SR 3.2.1.1 and SR 3.2.2.1.	 Within 24 hours after achieving equilibrium conditions at RTP not to exceed 48 hours after increasing THERMAL POWER above the limit of Required Action A.1
B. Required Action and associated Completion Time not met.	B.1	Reduce THERMAL POWER to ≤ 50% RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	-----------------NOTES----------------- 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER ≤ 75% RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance. -- Verify QPTR is within limit by calculation.	7 days
SR 3.2.4.2	-----------------NOTE----------------- Not required to be performed until 24 hours after input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER > 75% RTP. -- Verify QPTR is within limit using the movable incore detectors.	24 hours

3.3 INSTRUMENTATION

3.3.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1 The RPS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1	Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train (s).	Immediately
B. One Manual Reactor Trip channel inoperable.	B.1	Restore channel to OPERABLE status.	48 hours
	OR		
	B.2	Be in MODE 3.	54 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel or train inoperable.	C.1 Restore channel or train to OPERABLE status. __OR__ C.2.1 Initiate action to fully insert all rods. __AND__ C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	48 hours 48 hours 49 hours
D. One Power Range Neutron Flux – High channel inoperable.	-------------NOTES------------ 1. The inoperable channel may be bypassed for up to 8 hours for surveillance testing and setpoint adjustment of other channels. 2. Requirements of SR 3.2.4.2 are applicable if the Power Range Neutron Flux input to QPTR is inoperable. ------------------------------ D.1 Place channel in trip. __OR__ D.2 Be in MODE 3.	 6 hours 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One channel inoperable.	-------------NOTE------------- The inoperable channel may be bypassed for up to 8 hours for surveillance testing of other channels. ------------------------------	
	E.1 Place channel in trip.	6 hours
	OR	
	E.2 Be in MODE 3.	12 hours
F. Required Intermediate Range Neutron Flux channel inoperable.	F.1 Suspend operations involving positive reactivity additions.	Immediately
	AND	
	F.2 Reduce THERMAL POWER to < P-6.	2 hours
G. Required Source Range Neutron Flux channel inoperable.	G.1 Open Reactor Trip Breakers (RTBs).	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One channel inoperable.	------------NOTE------------ The inoperable channel may be bypassed for up to 8 hours for surveillance testing of other channels. ------------------------------	
	H.1 Place channel in trip.	6 hours
	<u>OR</u>	
	H.2 Reduce THERMAL POWER to < P-7.	12 hours
I. One Reactor Coolant Pump Breaker Position channel inoperable.	------------NOTE------------ The inoperable channel may be bypassed for up to 8 hours for surveillance testing of other channels. ------------------------------	
	I.1 Restore channel to OPERABLE status.	6 hours
	<u>OR</u>	
	I.2 Reduce THERMAL POWER to < P-8.	10 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
J. One Turbine Trip channel inoperable.	------------NOTE------------ The inoperable channel may be bypassed for up to 8 hours for surveillance testing of other channels. ------------------------------	
	J.1 Place channel in trip.	6 hours
	OR	
	J.2 Reduce THERMAL POWER to < P-8.	10 hours
K. One train inoperable.	------------NOTE------------ One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. ------------------------------	
	K.1 Restore train to OPERABLE status.	6 hours
	OR	
	K.2 Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One RTB train inoperable.	-------------NOTES------------ 1. One train may be bypassed for up to 2 hours for surveillance testing, provided the other train is OPERABLE. 2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE. ------------------------------	
	L.1 Restore train to OPERABLE status.	1 hour
	<u>OR</u>	
	L.2 Be in MODE 3.	7 hours
M. One or more channels inoperable.	M.1 Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u>	
	M.2 Be in MODE 3.	7 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
N. One or more channels inoperable.	N.1	Verify interlock is in required state for existing unit conditions.	1 hour
	<u>OR</u>		
	N.2	Be in MODE 2.	7 hours
O. One trip mechanism inoperable for one RTB.	O.1	Restore inoperable trip mechanism to OPERABLE status.	48 hours
	<u>OR</u>		
	O.2.	Be in MODE 3.	54 hours

SURVEILLANCE REQUIREMENTS

NOTE

Refer to Table 3.3.1-1 to determine which SRs apply for each RPS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.1.2	NOTES 1. Adjust NIS channel if absolute difference is > 2%. 2. Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	24 hours
SR 3.3.1.3	NOTES 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Only required to be performed when THERMAL POWER is > 90% RTP. Compare results of the incore detector measurements to NIS AFD.	31 effective full power days (EFPD)

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.4	-------------------NOTE------------------- This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. -- Perform TADOT.	 31 days on a STAGGERED TEST BASIS
SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.1.6	-------------------NOTE------------------- Only required to be performed when THERMAL POWER is > 90% RTP. -- Calibrate excore channels to agree with incore detector measurements.	 92 EFPD
SR 3.3.1.7	-------------------NOTE------------------- Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. -- Perform COT.	 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8	-------------------NOTE------------------- This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. -- Perform COT.	------NOTE------ Only required when not performed within previous 92 days --------------- Prior to reactor startup <u>AND</u> Four hours after reducing power below P-6 for source range instrumentation <u>AND</u> Twelve hours after reducing power below P-10 for power and intermediate instrumentation <u>AND</u> Every 92 days thereafter

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.9	-------------------NOTE------------------- Verification of setpoint is not required. -- Perform TADOT.	92 days
SR 3.3.1.10	-------------------NOTE------------------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -- Perform CHANNEL CALIBRATION.	24 months <u>AND</u> 18 months for Function 11
SR 3.3.1.11	-------------------NOTE------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.12	------------------NOTE------------------ This Surveillance shall include verification that the electronic dynamic compensation time constants are set at the required values. -- Perform CHANNEL CALIBRATION.	24 months
SR 3.3.1.13	Perform COT.	24 months
SR 3.3.1.14	------------------NOTE------------------ Verification of setpoint is not required. -- Perform TADOT.	24 months

Table 3.3.1-1 (page 1 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.14	NA
	3(a), 4(a), 5(a)	2	C	SR 3.3.1.14	NA
2. Power Range Neutron Flux					
a. High	1,2	4(j)	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11	≤ 109% RTP
b. Low	1(b),2	4(j)	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 25% RTP
3. Intermediate Range Neutron Flux	1(b),2(c)	1	F	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	NA

(continued)

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlocks.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

(j) Only 3 channels required during Mode 2 Physics Tests, LCO 3.1.8

Table 3.3.1-1 (page 2 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Source Range Neutron Flux	$2^{(d)}$	1	G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	NA
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	1	G	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11	NA
5. Overtemperature ΔT	1,2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.12	Refer to Note 1
6. Overpower ΔT	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.12	Refer to Note 2

(continued)

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

Table 3.3.1-1 (page 3 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. Pressurizer Pressure					
a. Low	1(e)	4	H	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 1790 psig
b. High	1,2	3	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 2400 psig
8. Pressurizer Water Level - High	1(e)	3	H	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 97%
9. Reactor Coolant Flow - Low	1(e)	3 per loop	H	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 90%

(continued)

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 4 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
10. Reactor Coolant Pump (RCP) Breaker Position					
a. Single Loop	$1^{(f)}$	1 per RCP	I	SR 3.3.1.14	NA
b. Two Loops	$1^{(g)}$	1 per RCP	H	SR 3.3.1.14	NA
11. Undervoltage RCPs (6.9 kV bus)	$1^{(e)}$	1 per bus	H	SR 3.3.1.9 SR 3.3.1.10	NA
12. Underfrequency RCPs (6.9 kV bus)	$1^{(e)}$	1 per bus	H	SR 3.3.1.9 SR 3.3.1.10	≥ 57.22 Hz
13. Steam Generator (SG) Water Level - Low Low	1,2	3 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≥ 4.0% NR
14. SG Water Level - Low	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	NA
Coincident with Steam Flow/ Feedwater Flow Mismatch	1,2	2 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	NA

(continued)

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(f) Above the P-8 (Power Range Neutron Flux) interlock.

(g) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 5 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. Turbine Trip-Auto-Stop Oil Pressure	1(h)	3	J	SR 3.3.1.10 SR 3.3.1.14	NA
16. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	K	SR 3.3.1.14	NA
17. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d)	2 trains	M	SR 3.3.1.11 SR 3.3.1.13	NA
b. Low Power Reactor Trips Block, P-7	1	2 trains	N	SR 3.3.1.11 SR 3.3.1.13	NA
c. Power Range Neutron Flux, P-8	1	4	N	SR 3.3.1.11 SR 3.3.1.13	NA
d. Power Range Neutron Flux, P-10	1,2	4	M	SR 3.3.1.11 SR 3.3.1.13	NA
e. Turbine First Stage Pressure, P-7 Input	1	2	N	SR 3.3.1.1 SR 3.3.1.10 SR 3.3.1.13	NA

(continued)

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(h) Above the P-8 (Power Range Neutron Flux) interlock.

Table 3.3.1-1 (page 6 of 8)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
18. Reactor Trip Breakers(RTBs)[(i)]	1,2	2 trains	L	SR 3.3.1.4	NA
	3[(a)], 4[(a)], 5[(a)]	2 trains	C	SR 3.3.1.4	NA
19. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	O	SR 3.3.1.4	NA
	3[(a)], 4[(a)], 5[(a)]	1 each per RTB	C	SR 3.3.1.4	NA
20. Automatic Trip Logic	1,2	2 trains	K	SR 3.3.1.5	NA
	3[(a)], 4[(a)], 5[(a)]	2 trains	C	SR 3.3.1.5	NA

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(i) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

Table 3.3.1-1 (page 7 of 8)
Reactor Protection System Instrumentation

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following:

$$\Delta T \leq \Delta T_o [K_1 - K_2 [(1 + \tau_1 s)/(1 + \tau_2 s)] (T_{avg} - T') + K_3 (P - P') - f(\Delta I)]$$

Where: $K_1 \leq 1.285$ $K_2 = 0.0273$ $K_3 = 0.0013$

$\tau_1 \geq 25$ seconds $\tau_2 \leq 3$ seconds

ΔT_o $\leq$ Measured full power ΔT for the channel being calibrated, °F.

T_{avg} = Average Temperature for the channel being calibrated, °F (input from instrument racks)

s = Laplace transform operator, $seconds^{-1}$

T' = Measured full power T_{avg} for the channel being calibrated, °F

P = Pressurizer pressure, psig (input from instrument racks)

P' = 2235 psig (i.e., nominal pressurizer pressure at rated power)

K_1 is a constant which defines the overtemperature ΔT trip margin during steady state operation if the temperature, pressure, and $f(\Delta I)$ terms are zero.

K_2 is a constant which defines the dependence of the overtemperature ΔT setpoint to T_{avg}.

K_3 is a constant which defines the dependence of the overtemperature ΔT setpoint to pressurizer pressure.

τ dynamic compensation time constants

ΔI = $q_t - q_b$, where q_t and q_b are the percent power in the top and bottom halves of the core respectively, and $q_t + q_b$ is total core power in percent of RTP.

$f(\Delta I)$ = a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests, where q_t and q_b are defined above such that: .

(a) for $q_t - q_b$ between -15.75% and +6.9%, $f(\Delta I)=0$.

(b) for each percent that the magnitude of $q_t - q_b$ exceeds +6.9%, the ΔT trip setpoint shall be automatically reduced by an equivalent of 3.333% of RTP.

(c) or each percent that the magnitude of $q_t - q_b$ is more negative than -15.75%, the ΔT trip setpoint shall be automatically reduced by an equivalent of 4.000% of RTP.

Table 3.3.1-1 (page 8 of 8)
Reactor Protection System Instrumentation

Note 2: Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following:

$$\Delta T \leq \Delta T_o (K_4 - K_5 (dTavg/dt) - K_6(T_{avg} - T'))$$

Where:

$K_4 \leq 1.154$

K_5 = 0 for decreasing average temperature; and
$\geq$ 0.175 sec/°F for increasing average temperature

K_6 = 0 for $T \leq T'$; and
$\geq$ 0.00134 for $T > T'$

ΔT_o $\leq$ measured full power ΔT for the channel being calibrated, °F

T_{avg} = measured average temperature for the channel being calibrated, °F (input from instrument racks)

T' = measured full power T_{avg} for the channel being calibrated, °F (can be set no higher than 570.3 °F)

s = Laplace transform operator, seconds

K_4 is a constant which defines the overpower ΔT trip margin during steady state operation if the temperature term is zero.

K_5 is a constant determined by dynamic considerations to compensate for piping delays from the core to the loop temperature detectors; it represents the combination of the equipment static gain setting and the time constant setting.

K_6 is a constant which defines the dependence of the overpower ΔT setpoint to T_{avg}.

dTavg/dt is the rate of change of T_{avg}

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

-------------------------------------NOTE-------------------------------------

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable.	B.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	B.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	B.2.2 Be in MODE 5.	84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One train inoperable.	C.1	---------NOTE--------- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. ---------------------- Restore train to OPERABLE status.	6 hours
	<u>OR</u>		
	C.2.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	C.2.2	Be in MODE 5.	42 hours
D. One channel inoperable.	D.1	---------NOTE--------- The inoperable channel may be bypassed for up to 8 hours for surveillance testing of other channels. ---------------------- Place channel in trip.	6 hours
	<u>OR</u>		
	D.2.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	D.2.2	Be in MODE 4.	18 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One Containment Pressure channel inoperable in one or both sets of three.	E.1 ---------NOTE--------- One additional channel may be bypassed for up to 8 hours for surveillance testing. ---------------------- Place channel in trip.	6 hours
	<u>OR</u>	
	E.2.1 Be in MODE 3.	12 hours
	<u>AND</u>	
	E.2.2 Be in MODE 4.	18 hours
F. One channel or train inoperable.	F.1 Restore channel or train to OPERABLE status.	48 hours
	<u>OR</u>	
	F.2.1 Be in MODE 3.	54 hours
	<u>AND</u>	
	F.2.2 Be in MODE 4.	60 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
G. One train inoperable.	G.1	---------NOTE--------- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. ---------------------- Restore train to OPERABLE status.	6 hours
	OR		
	G.2.1	Be in MODE 3.	12 hours
	AND		
	G.2.2	Be in MODE 4.	18 hours
H. One train inoperable.	H.1	---------NOTE--------- One train may be bypassed for up to 8 hours for surveillance testing provided the other train is OPERABLE. ---------------------- Restore train to OPERABLE status.	6 hours
	OR		
	H.2	Be in MODE 3.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. Main Feedwater Pump trip channel(s) inoperable.	I.1	Verify one channel associated with an operating MBFP is OPERABLE.	Immediately
	<u>AND</u>		
	I.2	Restore one channel associated with each operating MBFP to OPERABLE status.	48 hours
J. Required Action and associated Completion Time of Condition I not met.	J.1	Be in MODE 3.	6 hours
K. One or more channels inoperable.	K.1	Verify interlock is in required state for existing unit condition.	1 hour
	<u>OR</u>		
	K.2.1	Be in MODE 3.	7 hours
	<u>AND</u>		
	K.2.2	Be in MODE 4.	13 hours

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.3	Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform COT.	92 days
SR 3.3.2.5	Perform SLAVE RELAY TEST.	24 months
SR 3.3.2.6	------------------NOTE------------------ Verification of setpoint not required for manual initiation functions. -- Perform TADOT.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.7	------------------NOTE------------------ This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -- Perform CHANNEL CALIBRATION.	24 months

Table 3.3.2-1 (page 1 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.6	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.5	NA
c. Containment Pressure-Hi	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 4.80 psig
d. Pressurizer Pressure-Low	1,2,3[(b)]	3	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 1690 psig
e. High Differential Pressure Between Steam Lines	1,2,3	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	NA
f. High Steam Flow in Two Steam Lines	1,2[(d)],3[(d)]	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	(c)
Coincident with T_{avg} - Low	1,2[(d)],3[(d)]	1 per loop	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 538 °F

(continued)

(a) Not used

(b) Above the Pressurizer Pressure interlock.

(c) Less than or equal to turbine first stage pressure corresponding to 54% full steam flow below 20% load, and increasing linearly from 54% full steam flow at 20% load to 110% full steam flow at 100% load, and corresponding to 110% full steam flow above 100% load. Time delay for SI ≤ 6 seconds.

(d) Except when all MSIVs are closed.

Table 3.3.2-1 (page 2 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection (continued)					
g. High Steam Flow in Two Steam Lines	1,2(d),3(d)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	(c)
Coincident with Steam Line Pressure-Low	1,2(d),3(d)	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 500 psig
2. Containment Spray					
a. Manual Initiation	1,2,3,4	2 per train, 2 trains	B	SR 3.3.2.6	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.5	NA
c. Containment Pressure (Hi-Hi)	1,2,3	2 sets of 3	E	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 24 psig

(continued)

(c) Less than or equal to turbine first stage pressure corresponding to 54% full steam flow below 20% load, and increasing linearly from 54% full steam flow at 20% load to 110% full steam flow at 100% load, and corresponding to 110% full steam flow above 100% load. Time delay for SI ≤ 6 seconds.

(d) Except when all MSIVs are closed.

Table 3.3.2-1 (page 3 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.6	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.5	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.6	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.5	NA
(3) Containment Pressure (Hi- Hi)	1,2,3	2 sets of three	E	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 24 psig

(continued)

Table 3.3.2-1 (page 4 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation					
a. Manual Initiation	1,2[d],3[d]	2 per steam line	F	SR 3.3.2.6	NA
b. Automatic Actuation Logic and Actuation Relays	1,2[d],3[d]	2 trains	G	SR 3.3.2.2 SR 3.3.2.3 SR 3.3.2.5	NA
c. Containment Pressure (Hi-Hi)	1,2[d], 3[d]	2 sets of 3	E	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 24 psig
d. High Steam Flow in Two Steam Lines	1,2[d], 3[d]	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	(c)
Coincident with T_{avg}-Low	1,2[d], 3[d]	1 per loop	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 538°F
e. High Steam Flow in Two Steam Lines	1,2[d], 3[d]	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	(c)
Coincident with Steam Line Pressure – Low	1,2[d], 3[d]	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 500 psig

(continued)

(c) Less than or equal to turbine first stage pressure corresponding to 54% full steam flow below 20% load, and increasing linearly from 54% full steam flow at 20% load to 110% full steam flow at 100% load, and corresponding to 110% full steam flow above 100% load. Time delay for SI ≤ 6. seconds

(d) Except when all MSIVs are closed.

Table 3.3.2-1 (page 5 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Feedwater Isolation					
a. Safety Injection	1,2(e)	2 trains	H	SR 3.3.2.2 SR 3.3.2.5	NA
b. SG Water Level-High High	1,2(e)	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≤ 81% NR
6. Auxiliary Feedwater					
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.5	NA
b. SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	≥ 4.0% NR
c. Safety Injection (g)	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Loss of Offsite Power (Non SI Blackout Sequence Signal)	1,2,3	2	F	SR 3.3.2.6 SR 3.3.2.7	≥ 200 V
e. Trip of Main Boiler Feedwater Pumps	1(f), 2(f)	1 per MBFP	I	SR 3.3.2.6	NA

(continued)

(e) Except when all MBFPDVs, or MBFRVs and associated bypass valves are closed or isolated by a closed manual valve.

(f) Only required for MBFPs that are in operation.

(g) Not required if AFW pump not required to be OPERABLE.

Table 3.3.2-1 (page 6 of 6)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
7. ESFAS Interlocks-Pressurizer Pressure	1,2,3	3	K	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.7	NA

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.7.	Immediately
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status,	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3-1.	E.1 Be in MODE 3. **AND** E.2 Be in MODE 4.	6 hours 12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3-1.	F.1 Initiate action in accordance with Specification 5.6.7.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM instrumentation Function in Table 3.3.3-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. -------------- Perform CHANNEL CALIBRATION.	As specified in Table 3.3.3-1

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1	SR 3.3.3.2 FREQUENCY
1.	Neutron Flux	2	F	24 months
2.	RCS Hot Leg Temperature (Wide Range)	1 per loop (a)	E	24 months
3.	RCS Cold Leg Temperature (Wide Range)	1 per loop (b)	E	24 months
4.	RCS Pressure (Wide Range)	2	E	24 months
5.	Reactor Vessel Water Level	2	E	24 months
6.	Containment Water Level	2	E	24 months
7.	Recirculation Sump Water Level	2	E	24 months
8.	Containment Pressure	2	E	18 months
9.	Automatic Containment Isolation Valve Position	2 per penetration flow path(c)(d)	F	24 months
10.	Containment Area Radiation (High Range)	2	F	24 months
11.	Containment Hydrogen Monitors	2(e)	E	92 days
12.	Pressurizer Level	2	E	24 months
13.	SG Water Level (Narrow Range)	2 per SG	E	24 months
14.	SG Water Level (Wide Range)	1 per SG (f)	E	24 months
15.	Auxiliary Feedwater Flow	1 per SG	E	18 months
16.	Steam Generator Pressure	2 per SG	E	24 months
17.	Condensate Storage Tank Level	2	F	24 months
18.	Core Exit Thermocouples-Quadrant 1	2 per train	E	24 months
19.	Core Exit Thermocouples-Quadrant 2	2 per train	E	24 months
20.	Core Exit Thermocouples-Quadrant 3	2 per train	E	24 months
21.	Core Exit Thermocouples-Quadrant 4	2 per train	E	24 months
22.	Main Steam Line Radiation	1 per steam line (g)	F	24 months
23.	Gross Failed Fuel Detector	2	F	24 months
24.	RCS Subcooling	2	E	24 months

See NOTES, next page.

(continued)

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

NOTES:

(a) The redundant channel in each of four loops is any qualified CET in the quadrant associated with that loop.

(b) The redundant channel in each of four loops is any channel of steam generator pressure for that loop.

(c) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(d) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(e) Hydrogen monitor OPERABILITY requires that at least one of the associated containment fan cooler unit is OPERABLE.

(f) The redundant channel in each steam generator is the auxiliary feedwater flow rate channel for that steam generator.

(g) The redundant channel in each steam line is any one steam generator narrow range level indicator for that loop.

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown

LCO 3.3.4 The Remote Shutdown Functions shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTES-----

1. LCO 3.0.4 is not applicable.
2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.4.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months
SR 3.3.4.3	------------------NOTE------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION for each required instrumentation channel.	 24 months

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

LCO 3.3.5 One channel per bus of the Undervoltage (480 V bus) Function and two channels per bus of the Degraded Voltage (480 V bus) Function shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required channel of Undervoltage Function inoperable in one or more buses.	A.1	Restore channel to OPERABLE status.	1 hour
B. One channel of Degraded Voltage Function inoperable in one or more buses.	B.1	Place channel in trip.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met. <u>OR</u> Two channels of Degraded Voltage Function inoperable in one or more buses.	C.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.5.1	Perform TADOT.	31 days
SR 3.3.5.2	Perform CHANNEL CALIBRATION with Allowable Value as follows:	
	a. Undervoltage (480 V bus) Relay Allowable Value ≥ 200 V.	24 months
	b. Degraded Voltage (480 V bus) Relay (Non-SI) Allowable Value ≥ 414 V with a time delay ≤ 45 seconds.	18 months
	c. Degraded Voltage (480 V bus) Relay (Coincident SI) Allowable Value ≥ 414 V with a time delay ≤ 10 seconds.	18 months

3.3 INSTRUMENTATION

3.3.6 Containment Purge System and Pressure Relief Line Isolation Instrumentation

LCO 3.3.6 The Containment Purge System and Pressure Relief Line Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4,
During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE-------- Only applicable in MODE 1, 2, 3, or 4. -------------------- One or more pressure relief line isolation Functions with one or more automatic actuation trains inoperable. <u>OR</u> Two radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time of Condition A not met.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment pressure relief line isolation valves made inoperable by isolation instrumentation.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE-------- Only applicable during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment. -------------------- One or more containment purge system isolation Functions with one or more automatic actuation trains inoperable. <u>OR</u> Two radiation monitoring channels inoperable. <u>OR</u> Required Action and associated Completion Time for Condition A not met.	C.1 Place and maintain containment purge system supply and exhaust valves in closed position. <u>OR</u> C.2 Enter applicable Conditions and Required Actions of LCO 3.9.3, "Containment Penetrations," for containment purge system supply and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

-----------------------------------NOTE-----------------------------------

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Purge System and Pressure Relief Line Isolation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.6.3	Perform COT.	92 days
SR 3.3.6.4	------------------NOTE------------------ Verification of setpoint is not required. -- Perform TADOT.	24 months
SR 3.3.6.5	Perform CHANNEL CALIBRATION.	24 months

Table 3.3.6-1 (page 1 of 1)
Containment Purge System and Pressure Relief Line Isolation Instrumentation

FUNCTION	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Automatic Actuation Logic and Actuation Relays	2 trains	SR 3.3.6.2 SR 3.3.6.4	NA
2. Gaseous Radiation Monitor (R-12)	1	SR 3.3.6.1 SR 3.3.6.3 SR 3.3.6.5	(b)
3. Particulate Radiation Monitor (R-11)	1	SR 3.3.6.1 SR 3.3.6.3 SR 3.3.6.5	(b)
4. ESFAS Function 1, Safety Injection, and ESFAS Function 2, Containment Spray (a)	Refer to LCO 3.3.2, ESFAS Instrumentation, Functions 1 and 2, for all initiation functions and requirements.		

(a) Only required in MODES 1, 2, 3 and 4 as specified in LCO 3.3.2.

(b) As specified in the IP3 Offsite Dose Calculation Manual.

3.3 INSTRUMENTATION

3.3.7 Control Room Ventilation System (CRVS) Actuation Instrumentation

LCO 3.3.7 The CRVS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

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 CRVS in 10% incident mode.	7 days
B. One or more Functions with two channels or two trains inoperable.	B.1. Place CRVS in 10% incident mode.	72 hours
C. Required Action and associated Completion Time for Condition A or B not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

------------------------------------NOTE------------------------------------
Refer to Table 3.3.7-1 to determine which SRs apply for each CRVS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform actuation logic test	31 days staggered test basis
SR 3.3.7.2	--------------------NOTE-------------------- Verification of setpoint is not required. --- Perform TADOT.	24 months

Table 3.3.7-1 (page 1 of 1)
CRVS Actuation Instrumentation

FUNCTION	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	2	SR 3.3.7.2	NA
2. Automatic Actuation Logic and Actuation Relays	2 trains	SR 3.3.7.1	NA
3. Safety Injection	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements.		

3.3 INSTRUMENTATION

3.3.8 Fuel Storage Building Emergency Ventilation System (FSBEVS) Actuation Instrumentation

LCO 3.3.8 FSBEVS manual and automatic actuation instrumentation shall be OPERABLE.

APPLICABILITY: During movement of irradiated fuel in the fuel storage building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Manual or automatic FSBEVS actuation instrumentation inoperable.	A.1 Place FSBEVS in operation. __OR__ A.2 Suspend movement of irradiated fuel in the fuel storage building.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.8.2	Perform COT.	92 days
SR 3.3.8.3	Perform CHANNEL CALIBRATION.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, RCS average temperature, and RCS total flow rate shall be within the limits specified below:

a. Pressurizer pressure ≥ 2205 psig;

b. RCS average loop temperature ≤ 571.5°F; and

c. RCS total flow rate ≥ 375,600 gpm.

APPLICABILITY: MODE 1.

------------------------------NOTE------------------------------
Pressurizer pressure limit does not apply during:

a. THERMAL POWER ramp > 5% RTP per minute; or

b. THERMAL POWER step > 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RCS DNB parameters not within limits.	A.1 Restore RCS DNB parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.1.1	Verify pressurizer pressure is ≥ 2205 psig.	12 hours
SR 3.4.1.2	Verify RCS average loop temperature is ≤ 571.5°F.	12 hours
SR 3.4.1.3	Verify RCS total flow rate is ≥ 375,600 gpm.	12 hours
SR 3.4.1.4	------------------NOTE------------------ Not required to be performed until 24 hours after ≥ 90% RTP. -- Verify by precision heat balance that RCS total flow rate is ≥ 375,600 gpm.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 RCS Minimum Temperature for Criticality

LCO 3.4.2 Each RCS loop average temperature (T_{avg}) shall be ≥ 540°F.

APPLICABILITY: MODE 1,
MODE 2 with k_{eff} ≥ 1.0.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. T_{avg} in one or more RCS loops not within limit.	A.1 Be in MODE 2 with k_{eff} < 1.0.	30 minutes

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.2.1 Verify RCS T_{avg} in each loop ≥ 540°F.	-----NOTE------ Only required if T_{avg} - T_{ref} deviation, and low T_{avg} alarm not reset and any RCS loop T_{avg} < 547°F --------------- 30 minutes thereafter

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 RCS Pressure and Temperature (P/T) Limits

LCO 3.4.3 RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in Figure 3.4.3-1, Figure 3.4.3-2, and Figure 3.4.3-3.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE-------- Required Action A.2 shall be completed whenever this Condition is entered. -------------------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1 Restore parameter(s) to within limits. __AND__ A.2 Determine RCS is acceptable for continued operation.	30 minutes 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. __AND__ B.2 Be in MODE 5 with RCS pressure < 500 psig.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. ---------NOTE-------- Required Action C.2 shall be completed whenever this Condition is entered. ---------------------	C.1	Initiate action to restore parameter(s) to within limits.	Immediately
	<u>AND</u>		
Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.2	Determine RCS is acceptable for continued operation.	Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	------------------NOTE------------------ Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. -- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the following: a. Figure 3.4.3-1 during RCS heatup; b. Figure 3.4.3-2 during RCS cooldown; and c. Figure 3.4.3-3 during RCS inservice leak and hydrostatic testing.	30 minutes

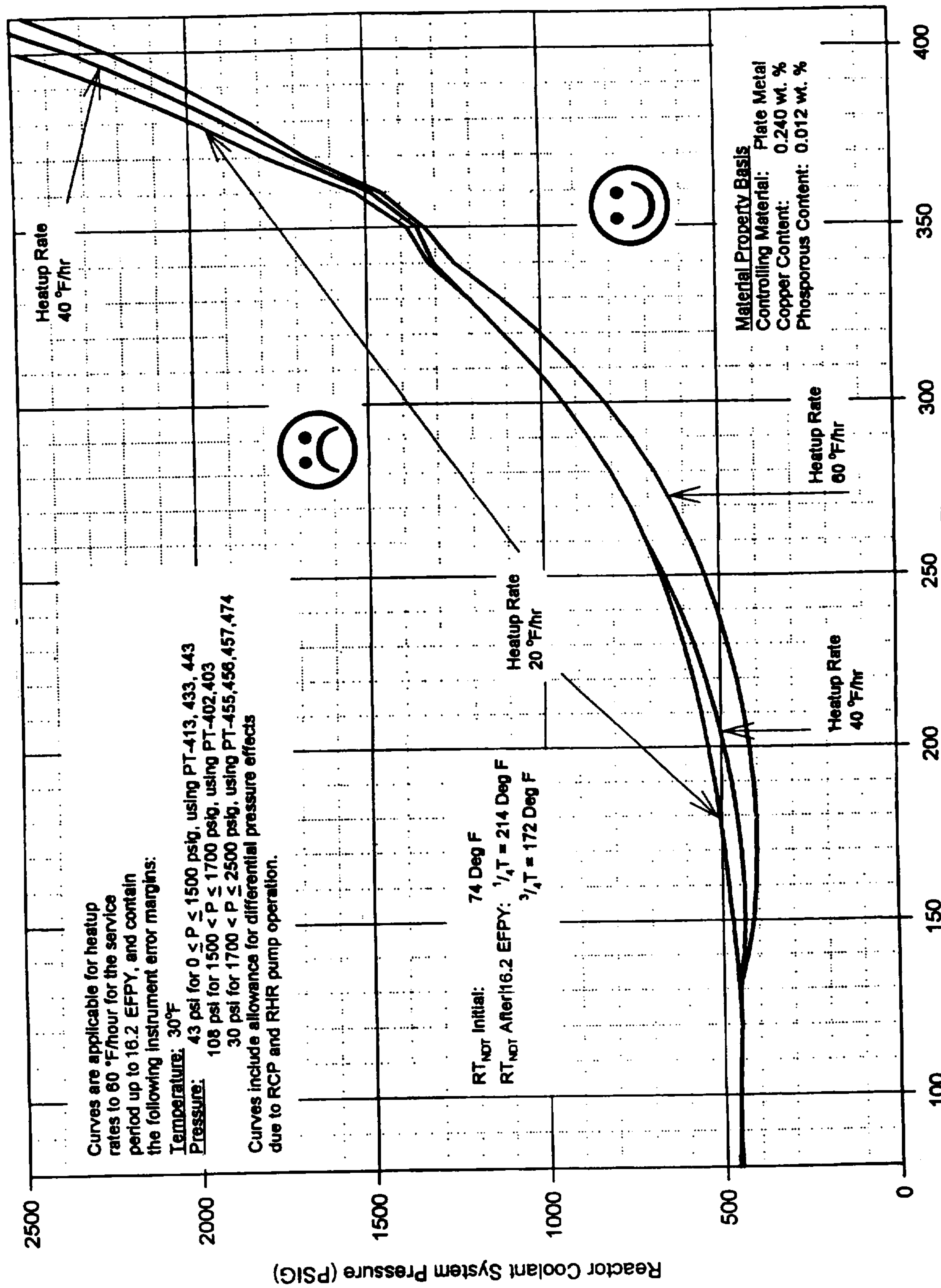

Figure 3.4.3-1:
Heatup Limitations for the Reactor Coolant System

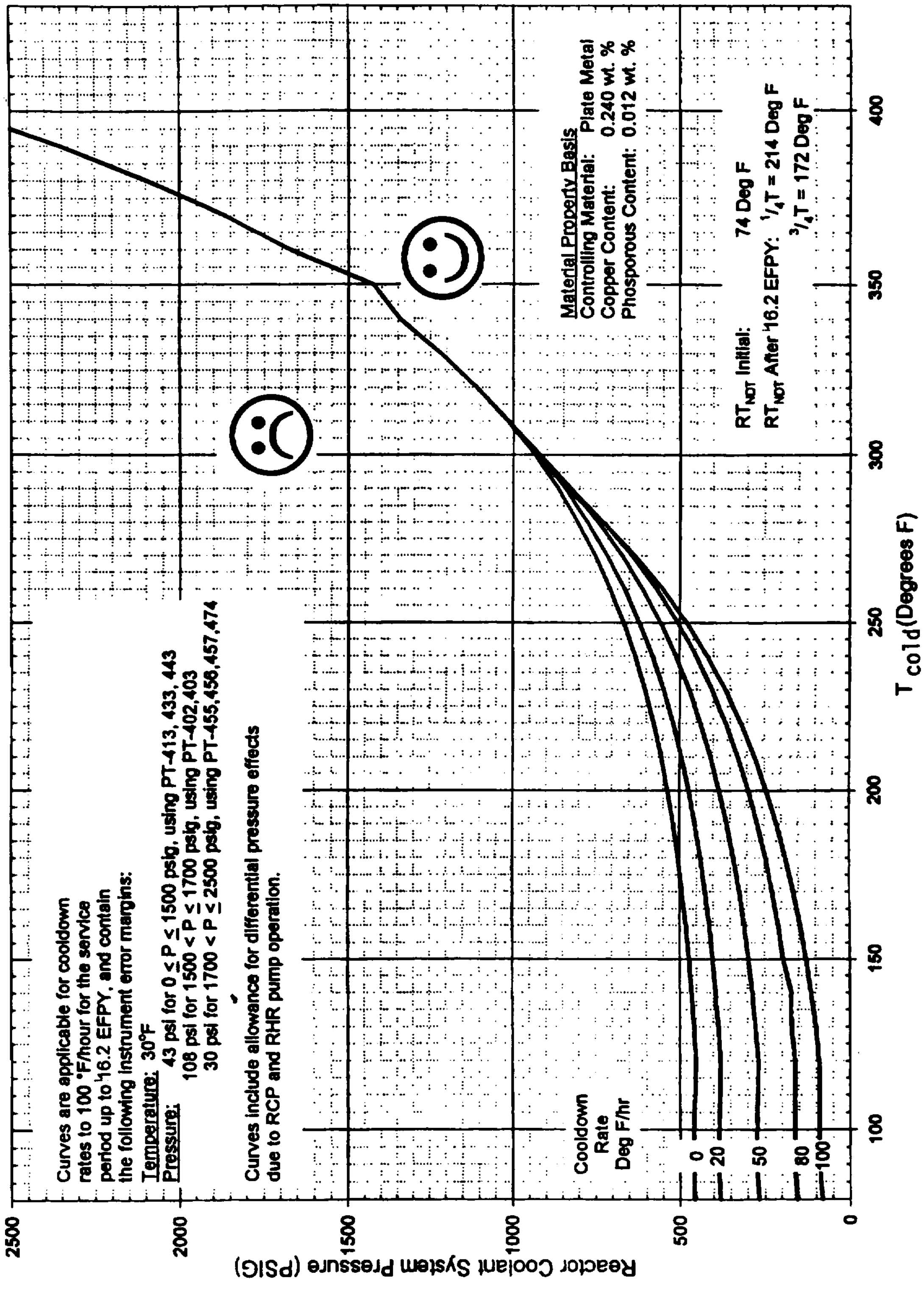

Figure 3.4.3-2:
Cooldown Limitations for the Reactor Coolant System

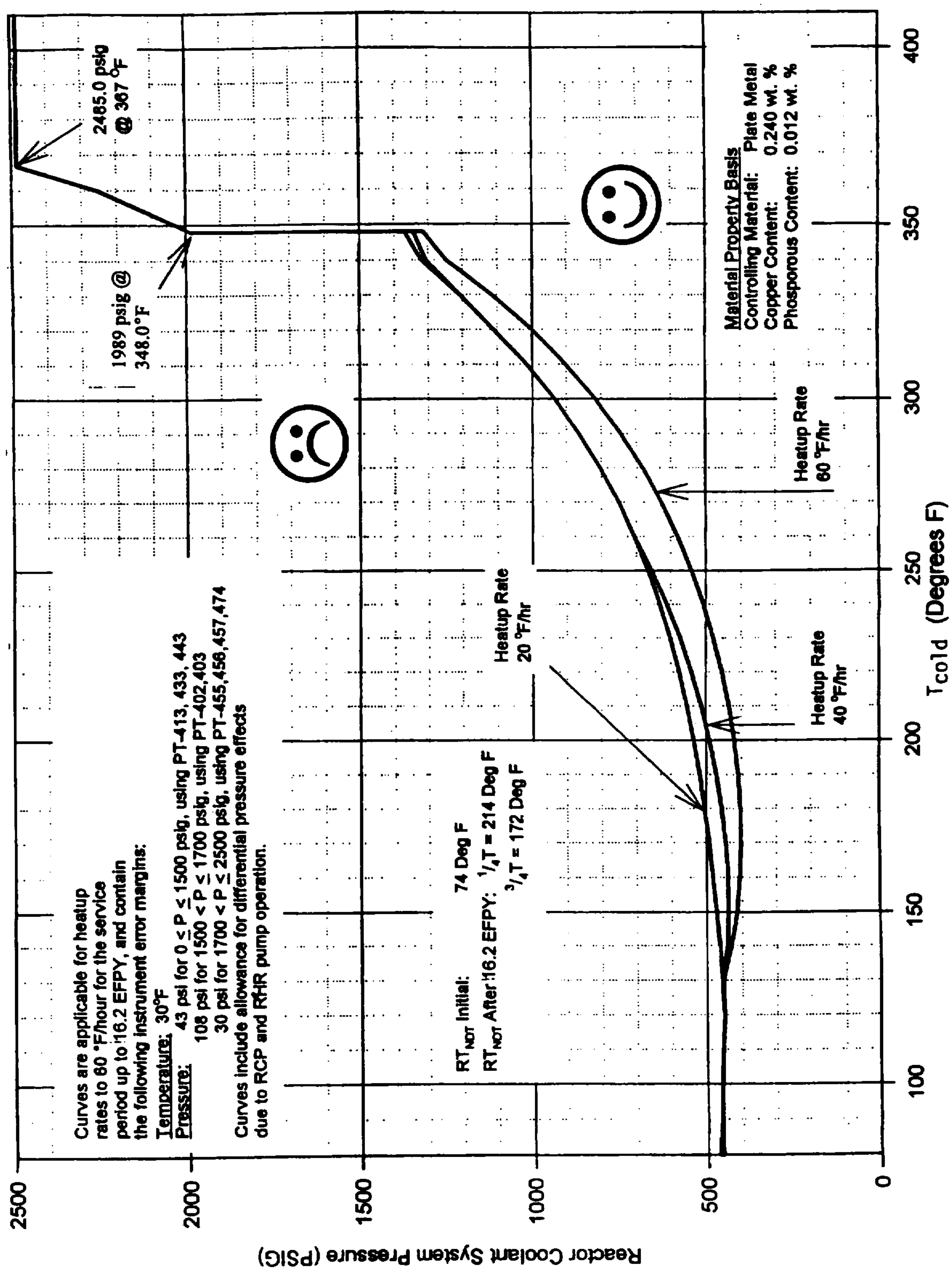

Figure 3.4.3-3:
Hydrostatic and Inservice Leak Testing Limitations for the Reactor Coolant System

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 RCS Loops – MODES 1 and 2

LCO 3.4.4 Four RCS loops shall be OPERABLE and in operation.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of LCO not met.	A.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.4.1 Verify each RCS loop is in operation.	12 hours

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Loops – MODE 3

LCO 3.4.5 Two RCS loops shall be OPERABLE, and either:

a. Two RCS loops shall be in operation when the Rod Control System is capable of rod withdrawal; or

b. One RCS loop shall be in operation when the Rod Control System is not capable of rod withdrawal.

-------------------------NOTE-------------------------
All reactor coolant pumps may not be in operation for ≤ 1 hour per 8 hour period provided:

a. No operations are permitted that would cause reduction of the RCS boron concentration; and

b. Core outlet temperature is maintained at least 10°F below saturation temperature.

APPLICABILITY: MODE 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RCS loop inoperable.	A.1 Restore required RCS loop to OPERABLE status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 4.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One required RCS loop not in operation, and reactor trip breakers closed and Rod Control System capable of rod withdrawal.	C.1	Restore required RCS loop to operation.	1 hour
	<u>OR</u>		
	C.2	De-energize all control rod drive mechanisms (CRDMs).	1 hour
D. Two required RCS loops inoperable. <u>OR</u> No RCS loop in operation.	D.1	De-energize all CRDMs.	Immediately
	<u>AND</u>		
	D.2	Suspend all operations involving a reduction of RCS boron concentration.	Immediately
	<u>AND</u>		
	D.3	Initiate action to restore one RCS loop to OPERABLE status and in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.5.1	Verify required RCS loops are in operation.	12 hours
SR 3.4.5.2	Verify steam generator secondary side actual water levels are ≥ 71% wide range for required RCS loops.	12 hours
SR 3.4.5.3	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 RCS Loops – MODE 4

LCO 3.4.6 Two loops consisting of any combination of RCS loops and residual heat removal (RHR) loops shall be OPERABLE, and one loop shall be in operation.

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

1. All reactor coolant pumps (RCPs) and RHR pumps may not be in operation for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. No RCP shall be started with any RCS cold leg temperature less than the LTOP arming temperature unless the requirements of LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)," are met.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required RCS loop inoperable. <u>AND</u> Two RHR loops inoperable.	A.1 Initiate action to restore a second loop to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One required RHR loop inoperable. AND Two required RCS loops inoperable.	B.1 Be in MODE 5.	24 hours
C. Required RCS or RHR loops inoperable. OR No RCS or RHR loop in operation.	C.1 Suspend all operations involving a reduction of RCS boron concentration. AND C.2 Initiate action to restore one loop to OPERABLE status and in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.6.1	Verify one RHR or RCS loop is in operation.	12 hours
SR 3.4.6.2	Verify SG secondary side water actual level is ≥ 71% wide range for each required RCS loop.	12 hours
SR 3.4.6.3	Verify correct breaker alignment and indicated power are available to the required pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Loops - MODE 5, Loops Filled

LCO 3.4.7 One residual heat removal (RHR) loop shall be OPERABLE and in operation, and either:

a. One additional RHR loop shall be OPERABLE; or

b. The secondary side water level of at least two steam generators (SGs) shall be ≥ 71% wide range.

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

1. The RHR pump of the loop in operation may not be in operation for ≤ 1 hour per 8 hour period provided:

   a. No operations are permitted that would cause reduction of the RCS boron concentration; and

   b. Core outlet temperature is maintained at least 10°F below saturation temperature.

2. One required RHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

3. No reactor coolant pump shall be started with the average of the RCS cold leg temperatures ≤ 319°F unless the requirements of LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)," are met.

4. All RHR loops may be removed from operation during planned heatup to MODE 4 when at least one RCS loop is in operation.

APPLICABILITY: MODE 5 with RCS loops filled.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One RHR loop inoperable. <u>AND</u> Required SGs secondary side water level not within the limit.	A.1	Initiate action to restore a second RHR loop to OPERABLE status.	Immediately
	<u>OR</u>		
	A.2	Initiate action to restore required SG secondary side water level to within the limit.	Immediately
B. Required RHR loops inoperable. <u>OR</u> No RHR loop in operation.	B.1	Suspend all operations involving a reduction of RCS boron concentration.	Immediately
	<u>AND</u>		
	B.2	Initiate action to restore one RHR loop to OPERABLE status and in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.7.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.7.2	Verify SG secondary side water level is ≥ 71% wide range in required SGs.	12 hours
SR 3.4.7.3	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 RCS Loops – MODE 5, Loops Not Filled

LCO 3.4.8 Two residual heat removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation.

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

1. All RHR pumps may not be in operation for ≤ 15 minutes provided:

    a. The core outlet temperature is maintained at least 10°F below saturation temperature.

    b. No operations are permitted that would cause a reduction of the RCS boron concentration; and

    c. No draining operations to further reduce the RCS water volume are permitted.

2. One RHR loop may be inoperable for up to 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

APPLICABILITY: MODE 5 with RCS loops not filled.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One RHR loop inoperable.	A.1 Initiate action to restore RHR loop to OPERABLE status.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required RHR loops inoperable. OR No RHR loop in operation.	B.1 Suspend all operations involving reduction in RCS boron concentration. AND B.2 Initiate action to restore one RHR loop to OPERABLE status and in operation.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.8.1	Verify one RHR loop is in operation.	12 hours
SR 3.4.8.2	Verify correct breaker alignment and indicated power are available to the required RHR pump that is not in operation.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.9 Pressurizer

LCO 3.4.9 The pressurizer shall be OPERABLE with:

a. Pressurizer water level ≤ 58.3%; and

b. Two groups of pressurizer heaters OPERABLE with the capacity of each group ≥ 150 kW and capable of being powered from an emergency power supply.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer water level not within limit.	A.1 Be in MODE 3 with reactor trip breakers open.	6 hours
	AND	
	A.2 Be in MODE 4.	12 hours
B. One required group of pressurizer heaters inoperable.	B.1 Restore required group of pressurizer heaters to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 3.	6 hours
	AND	
	C.2 Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.9.1	Verify pressurizer water level is ≤ 58.3%.	12 hours
SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is ≥ 150 kW.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.10 Pressurizer Safety Valves

LCO 3.4.10 Three pressurizer safety valves shall be OPERABLE with lift settings set ≥ 2460 psig and ≤ 2510 psig.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > 319°F.

---------------------------NOTE---------------------------
The lift settings are not required to be within the LCO limits during MODES 3 and 4 for the purpose of setting the pressurizer safety valves under ambient (hot) conditions. This exception is allowed for 54 hours following entry into MODE 3 provided a preliminary cold setting was made prior to heatup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pressurizer safety valve inoperable.	A.1 Restore valve to OPERABLE status.	15 minutes
B. Required Action and associated Completion Time not met. OR Two or more pressurizer safety valves inoperable.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with any RCS cold leg temperature ≤ 319°F.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.10.1	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be ≥ 2460 psig and ≤ 2510 psig.	In accordance with the Inservice Testing Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

LCO 3.4.11 Each PORV and associated block valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

1. Separate Condition entry is allowed for each PORV.

2. LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more PORVs inoperable and capable of being manually cycled.	A.1	Close and maintain power to associated block valve.	1 hour
B. One PORV inoperable and not capable of being manually cycled.	B.1	Close associated block valve.	1 hour
	<u>AND</u>		
	B.2	Remove power from associated block valve.	1 hour
	<u>AND</u>		
	B.3	Restore PORV to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One block valve inoperable.	C.1	Place associated PORV in manual control.	1 hour
	<u>AND</u>		
	C.2	Restore block valve to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 4.	12 hours
E. Two PORVs inoperable and not capable of being manually cycled.	E.1	Close associated block valves.	1 hour
	<u>AND</u>		
	E.2	Remove power from associated block valves.	1 hour
	<u>AND</u>		
	E.3	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.4	Be in MODE 4.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. More than one block valve inoperable.	F.1 Place associated PORVs in manual control. AND F.2 Restore one block valve to OPERABLE status.	1 hour 2 hours
G. Required Action and associated Completion Time of Condition F not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.11.1	------------------NOTE------------------ Not required to be met with block valve closed in accordance with the Required Action of Condition B or E. --- Perform a complete cycle of each block valve.	92 days
SR 3.4.11.2	Perform a complete cycle of each PORV.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.12 Low Temperature Overpressure Protection (LTOP)

LCO 3.4.12 LTOP shall be OPERABLE with no high head safety injection (HHSI) pumps capable of injecting into the RCS and the accumulator discharge isolation valves closed and de-energized, and either of the following:

------------------------------Note------------------------------
LCO 3.4.12.a and LCO 3.4.12.b are not Applicable when all RCS cold leg temperatures are ≥ 319°F.
----

a. The Overpressure Protection System (OPS) OPERABLE with two power operated relief valves (PORVs) with lift settings within the limit specified in Figure 3.4.12-1;

<u>OR</u>

b. The RCS depressurized with an RCS vent of ≥ 2.00 square inches.

-----------------------------NOTES-----------------------------
1. Accumulator isolation is only required when accumulator pressure is greater than or equal to the maximum RCS pressure for the coldest existing RCS cold leg temperature allowed by the P/T limit curve in Figure 3.4.12-1.

2. One HHSI pump may be made capable of injecting into the RCS as needed to support emergency boration or to respond to a loss of RHR cooling.

3. One HHSI pump may be made capable of injecting into the RCS for pump testing for a period not to exceed 8 hours.

APPLICABILITY: Whenever the RHR System is not isolated from the RCS,
MODE 4 when any RCS cold leg temperature is < 319°F,
MODE 5,
MODE 6 when the reactor vessel head is on.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more HHSI pump(s) capable of injecting into the RCS .	A.1	Initiate action to verify no HHSI pumps are capable of injecting into the RCS.	Immediately
	<u>OR</u>		
	A.2.1	Verify RCS is vented with opening ≥ 2.00 square inches.	Immediately
	<u>AND</u>		
	A.2.2	Verify pressurizer level is ≤ 0%.	Immediately <u>AND</u> Once per 12 hours
	<u>AND</u>		
	A.2.3	Verify no more than two HHSI pumps are capable of injecting into the RCS.	Immediately <u>AND</u> Once per 12 hours
	<u>OR</u>		
	A.3.1	Verify RCS is vented with opening greater than or equal to one pressurizer code safety valve flange.	Immediately
	<u>AND</u>		
	A.3.2	Verify no more than two HHSI pumps are capable of injecting into the RCS	Immediately <u>AND</u> Once per 12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. An accumulator discharge isolation valve not closed and de-energized when the accumulator pressure is greater than or equal to the maximum RCS pressure for the coldest existing cold leg temperature specified in Figure 3.4.12-1.	B.1	Close and de-energize isolation valve for affected accumulator.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1.1	Increase all RCS cold leg temperatures to ≥ 319°F.	12 hours
	<u>AND</u>		
	C.1.2	Isolate the RHR System from the RCS.	12 hours
	<u>OR</u>		
	C.2	Depressurize affected accumulator to less than the maximum RCS pressure for coldest existing cold leg temperature specified in Figure 3.4.12-1.	12 hours
D. One required PORV inoperable.	D.1	Restore required PORV to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Two required PORVs inoperable. OR Required Action and associated Completion Time of Condition C or D not met.	E.1	Depressurize RCS and establish RCS vent of ≥ 2.00 square inches.	8 hours
	OR		
	E.2.1	Increase all RCS cold leg temperatures to ≥ 319°F.	8 hours
	AND		
	E.2.2	Isolate the RHR System from the RCS.	8 hours
	OR		
	E.3	Verify pressurizer level, RCS pressure, and RCS injection capability are within limits specified in Figure 3.4.12-2 and Figure 3.4.12-3 for OPS not OPERABLE.	8 hours AND Once per 12 hours thereafter
F. LTOP inoperable for any reason other than Condition A, B, C, D, or E.	F.1	Depressurize RCS and establish RCS vent of ≥ 2.00 square inches.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify no HHSI pumps are capable of injecting into the RCS.	12 hours
SR 3.4.12.2	Verify each accumulator discharge isolation valve is closed and de-energized; <u>OR</u> Verify each accumulator pressure is less than the maximum RCS pressure for the coldest existing RCS cold leg temperature allowed by the P/T limit curve in Figure 3.4.12-1.	12 hours 12 hours
SR 3.4.12.3	------------------NOTE------------------ Only required to be met when complying with LCO 3.4.12.b. -- Verify RCS vent ≥ 2.00 square inches established.	12 hours for unlocked open vent valve(s) <u>AND</u> 31 days for locked open vent valve(s)

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.4	----------------NOTE------------------ Only required to be met when complying with LCO 3.4.12.a. -------------------------------------- Perform CHANNEL CHECK of Overpressure Protection (OPS) instrument channels.	24 hours
SR 3.4.12.5	Verify PORV block valve is open for each required PORV.	72 hours
SR 3.4.12.6	------------------NOTE-------------------- Not required to be performed until 12 hours after decreasing any RCS cold leg temperature to < 319°F. --- Perform a COT on each required PORV, excluding actuation.	24 months
SR 3.4.12.7	Perform CHANNEL CALIBRATION for each required OPS channel as follows: a. OPS actuation channels; and b. RCS pressure and temperature instruments.	 18 months 24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.8	-------------------NOTES-------------------- 1. Not required to be met when all RCS cold leg temperatures are ≥ 319°F. 2. Not required to be met if SR 3.4.12.9 is met. --- Verify each of the following conditions are satisfied prior to starting any RCP: a. Secondary side water temperature of the hottest steam generator (SG) is less than or equal to the coldest RCS cold leg temperature; and b. RCS makeup is less than or equal to RCS losses; and c. Steam generator pressure is not decreasing; and d.1 Overpressure Protection System (OPS) is OPERABLE; <u>OR</u> d.2.1 RCS pressure less than nominal OPS setpoint specified in Figure 3.4.12-1; and d.2.2 Pressurizer level, RCS pressure, and RCS injection capability are within limits specified in Figure 3.4.12-2 and Figure 3.4.12-3 for OPS not OPERABLE.	Within 15 minutes prior to starting any RCP

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.9	-------------------NOTES-------------------- 1. Not required to be met when all RCS cold leg temperatures are ≥ 319°F. 2. Not required to be met if SR 3.4.12.8 is met. --- Verify each of the following conditions are satisfied prior to starting any RCP: a. Secondary side water temperature of the hottest steam generator is ≤ 64°F above the coldest RCS cold leg temperature; and b. RCS makeup is less than or equal to RCS losses; and c. Overpressure Protection System (OPS) is OPERABLE; and d. Pressurizer level is ≤ 73%; and e. Coldest RCS cold leg temperature is within limits specified in Figure 3.4.12-4.	Within 15 minutes prior to starting any RCP

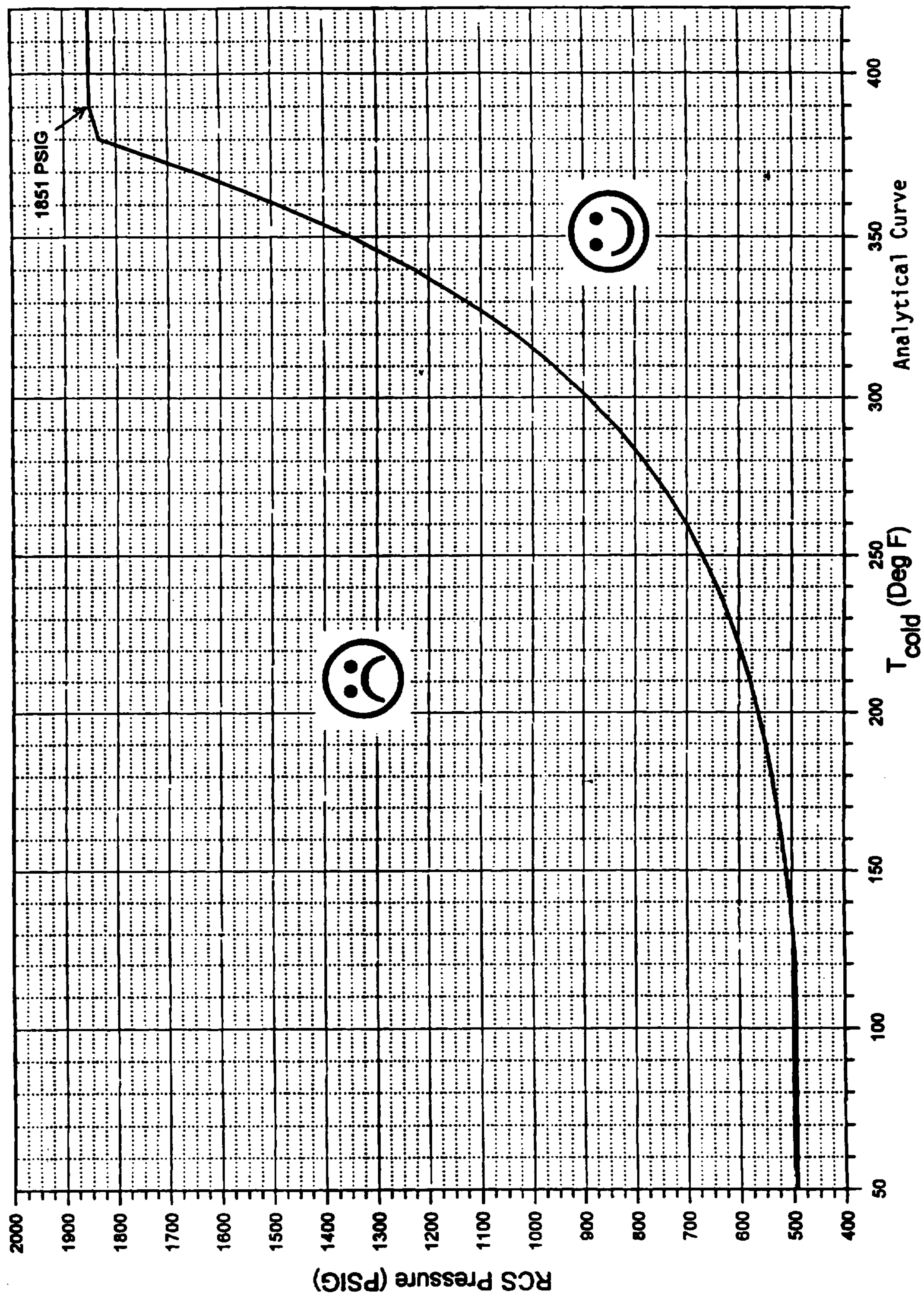

Figure 3.4.12-1: Maximum Allowable Nominal PORV Setpoint for LTOP (OPS), 16.2 EFPY

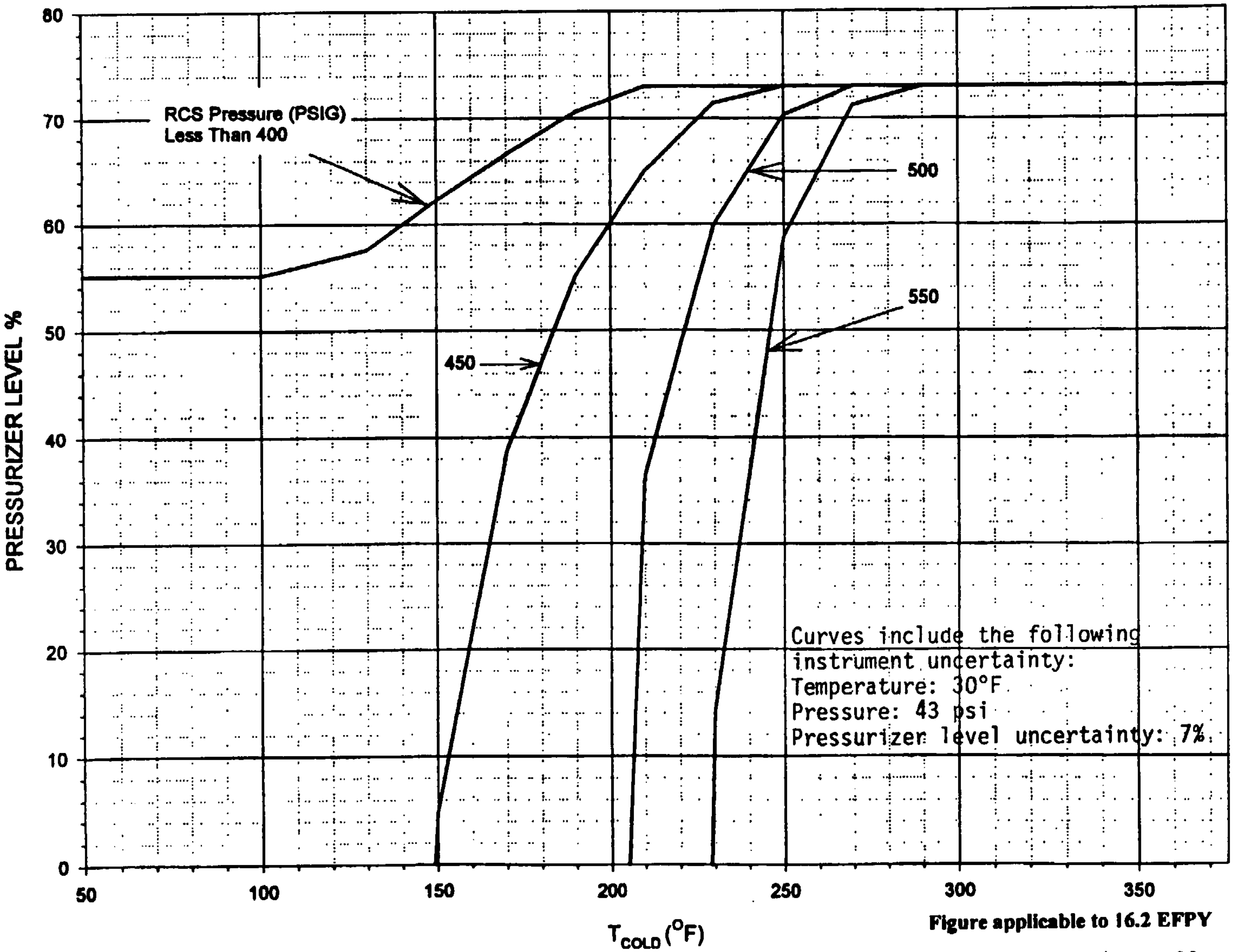

Figure applicable to 16.2 EFPY

Curves represent maximum allowable pressurizer level for the conditions defined.

Figure 3.4.12-2: Pressurizer Limitations for OPS Inoperable, 16.2 EFPY
(Up to one charging pump capable of feeding the RCS)

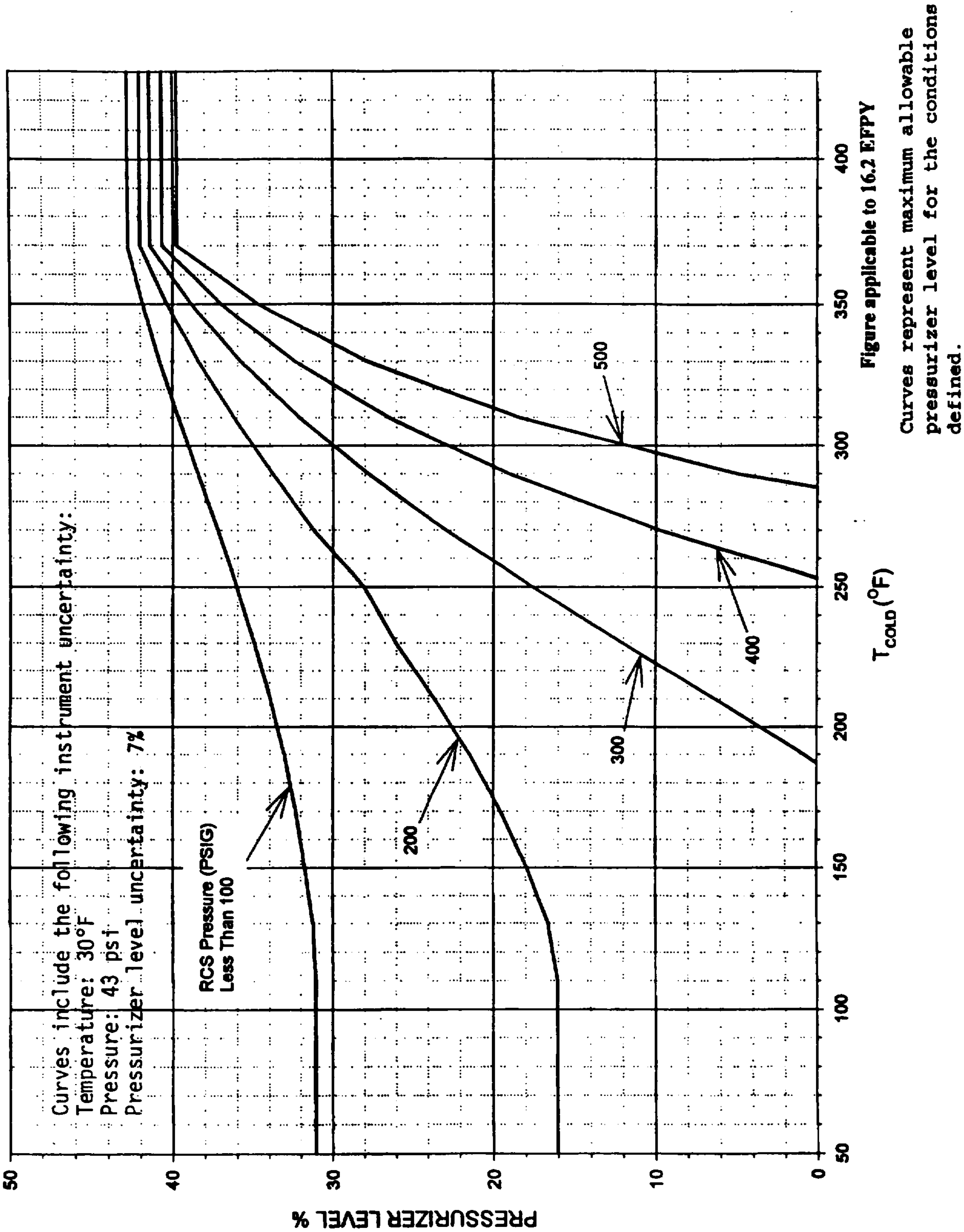

Figure 3.4.12-3: Pressurizer Limitations for OPS Inoperable, 16.2 EFPY
(Up to three charging pumps and/or one safety injection pump capable of feeding RCS)

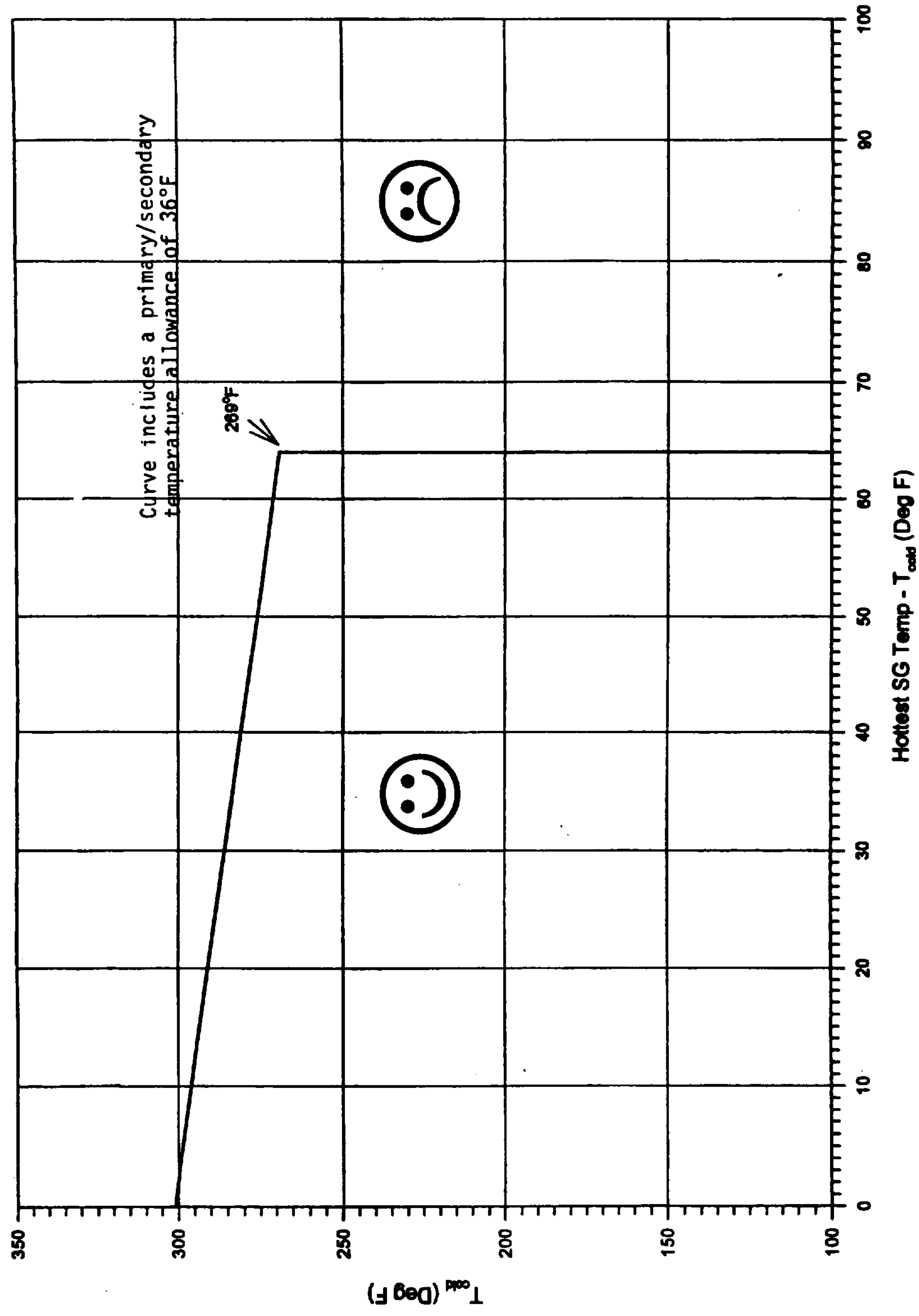

Figure 3.4.12-4: Secondary Side Limitations for RCP Start
With Secondary Side Hotter than Primary Side, 16.2 EFPY

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

a. No pressure boundary LEAKAGE;

b. 1 gpm unidentified LEAKAGE;

c. 10 gpm identified LEAKAGE;

d. 1 gpm total primary to secondary LEAKAGE through all steam generators (SGs); and

e. 432 gallons per day primary to secondary LEAKAGE through any one SG.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met. <u>OR</u> Pressure boundary LEAKAGE exists.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	------------------NOTE------------------ Not required to be performed in MODE 3 or 4 until 12 hours of steady state operation. -- Verify RCS Operational leakage is within limits by performance of RCS water inventory balance.	-----NOTE------ Only required to be performed during steady state operation -------------- 72 hours
SR 3.4.13.2	Verify steam generator tube integrity is in accordance with the Steam Generator Tube Surveillance Program.	In accordance with the Steam Generator Tube Surveillance Program

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.14 RCS Pressure Isolation Valve (PIV) Leakage

LCO 3.4.14 Leakage from each RCS PIV shall be within limit;

AND

The RHR System autoclosure interlocks (ACI) and open permissive interlocks (OPI) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4, except for leakage limits for valves in the residual heat removal (RHR) flow path when in, or during the transition to or from, the RHR mode of operation.

ACTIONS

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

1. Separate Condition entry is allowed for each flow path.

2. Separate Condition entry is allowed for each ACI and OPI.

3. Enter applicable Conditions and Required Actions for systems made inoperable by an inoperable PIV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more flow paths with leakage from one or more RCS PIVs not within limit.	-------------NOTE------------- Each valve used to satisfy Required Action A.1 and Required Action A.2 must have been verified to meet SR 3.4.14.1 and be in the reactor coolant pressure boundary or the high pressure portion of the system. ------------------------------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of one closed manual, deactivated automatic, or check valve.	4 hours
	<u>AND</u>	
	A.2.1 Isolate the high pressure portion of the affected system from the low pressure portion by use of a second closed manual, deactivated automatic, or check valve.	72 hours
	<u>OR</u>	
	A.2.2 Restore RCS PIV to within limits.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	B.2 Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more RHR System autoclosure interlocks or open permissive interlocks inoperable.	-------------NOTE------------- RHR System suction isolation valves with inoperable ACIs or OPIs may be opened for 7 days following entry into MODE 4 from MODE 3. ------------------------------		
	C.1	Close and de-activate the affected RHR isolation valve.	7 days
	<u>AND</u>		
	C.2	Verify the affected RHR isolation valves are closed and de-activated.	Once per 31 days thereafter

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.4.14.1	-------------------NOTES------------------- 1. Not required to be performed in MODES 3 and 4. 2. Not required to be performed on the RCS PIVs located in the RHR flow path when in the shutdown cooling mode of operation. 3. RCS PIVs actuated during the performance of this Surveillance are not required to be tested more than once if a repetitive testing loop cannot be avoided. --- Verify leakage from each RCS PIV is equivalent to $\leq$ 0.5 gpm per nominal inch of valve size up to a maximum of 5 gpm at an RCS pressure $\geq$ 2215 psig and $\leq$ 2255 psig.	24 months <u>AND</u> Prior to entering MODE 2 whenever the unit has been in MODE 5 for 7 days or more, if leakage testing has not been performed in the previous 12 months <u>AND</u> Within 24 hours following valve actuation due to automatic or manual action or flow through the valve

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.14.2	Verify RHR System open permissive interlock prevents the valves from being opened with a simulated or actual RCS pressure signal ≥ 450 psig.	24 months
SR 3.4.14.3	Verify RHR System autoclosure interlock causes the valves to close automatically with a simulated or actual RCS pressure signal ≥ 550 psig.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. One containment sump discharge flow monitor;

b. One containment atmosphere radioactivity monitor (gaseous or particulate); and

c. One containment fan cooler unit condensate measuring system.

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

ACTIONS

-------------------------------------NOTE-------------------------------------
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump flow monitor inoperable.	A.1 Perform SR 3.4.13.1. AND A.2 Restore required containment sump monitor to OPERABLE status.	Once per 24 hours 30 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required containment atmosphere radioactivity monitor inoperable.	B.1.1 Analyze grab samples of the containment atmosphere.	Once per 24 hours
	OR	
	B.1.2 Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	B.2.1 Restore required containment atmosphere radioactivity monitor to OPERABLE status.	30 days
	OR	
	B.2.2 Verify containment fan cooler unit condensate measuring system is OPERABLE.	30 days
C. Required containment fan cooler unit condensate measuring system inoperable.	C.1 Perform SR 3.4.15.1.	Once per 8 hours
	OR	
	C.2 Perform SR 3.4.13.1.	Once per 24 hours

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.15.1	Perform CHANNEL CHECK of the required containment atmosphere radioactivity monitor.	12 hours
SR 3.4.15.2	Perform COT of the required containment atmosphere radioactivity monitor.	92 days
SR 3.4.15.3	Perform CHANNEL CALIBRATION of the required containment sump flow monitor.	24 months
SR 3.4.15.4	Perform CHANNEL CALIBRATION of the required containment atmosphere radioactivity monitor.	24 months
SR 3.4.15.5	Perform CHANNEL CALIBRATION of the required containment fan cooler unit condensate measuring system.	24 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average loop temperature (T_{avg}) ≥ 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 > 1.0 μCi/gm.	------------ NOTE ------------ LCO 3.0.4 is not applicable. ------------------------------	
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.	Once per 4 hours
	<u>AND</u>	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit of SR 3.4.16.1.	B.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met. <u>OR</u> DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1.	C.1 Be in MODE 3 with T_{avg} < 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity ≤ 100/E(bar) μCi/gm.	7 days
SR 3.4.16.2	------------------NOTE------------------ Only required to be performed in MODE 1. -- Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 1.0 μCi/gm.	14 days AND Between 2 and 6 hours after a THERMAL POWER change of ≥ 15% RTP within a 1 hour period
SR 3.4.16.3	------------------NOTE------------------ Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours. -- Determine E(bar) from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.	184 days

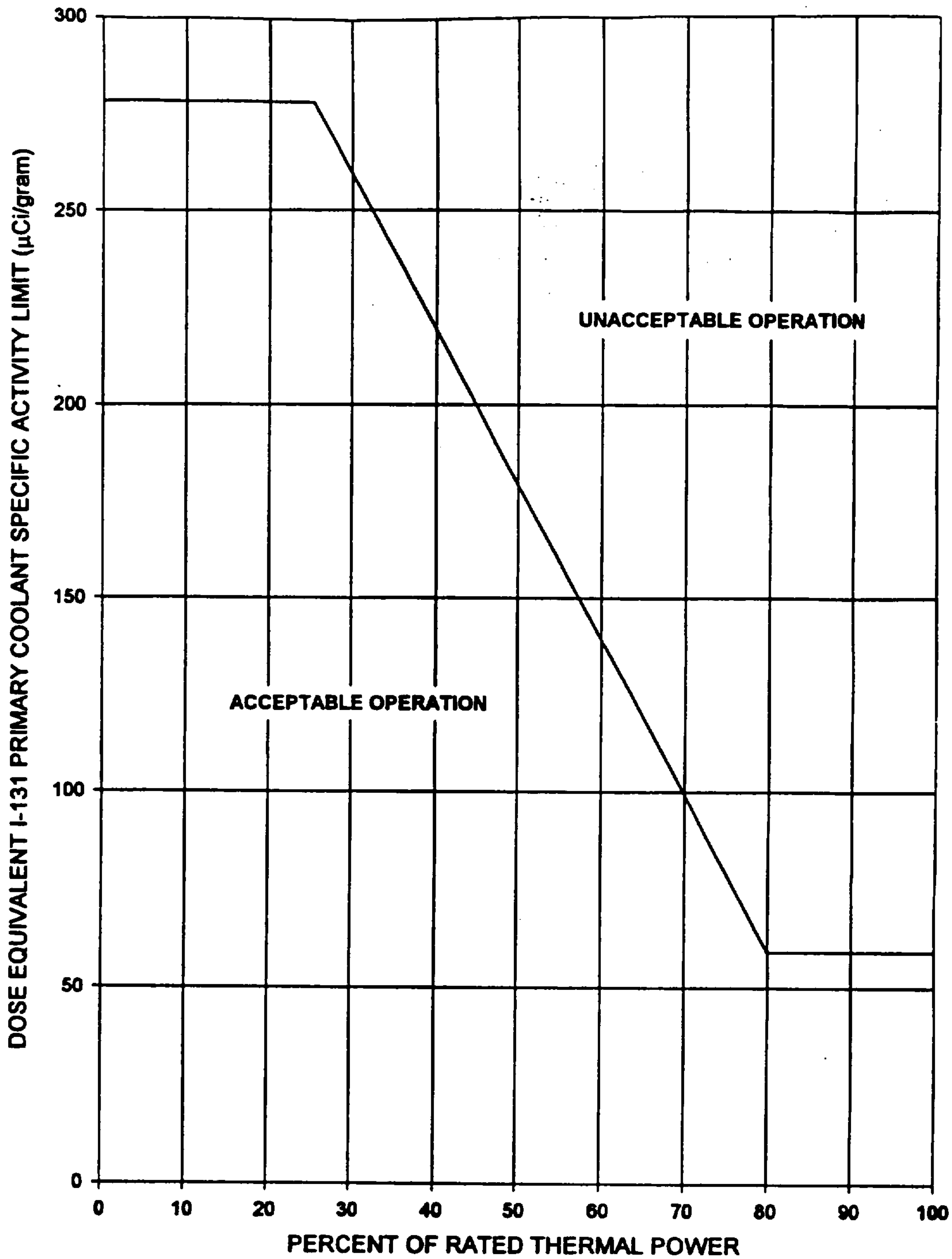

Figure 3.4.16-1 (page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity
Limit Versus Percent of RATED THERMAL POWER
(Primary Coolant Specific Activity is greater than
1.0 μCi/gram DOSE EQUIVALENT I-131)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.1 Accumulators

LCO 3.5.1 Four ECCS accumulators shall be OPERABLE.

APPLICABILITY: MODES 1 and 2,
MODE 3 with reactor coolant system pressure > 1000 psig.

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

1. In MODE 3, all accumulator discharge isolation valves may be closed and energized for up to 8 hours during the performance of reactor coolant system hydrostatic testing.

2. In MODE 3, one accumulator discharge isolation valve may be closed and energized for up to 8 hours for accumulator check valve leakage testing.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One accumulator inoperable due to boron concentration not within limits of SR 3.5.1.4.	A.1 Restore boron concentration to within limits of SR 3.5.1.4.	72 hours
B. One accumulator inoperable for reasons other than Condition A.	B.1 Restore accumulator to OPERABLE status.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. **AND** C.2 Reduce reactor coolant system pressure to $\leq$ 1000 psig.	6 hours 12 hours
D. Two or more accumulators inoperable.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify each accumulator discharge isolation valve is fully open.	12 hours
SR 3.5.1.2	Verify borated water volume in each accumulator is $\geq$ 775 cubic feet and $\leq$ 815 cubic feet.	12 hours
SR 3.5.1.3	Verify nitrogen cover pressure in each accumulator is $\geq$ 600 psig and $\leq$ 700 psig.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.4	Verify boron concentration in each accumulator is ≥ 2000 ppm and ≤ 2600 ppm.	31 days AND -----NOTE------ Only required to be performed for affected accumulators --------------- Once within 6 hours after each solution volume increase of 10 % of indicated level, that is not the result of addition from the refueling water storage tank
SR 3.5.1.5	Verify power is removed from each accumulator isolation valve operator when reactor coolant system pressure is ≥ 2000 psig.	31 days

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS – Operating

LCO 3.5.2 Three ECCS trains shall be OPERABLE.

-----NOTES-----

1. In MODE 3, both HHSI flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

2. Operation in MODE 3 with HHSI pumps made incapable of injecting pursuant to LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)," is allowed for up to 4 hours or until the temperature of all RCS cold legs exceeds 375°F, whichever comes first.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable. AND Two HHSI pumps, one RHR pump and one Containment Recirculation pump are OPERABLE.	A.1 Restore train(s) to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. __AND__ B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed. __Number__ __Position__ __Function__ SI-856B Closed HHSI Loop 33 Hot Leg Injection Stop Valve SI-856G Closed HHSI Loop 31 Hot Leg Injection Stop Valve SI-1810 Open RWST outlet isolation AC-744 Open Common discharge isolation for RHR pumps SI-882 Open Common RWST suction isolation for RHR pumps SI-842 Open HHSI pump minimum flow line isolation SI-843 Open HHSI pump minimum flow line isolation SI-883 Closed RHR pump return to RWST isolation AC-1870 Open RHR pump minimum flow line isolation AC-743 Open RHR pump minimum flow line isolation	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.2	Verify that each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.3	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months
SR 3.5.2.6	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. <u>Valve Numbers</u> SI-856A SI-856F SI-856C SI-856H SI-856D SI-856J SI-856E SI-856K	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.7	Verify, by visual inspection, each ECCS train containment sump suction inlet and recirculation sump suction inlet is not restricted by debris and the suction inlet screens show no evidence of structural distress or abnormal corrosion.	24 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS – Shutdown

LCO 3.5.3 One ECCS residual heat removal (RHR) subsystem and one ECCS recirculation subsystem shall be OPERABLE.

---------------------------- NOTE ----------------------------

An RHR train may be considered OPERABLE during alignment and operation for decay heat removal, and during valve testing if capable of being manually realigned to the ECCS mode of operation.

APPLICABILITY: MODE 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS Recirculation subsystem inoperable.	B.1 Restore required ECCS recirculation subsystem to OPERABLE status.	1 hour
C. Required Action and associated Completion Time of Condition B not met.	C.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	The following SRs are applicable for all equipment required to be OPERABLE: SR 3.5.2.3 SR 3.5.2.7	In accordance with applicable SRs

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST and two channels of RWST low level alarm shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits of SR 3.5.4.3. <u>OR</u> RWST borated water temperature not within limits of SR 3.5.4.1.	A.1 Restore RWST to OPERABLE status.	8 hours
B. One channel of RWST low level alarm inoperable.	B.1 Restore RWST low level alarm to OPERABLE status.	7 days
C. RWST inoperable for reasons other than Condition A or B.	C.1 Restore RWST to OPERABLE status.	1 hour
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.5.4.1	------------------NOTE------------------ Only required to be performed when ambient air temperature is < 35°F or > 110°F. -- Verify RWST borated water temperature is ≥ 35°F and ≤ 110°F.	24 hours
SR 3.5.4.2	Verify RWST borated water level is ≥ 35.4 feet.	7 days
SR 3.5.4.3	Verify RWST boron concentration is ≥ 2400 ppm and ≤ 2600 ppm.	31 days
SR 3.5.4.4	Perform CHANNEL CHECK of RWST level.	7 days
SR 3.5.4.5	Perform CHANNEL CALIBRATION of RWST level indicating switch and ensure the low level alarm setpoint is ≥10.5 ft and ≤12.5 ft.	184 days
SR 3.5.4.6	Perform CHANNEL CALIBRATION of RWST level transmitter and ensure the low level alarm setpoint is ≥10.5 ft and ≤12.5 ft.	18 months

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.	6 hours
	<u>AND</u>		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.1	Perform required visual examinations and leakage rate testing except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.2 Containment Air Locks

LCO 3.6.2 Two containment air locks shall be OPERABLE.

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

ACTIONS

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

1. Entry and exit is permissible to perform repairs on the affected air lock components.
2. Separate Condition entry is allowed for each air lock.
3. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when air lock leakage results in exceeding the overall containment leakage rate.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more containment air locks with one containment air lock door inoperable.	------------NOTES------------ 1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable. ------------------------------	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.1	Verify the OPERABLE door is closed in the affected air lock.	1 hour
	<u>AND</u>		
	A.2	Lock the OPERABLE door closed in the affected air lock.	24 hours
	<u>AND</u>		
	A.3	--------NOTE---------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------------------	
		Verify the OPERABLE door is locked closed in the affected air lock.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more containment air locks with containment air lock interlock mechanism inoperable.	------------NOTES------------ 1. Required Actions B.1, B.2, and B.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered. 2. Entry and exit of containment is permissible under the control of a dedicated individual. ------------------------------	
	B.1 Verify an OPERABLE door is closed in the affected air lock.	1 hour
	<u>AND</u>	
	B.2 Lock an OPERABLE door closed in the affected air lock.	24 hours
	<u>AND</u>	
	B.3 ---------NOTE--------- Air lock doors in high radiation areas may be verified locked closed by administrative means. ---------------------- Verify an OPERABLE door is locked closed in the affected air lock.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more containment air locks inoperable for reasons other than Condition A or B.	C.1	Initiate action to evaluate overall containment leakage rate per LCO 3.6.1.	Immediately
	<u>AND</u>		
	C.2	Verify a door is closed in the affected air lock.	1 hour
	<u>AND</u>		
	C.3	Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	D.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.2.1	-------------------NOTES------------------ 1. An inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. 2. Results shall be evaluated against acceptance criteria applicable to SR 3.6.1.1. --- Perform required air lock leakage rate testing in accordance with the Containment Leakage Rate Testing Program.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.2.2	Verify only one door in the air lock can be opened at a time.	24 months

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) except for 36 inch purge valve flow paths 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.

5. Enter applicable Conditions and Required Actions of LCO 3.6.9, "Isolation Valve Seal Water (IVSW) System," when required IVSW supply to a penetration flowpath is inoperable.

6. Enter applicable Conditions and Required Actions of LCO 3.6.10, "Weld Channel and Penetration Pressurization System (WC&PPS)," when required WC&PPS supply to a penetration flowpath is inoperable.

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. -------------------- One or more penetration flow paths with one containment isolation valve inoperable, for reasons other than Condition D.	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.	4 hours
	<u>AND</u>		
	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 <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two or more containment isolation valves. -------------------- One or more penetration flow paths with two or more containment isolation valves inoperable, for reasons other than Condition D.	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
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.	72 hours
	<u>AND</u>		
	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

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Containment bypass leakage or hydrostatically tested valve leakage not within limit.	D.1 Restore leakage within limit.	4 hours for containment bypass leakage AND 72 hours for hydrostatically tested valve leakage
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.3.1	Verify each 36 inch purge supply and exhaust isolation valve is sealed closed.	31 days
SR 3.6.3.2	Verify each 10 inch pressure relief isolation valve is closed, except when these valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.3	-------------------NOTE-------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. --- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	31 days
SR 3.6.3.4	------------------NOTE-------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. --- Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.5	Verify the isolation time of each automatic power operated containment isolation valve is within limits.	In accordance with the Inservice Testing Program
SR 3.6.3.6	Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.	24 months
SR 3.6.3.7	Verify each 10 inch containment pressure relief line isolation valve is blocked to restrict valve opening to ≤ 60 degrees.	24 months
SR 3.6.3.8	Perform one complete cycle of each manually operated containment isolation valve on essential lines.	24 months
SR 3.6.3.9	Verify the combined leakage rate for all containment bypass leakage paths is ≤ 0.6 L_a when pressurized to ≥ 42.42 psig.	In accordance with the Containment Leakage Rate Testing Program
SR 3.6.3.10	Verify leakage rate into containment from isolation valves sealed with the service water system is within limits.	In accordance with the Containment Leakage Rate Testing Program

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be $\geq$ -2.0 psig and $\leq$ +2.5 psig.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. __AND__ B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1 Verify containment pressure is within limits.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be > 50°F and ≤ 130°F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature ≤50 °F.	A.1 Restore containment average air temperature to >50 °F.	Immediately
B. Containment average air temperature >130 °F.	B.1 Restore containment average air temperature to within ≤130 °F.	8 hours
C. Required Action and associated Completion Time Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.1 Verify containment average air temperature is within limits.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray System and Containment Fan Cooler System

LCO 3.6.6 Two Containment Spray trains and three Containment Fan Cooler trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One containment spray train inoperable.	A.1	Restore containment spray train to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
B. Required Action and associated Completion Time of Condition A not met.	B.1 <u>AND</u> B.2	Be in MODE 3. Be in MODE 5.	6 hours 84 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One containment fan cooler train inoperable.	C.1	Restore containment fan cooler train to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
D. Two containment fan cooler trains inoperable.	D.1	Restore one containment fan cooler train to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 AND E.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours
F. Two containment spray trains inoperable. OR Any combination of three or more trains inoperable.	F.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6.2	Operate each containment fan cooler unit fan for ≥ 15 minutes.	92 days
SR 3.6.6.3	Verify each containment fan cooler unit cooling water flow rate is ≥ 1400 gpm.	92 days
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.6.7	Verify each containment fan cooler unit starts and dampers re-position to the emergency mode automatically on an actual or simulated actuation signal.	24 months
SR 3.6.6.8	Perform required containment fan cooler system filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.6.6.9	Verify each spray nozzle is unobstructed.	10 years

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.7.1	Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify spray additive tank solution volume is ≥ 4000 gal.	184 days
SR 3.6.7.3	Verify spray additive tank NaOH solution concentration is ≥ 35% and ≤ 38% by weight.	184 days
SR 3.6.7.4	Verify each spray additive automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.6.7.5	Verify spray additive system flow from each flow path.	5 years

3.6 CONTAINMENT SYSTEMS

3.6.8 Hydrogen Recombiners

LCO 3.6.8 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1	---------NOTE--------- LCO 3.0.4 is not applicable. ----------------------	
		Restore hydrogen recombiner to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.8.1	Perform a system functional test for each hydrogen recombiner.	6 months
SR 3.6.8.2	Visually examine each hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions.	24 months
SR 3.6.8.3	Perform a resistance to ground test for each heater phase.	24 months

3.6 CONTAINMENT SYSTEMS

3.6.9 Isolation Valve Seal Water (IVSW) System

LCO 3.6.9 The IVSW System shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One IVSW system header inoperable. <u>OR</u> One IVSW automatic actuation valve inoperable.	A.1 Restore IVSW system to OPERABLE status.	7 days
B. IVSW system inoperable for reasons other than Condition A.	B.1 Restore IVSW System to OPERABLE Status.	24 hours
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3. <u>AND</u> C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Verify IVSW tank pressure is ≥ 47 psig.	24 hours
SR 3.6.9.2	Verify IVSW nitrogen supply bank is pressurized with: a. one cylinder with pressure ≥ 1048 psig; or b. two cylinders with pressure ≥ 584 psig; or c. three cylinders with pressure ≥ 430 psig.	24 hours
SR 3.6.9.3	Verify the IVSW tank water volume is ≥ 144 gallons.	24 hours
SR 3.6.9.4	Verify the opening time of each air operated header injection valve is within limits.	24 months
SR 3.6.9.5	Verify each automatic valve in the IVSW System actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.6.9.6	Verify the leakage rate of water from the Isolation Valve Seal Water System is within limits.	In accordance with the Containment Leakage Rate Testing Program.

3.6 CONTAINMENT SYSTEMS

3.6.10 Weld Channel and Penetration Pressurization System (WC&PPS)

LCO 3.6.10 Weld Channel and Penetration Pressurization System shall be OPERABLE.

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

ACTIONS

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

1. Separate Condition entry is allowed for each component supplied by WC&PPS.
2. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when the overall containment leakage rate acceptance criteria is exceeded.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more components supplied by WC&PPS not within the pressure limit of SR 3.6.10.1.	A.1	Isolate the WC&PPS supply to the affected components 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.	4 hours
	<u>AND</u>		(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 WC&PPS supply to the affected component is isolated.	Once per 31 days for isolation devices outside containment not locked, sealed or otherwise secured **AND** Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. WC&PPS air consumption not within the limits of SR 3.6.10.2.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves." **AND**	1 hour from discovery that the WC&PPS air consumption leakage path is depressurized and not isolated from the supported containment isolation valves (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Enter applicable Conditions and Required Actions of LCO 3.6.2, "Containment Air Locks."	1 hour from discovery that the WC&PPS air consumption leakage path is depressurized and not isolated from the supported air lock
	<u>AND</u>		
	B.3	--------NOTE--------- Enter condition A for components not within the pressure limit of SR 3.6.10.1. --------------------	
		Isolate portions of WC&PPS to restore air consumption to within limits of SR 3.6.10.2.	7 days
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.10.1	Verify all required portions of each WC&PPS zone is pressurized to ≥ 43 psig.	31 days
SR 3.6.10.2	Verify the WC&PPS air consumption is ≤ 0.2% of the containment free volume per day.	31 days
SR 3.6.10.3	Verify the leakage rate for the WC&PPS is ≤ 0.2% of the containment free volume per day when pressurized to ≥ 43 psi above containment pressure.	-----NOTE------ SR 3.0.2 is not applicable -------------- 36 months

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 The MSSVs shall be OPERABLE as specified in Table 3.7.1-1 and Table 3.7.1-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required MSSVs inoperable.	A.1 Reduce neutron flux trip setpoint to less than or equal to the applicable % RTP listed in Table 3.7.1-1.	4 hours
B. Required Action and associated Completion Time not met. OR One or more steam generators with less than two MSSVs OPERABLE.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.1.1	------------------NOTE--------------------- Only required to be performed in MODES 1 and 2. --- Verify each required MSSV lift setpoint per Table 3.7.1-2 in accordance with the Inservice Testing Program. Following testing, lift setting shall be within ±1%.	In accordance with the Inservice Testing Program

Table 3.7.1-1 (page 1 of 1)
OPERABLE Main Steam Safety Valves versus
Applicable Neutron Flux Trip Setpoint in Percent of RATED THERMAL POWER

MINIMUM NUMBER OF MSSVs PER STEAM GENERATOR REQUIRED OPERABLE	APPLICABLE Neutron Flux Trip Setpoint (% RTP)
4	≤ 61
3	≤ 42
2	≤ 23

Table 3.7.1-2 (page 1 of 1)
Main Steam Safety Valve Lift Settings

VALVE NUMBER				LIFT SETTING (psig ± 3%)
STEAM GENERATOR				
#31	#32	#33	#34	
MS-45-1	MS-45-2	MS-45-3	MS-45-4	1065
MS-46-1	MS-46-2	MS-46-3	MS-46-4	1080
MS-47-1	MS-47-2	MS-47-3	MS-47-4	1095
MS-48-1	MS-48-2	MS-48-3	MS-48-4	1110
MS-49-1	MS-49-2	MS-49-3	MS-49-4	1120

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs) and Main Steam Check Valves (MSCVs)

LCO 3.7.2 Four MSIVs and four MSCVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all MSIVs are closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MSCVs inoperable.	A.1 Restore MSCVs to OPERABLE status.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2. AND B.2 Close all MSIVs. AND B.3 Verify all MSIVs closed.	6 hours 14 hours Once per 7 days
C. One MSIV inoperable in MODE 1.	C.1 Restore MSIV to OPERABLE status.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 2.	6 hours
E. ---------NOTE---------- Separate Condition entry is allowed for each MSIV. ---------------------- One or more MSIVs inoperable in MODE 2 or 3.	E.1 Close MSIV. AND E.2 Verify MSIV is closed.	8 hours Once per 7 days
F. One MSIV inoperable. AND One or more MSCVs inoperable.	F.1 Restore all MSCVs to OPERABLE status. OR F.2 Restore all MSIVs to OPERABLE status.	8 hours 8 hours
G. Required Action and associated Completion Time of Condition B, E or F not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	-------------------NOTE------------------- Only required to be performed in MODES 1 and 2. -- Verify closure time of each MSIV is ≤ 5.0 seconds on an actual or simulated actuation signal.	In accordance with the Inservice Testing Program
SR 3.7.2.2	Perform visual inspection of each MSCV.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.3 Main Boiler Feedpump Discharge Valves (MBFPDVs), Main Feedwater Regulation Valves (MFRVs) and MFRV Low Flow Bypass Valves

LCO 3.7.3 Two MBFPDVs, four MFRVs and four MFRV low flow bypass valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3 except when MBFPDVs, or MFRVs and MFRV low flow bypass valves are closed and de-activated or isolated by a closed manual valve.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both MBFPDVs inoperable.	A.1 Close or isolate MBFPDV.	72 hours
	<u>AND</u>	
	A.2 Verify MBFPDV is closed or isolated.	Once per 7 days
B. One or more MFRVs inoperable.	B.1 Close or isolate MFRV.	72 hours
	<u>AND</u>	
	B.2 Verify MFRV is closed or isolated.	Once per 7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One or more MFRV low flow bypass valves inoperable.	C.1	Close or isolate bypass valve.	72 hours
	<u>AND</u>		
	C.2	Verify bypass valve is closed or isolated.	Once per 7 days
D. Two valves in series in the same flow path inoperable.	D.1	Isolate affected flow path.	8 hours
E. Required Action and associated Completion Time not met.	E.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	E.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify each MBFPDV, MFRV and MFRV low flow bypass valve closes on an actual or simulated actuation signal within the following limits: a. MBFPDV closure time ≤ 122 seconds; b. MFRV closure time ≤ 10 seconds; and, c. MFRV Low Flow Bypass valve closure time ≤ 10 seconds.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.4 Atmospheric Dump Valves (ADVs)

LCO 3.7.4 Three ADV lines shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required ADV line inoperable.	A.1	---------NOTE--------- LCO 3.0.4 is not applicable. ---------------------- Restore required ADV line to OPERABLE status.	 7 days
B. Two or more required ADV lines inoperable.	B.1	Restore all but one ADV line to OPERABLE status.	24 hours
C. Required Action and associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 4 without reliance upon steam generator for heat removal.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.4.1	Verify one complete cycle of each ADV.	24 months
SR 3.7.4.2	Verify one complete cycle of each ADV block valve.	24 months

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

------------------------------NOTE------------------------------
Only one AFW train, which includes a motor driven pump capable of supporting the credited steam generator(s), is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days __AND__ 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable in MODE 1, 2 or 3 for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours __AND__ 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met. OR Two AFW trains inoperable in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours 18 hours
D. Three AFW trains inoperable in MODE 1, 2, or 3.	------------NOTE------------ LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ------------------------------ D.1 Initiate action to restore one AFW train to OPERABLE status.	 Immediately
E. Required AFW train inoperable in MODE 4.	E.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.5.1	-------------------NOTE------------------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. -- Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	-------------------NOTE------------------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 600 psig in the steam generator. -- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with Inservice Testing Program
SR 3.7.5.3	-------------------NOTE------------------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. -- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.4	-------------------NOTES------------------ 1. Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 600 psig in the steam generator. 2. Not applicable in MODE 4 when steam generator is relied upon for heat removal. --- Verify each AFW pump starts automatically on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.6 Condensate Storage Tank (CST)

LCO 3.7.6 The CST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CST inoperable.	A.1	Verify by administrative means OPERABILITY of City Water.	Immediately AND Once per 12 hours thereafter
	AND		
	A.2	Restore CST to OPERABLE.	7 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4, without reliance on steam generator for heat removal.	18 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.6.1	Verify the CST level is ≥ 360,000 gal.	12 hours

3.7 PLANT SYSTEMS

3.7.7 City Water (CW)

LCO 3.7.7 CW shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CW inoperable.	A.1 Verify by administrative means OPERABILITY of Condensate Storage Tank. <u>AND</u> A.2 Restore CW to OPERABLE.	Immediately <u>AND</u> Once per 12 hours thereafter 7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4, without reliance on steam generators for heat removal.	6 hours 18 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.7.1	Verify the CW header pressure is ≥ 30 psig.	12 hours
SR 3.7.7.2	Verify the Unit 3 City Water Header Supply Isolation Valve is open.	31 days
SR 3.7.7.3	Perform testing required by Inservice Testing Program for each valve needed to align CW to each AFW pump suction.	In accordance with the Inservice Testing Program

3.7 PLANT SYSTEMS

3.7.8 Component Cooling Water (CCW) System

LCO 3.7.8 Two CCW loops shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CCW loop inoperable.	A.1	--------NOTE--------- Enter applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops - MODE 4," for residual heat removal loops made inoperable by CCW. --------------------- Restore CCW loop to OPERABLE status.	 72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	-------------------NOTE-------------------- Isolation of CCW flow to individual components does not render the CCW System inoperable. --- Verify each CCW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	92 days
SR 3.7.8.2	Verify each CCW automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.7.8.3	Verify each CCW pump starts automatically on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.9 Service Water System (SWS)

LCO 3.7.9 Three pumps and required flow path for the essential SWS header shall be Operable;

<u>AND</u>,

Two pumps and required flow path for the nonessential SWS header shall be Operable.

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

------------------------------------NOTE------------------------------------
If LCO 3.7.9 will be met after the essential and non-essential header are swapped, then LCO 3.0.3 is not applicable for 8 hours while swapping the essential SWS header with the nonessential SWS header.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required SWS pump on essential header inoperable.	A.1	Establish 3 OPERABLE SWS pumps on the essential SWS header.	72 hours
B. One required SWS pump on nonessential header inoperable.	B.1	Establish 2 OPERABLE SWS pumps on the nonessential SWS header.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. One EDG ESFAS Service Water valve inoperable.	C.1	Restore both EDG ESFAS Service Water valves to OPERABLE status.	12 hours
D. One FCU ESFAS Service Water valve inoperable.	D.1	Restore both FCU ESFAS Service Water valves to OPERABLE status.	12 hours
E. SWS piping and valves inoperable for reasons other than Conditions A, B, C, or D, with no loss of safety function.	E.1	Restore SWS to OPERABLE Status	12 hours
F. Required Action and associated Completion Time of Condition A, B, C, D or E not met.	F.1	Be in MODE 3	6 hours
	<u>AND</u>		
	F.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	-------------------NOTE------------------- Isolation of SWS flow to individual components does not render the SWS header inoperable. --- Verify each SWS manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	92 days
SR 3.7.9.2	Verify each SWS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.7.9.3	Verify each SWS pump starts automatically on an actual or simulated actuation signal.	24 months

3.7 PLANT SYSTEMS

3.7.10 Ultimate Heat Sink (UHS)

LCO 3.7.10 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS temperature > 95°F. OR UHS inoperable for reasons other than temperature > 95°F.	A.1 Be in MODE 3. AND A.2 Be in MODE 5.	7 hours 37 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Verify average water temperature of UHS is ≤ 95°F.	24 hours

3.7 PLANT SYSTEMS

3.7.11 Control Room Ventilation System (CRVS)

LCO 3.7.11 Two CRVS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRVS train inoperable.	A.1	Restore CRVS train to OPERABLE status.	7 days
B. Two CRVS trains inoperable.	B.1	Restore one CRVS train to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CRVS train for ≥ 15 minutes.	31 days
SR 3.7.11.2	Perform required CRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.11.3	Verify each CRVS train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.11.4	Verify one CRVS train can maintain a slight positive pressure relative to the adjacent enclosed area during the 10% incident mode of operation at a makeup flow rate of ≤ 400 cfm.	24 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.12 Control Room Air Conditioning System (CRACS)

LCO 3.7.12 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4,

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRACS train inoperable.	A.1	Restore CRACS train to OPERABLE status.	30 days
B. Two CRACS trains inoperable.	B.1	Restore one CRACS train to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Verify each CRACS train has the capability to remove the assumed heat load.	24 months

3.7 PLANT SYSTEMS

3.7.13 Fuel Storage Building Emergency Ventilation System (FSBEVS)

LCO 3.7.13 FSBEVS shall be OPERABLE.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. FSBEVS inoperable.	A.1 Suspend movement of irradiated fuel assemblies in the fuel storage building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Verify FSBEVS charcoal filter bypass dampers are installed.	92 days
SR 3.7.13.2	Operate FSBEVS for ≥ 15 minutes.	31 days
SR 3.7.13.3	Perform required FSBEVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.4	Verify FSBEVS actuates on an actual or simulated actuation signal.	92 days
SR 3.7.13.5	Verify FSBEVS can maintain a pressure ≤ -0.125 inches water gauge with respect to atmospheric pressure during the post accident mode of operation at a flow rate ≤ 20,000 cfm.	24 months

3.7 PLANT SYSTEMS

3.7.14 Spent Fuel Pit Water Level

LCO 3.7.14 The spent fuel pit water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the spent fuel pit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pit water level not within limit.	A.1 ---------NOTE--------- LCO 3.0.3 is not applicable. ---------------------- Suspend movement of irradiated fuel assemblies in the spent fuel pit.	 Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.14.1	Verify the spent fuel pit water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pit Boron Concentration

LCO 3.7.15 The Spent Fuel Pit boron concentration shall be ≥ 1000 ppm.

APPLICABILITY: When fuel assemblies are stored in the spent fuel pit and a spent fuel pit verification has not been performed since the last movement of fuel assemblies in the spent fuel pit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pit boron concentration not within limit.	-------------NOTE------------- LCO 3.0.3 is not applicable. -------------------------------	
	A.1 Suspend movement of fuel assemblies in the spent fuel pit.	Immediately
	AND	
	A.2.1 Initiate action to restore spent fuel pit boron concentration to within limit.	Immediately
	OR	
	A.2.2 Initiate action to perform a spent fuel pit verification.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the spent fuel pit boron concentration is within limit.	31 days

3.7 PLANT SYSTEMS

3.7.16 Spent Fuel Assembly Storage

LCO 3.7.16 Fuel assemblies stored in the spent fuel pit shall be classified in accordance with Figure 3.7.16-1 based on initial enrichment and burnup; and,

Fuel assembly storage location within the spent fuel pit shall be restricted based on the Figure 3.7.16-1 classification as follows:

a. Fuel assemblies classified as Type 2 may be stored in any location in either Region 1 or Region 2;

b. Fuel assemblies classified as Type 1A, 1B or 1C shall be stored in Region 1;

c. Fuel assembly storage location within Region 1 shall be restricted as follows:

1. Type 1A assemblies may be stored anywhere in Region 1;

2. Type 1B assemblies may be stored anywhere in Region 1, except a Type 1B assembly shall not be stored face-adjacent to a Type 1C assembly;

3. Type 1C assemblies shall not be stored in Row 64 or in Column ZZ; and

4. Type 1C assemblies shall be stored in Region 1 locations where all face-adjacent locations are as follows:

a) occupied by Type 2 or Type 1A assemblies, or

b) occupied by non-fuel components, or

c) empty.

APPLICABILITY: Whenever any fuel assembly is stored in the spent fuel pit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ---------NOTE---------- LCO 3.0.3 is not applicable. ---------------------- Initiate action to move fuel to restore compliance with LCO 3.7.16.	 Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify by administrative means the initial enrichment and burnup of each fuel assembly and that the storage location meets LCO 3.7.16 requirements.	Prior to storing the fuel assembly in the spent fuel pit

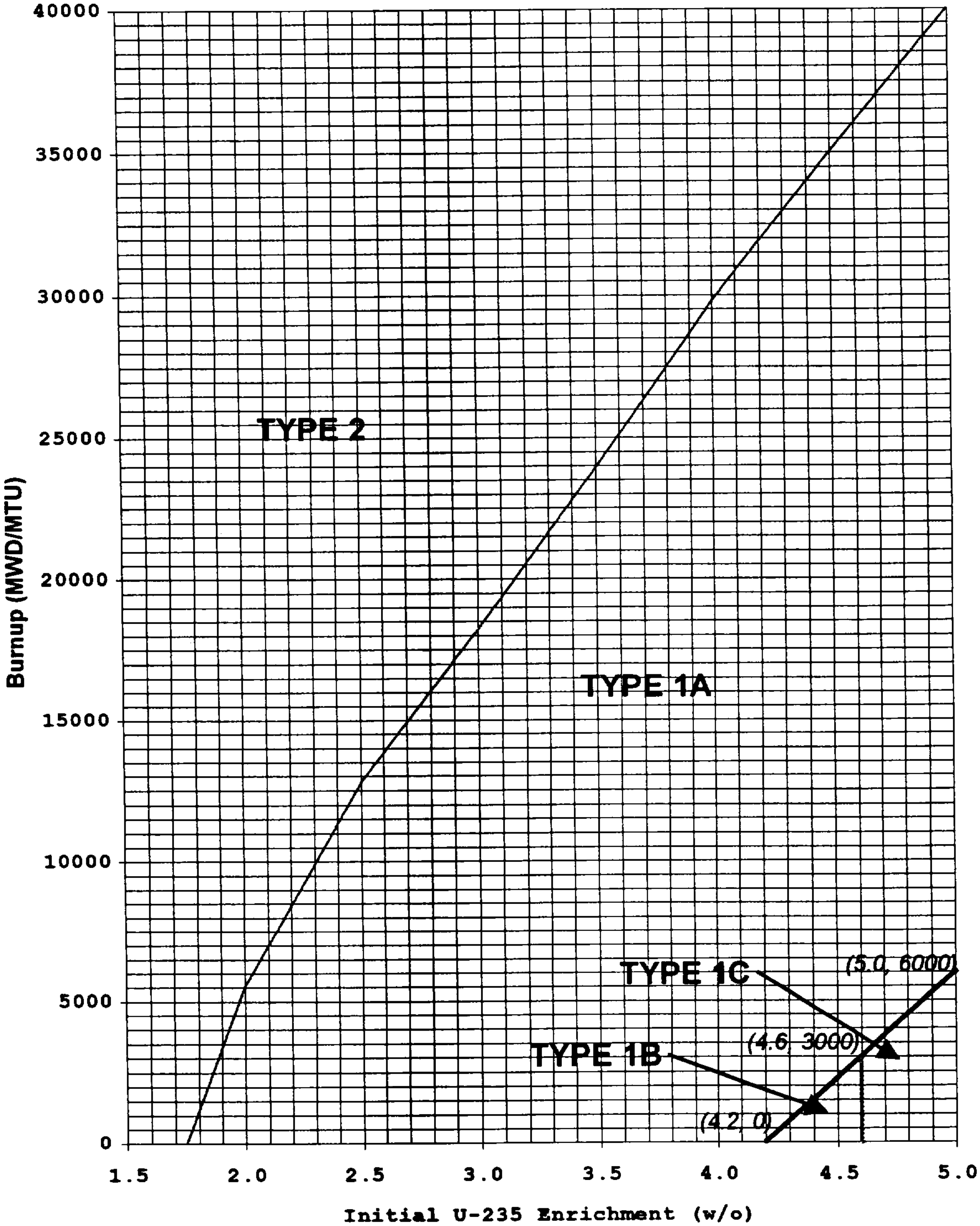

Figure 3.7.16-1 (Page 1 of 1)
Fuel Assembly Classification
for Storage in the Spent Fuel Pit

3.7 PLANT SYSTEMS

3.7.17 Secondary Specific Activity

LCO 3.7.17 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3. AND A.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.17.1 Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	31 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Electrical Power Distribution System; and

b. Three diesel generators (DGs) (31, 32 and 33) capable of supplying the onsite power distribution subsystem(s)

---------------------------- NOTE ----------------------------
The 138 kV circuit is considered inoperable whenever the automatic transfer function for the 6.9 kV buses is disabled.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit. AND	1 hour AND Once per 8 hours thereafter (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)		--------NOTE---------- Only required if 13.8 kV offsite circuit is supplying 6.9 kV bus 5 or 6 and the Unit Auxiliary Transformer is supplying 6.9 kV bus 1, 2, 3 or 4. ------------------------	
	A.2	Verify automatic transfer of 6.9 kV buses 1, 2, 3, and 4 to 6.9 kV bus 5 and 6 is disabled.	1 hour AND Once per 8 hours thereafter
	AND		
	A.3	Declare inoperable required feature(s) with no offsite power automatically available when its redundant required feature(s) is inoperable.	24 hours from discovery of no automatically available offsite power to one train concurrent with inoperability of redundant required feature(s)
	AND		
	A.4	Restore offsite circuit to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for the offsite circuits.	1 hour AND Once per 8 hours thereafter
	AND	
	B.2 Declare inoperable the required features supported by the inoperable DG when its required redundant feature is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature
	AND	
	B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.	24 hours
	OR	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DGs.	24 hours
	AND	
	B.4 Restore DG to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two offsite circuits inoperable.	C.1 Declare required features inoperable when its redundant required feature is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature
	<u>AND</u>	
	C.2 Restore one offsite circuit to OPERABLE status.	24 hours
D. One offsite circuit inoperable. <u>AND</u> One DG inoperable.	-----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," when Condition D is entered with no offsite or DG AC power source automatically available to any train. ------------------------	
	D.1 Restore offsite circuit to OPERABLE status.	12 hours
	<u>OR</u>	
	D.2 Restore DG to OPERABLE status.	12 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more DGs inoperable.	E.1 Restore at least two DGs to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours
G. One or more offsite circuits and two DGs inoperable.	G.1 Enter LCO 3.0.3.	Immediately
H. Two offsite circuits and one or more DGs inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	7 days
SR 3.8.1.2	-------------------NOTE------------------- All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby conditions and achieves: a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 422 V and ≤ 500V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days
SR 3.8.1.3	-------------------NOTES------------------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This SR shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2. -- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 1575 kW and ≤ 1750 kW.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.4	Verify each day tank contains ≥ 115 gal of fuel oil.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from DG storage tank to the day tank.	31 days
SR 3.8.1.7	------------------NOTE-------------------- This Surveillance shall not be performed in MODE 1 or 2. -- Verify manual transfer of AC power sources from the normal offsite circuit to the alternate offsite circuit.	24 months
SR 3.8.1.8	------------------NOTES------------------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Only required to be met if 138 kV offsite circuit is supplying 6.9 kV bus 5 and 6 and the Unit Auxiliary Transformer is supplying 6.9 kV bus 2 or 3. -- Verify automatic transfer of AC power for 6.9 kV buses 2 and 3 from the unit auxiliary transformer to 6.9 kV buses 5 and 6.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	------------------NOTE-------------------- This Surveillance shall not be performed in MODE 1 or 2. -- Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal except: a. Engine overspeed; b. Low lube oil pressure; and c. Overcrank relay.	24 months
SR 3.8.1.10	------------------NOTES------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. -- Verify each DG operating at a power factor ≤ 0.9 operates for ≥ 8 hours: a. For ≥ 105 minutes loaded ≥ 1837 kW and ≤ 1925 kW; and b. For the remaining hours of the test loaded ≥ 1575 kW and ≤ 1750 kW.	24 months
SR 3.8.1.11	----------------NOTE---------------------- Load timers associated with equipment that has automatic initiation capability disabled are not required to be operable. -- Verify each time delay relay functions within the required design interval.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. This SR may be performed on safeguards power trains one at a time, or simultaneously. Appropriate plant conditions must be established when testing three safeguards power trains simultaneously. --------------------	
	Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through individual load timers, 3. achieves steady state voltage ≥ 422 V and ≤ 500 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	-------------------NOTE------------------- 1. All DG starts may be preceded by an engine prelube period. 2. Performance of SR 3.8.1.12 may be used to satisfy the requirements of this SR if all three diesel generators are started simultaneously. --- Verify when started simultaneously from standby condition, each DG achieves: a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 422 V and ≤ 500V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	10 years

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources – Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown"; and

b.1 Two diesel generators (DGs) capable of supplying two safeguards power trains of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10; or

b.2. One DG capable of supplying necessary portions of the onsite AC electrical power distribution subsytems required by LCO 3.8.10 provided that:

(a) The reactor has been subcritical for at least 5 days, and

(b) The water level in the refueling cavity is ≥ 23 feet above the reactor vessel flange, or there is no fuel in the reactor vessel and the refueling cavity.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.10, with any required bus de-energized as a result of Condition A. ----------------------------	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A.1 (continued)	A.1	Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	<u>OR</u>		
	A.2.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2.2	Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>		
	A.2.3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>		
	A.2.4	Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required DG(s) inoperable	B.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	B.2	Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>		
	B.3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>		
	B.4	Initiate action to restore required DG(s) to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1	-------------------NOTES-------------------- 1. The following SRs are required to be met but are not required to be performed: SR 3.8.1.3, SR 3.8.1.10, SR 3.8.1.11, and SR 3.8.1.12. 2. Portions of SR 3.8.1.12 regarding an actual or simulated ESF actuation signal are not required to be met. -- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources – Operating," except SR 3.8.1.8, SR 3.8.1.9, and SR 3.8.1.13, are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Starting Air

LCO 3.8.3 The stored diesel fuel oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable in MODES 1, 2, 3 and 4. ---------------------- One or more DGs with usable fuel oil in associated DG fuel oil storage tank < 5365 gal.	A.1 Declare associated DG inoperable.	Immediately
B. ---------NOTE--------- Only applicable in MODES 5 and 6 and during movement of irradiated fuel. ---------------------- Total combined usable fuel oil in DG fuel oil storage tanks associated with the operable DG(s) < 5365 gal.	B.1 Declare all DGs inoperable.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE---------- Only applicable in MODES 1, 2, 3 and 4. ---------------------- Total useable fuel oil in reserve storage tank(s) < 26,826 gal.	C.1 Declare all DGs inoperable.	Immediately
D. One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with fuel oil total particulates not within limits.	D.1 Restore fuel oil total particulates within limit.	7 days for DG fuel oil storage tank AND 30 days for reserve fuel oil storage tank
E. One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with fuel oil properties other than particulates not within limits.	E.1 Restore fuel oil properties to within limits.	30 days for DG fuel oil storage tank AND 60 days for reserve fuel oil storage tank
F. One or more DGs with starting air receiver pressure < 250 psig and ≥ 90 psig.	F.1 Restore starting air receiver pressure to ≥ 250 psig.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time not met. <u>OR</u> One or more DGs diesel fuel oil or starting air subsystem not within limits for reasons other than Condition A, B, C, D, E, or F.	G.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	--------------------NOTE-------------------- Only required in MODES 1, 2, 3 and 4. -- Verify reserve storage tank(s) contain ≥ 26,826 gal of fuel oil reserved for IP3 usage only.	24 hours
SR 3.8.3.2	Verify DG fuel oil storage tanks contain: a. Usable fuel oil volume ≥ 5365 gal in each storage tank when in MODES 1, 2, 3 and 4; and b. Total combined usable fuel oil volume ≥ 5365 gal in any DG fuel oil storage tank(s) that are associated with the operable DG(s) when in MODES 5 and 6 and during movement of irradiated fuel assemblies.	31 days
SR 3.8.3.3	Verify that fuel oil properties of new and stored fuel oil in the DG fuel oil storage tanks are tested and maintained in accordance with the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.4	-------------------NOTE------------------- Only required in MODES 1, 2, 3 and 4. --- Verify that fuel oil properties in the reserve storage tank(s) are within limits specified in the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.5	Verify each DG air start receiver pressure is ≥ 250 psig.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each DG fuel oil storage tank.	92 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources – Operating

LCO 3.8.4 The following four DC electrical power subsystems shall be OPERABLE:

Battery 31 and associated Battery Charger;
Battery 32 and associated Battery Charger;
Battery 33 and associated Battery Charger; and
Battery 34.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. DC electrical power subsystem 34 inoperable.	A.1	Declare Inverter 34 inoperable and take Required Actions specified in LCO 3.8.7, Inverters-Operating.	2 hours
B. One DC electrical power subsystem (31 or 32 or 33) inoperable.	B.1	Restore DC electrical power subsystem to OPERABLE status.	2 hours
C. Required Action and Associated Completion Time not met.	C.1	Be in MODE 3.	6 hours
	<u>AND</u>		
	C.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage on float charge is within the following limits: a. ≥ 123.5 V for batteries 31 and 32; and b. ≥ 127.8 V for batteries 33 and 34.	31 days
SR 3.8.4.2	-------------------NOTE------------------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. --- Verify each battery charger supplies its associated battery at the voltage and current adequate to demonstrate battery charger capability requirements are met.	24 months
SR 3.8.4.3	-------------------NOTES------------------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. --- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test or a modified performance discharge test.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	------------------NOTE------------------ This Surveillance shall not be performed in MODE 1, 2, 3, or 4. -- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months <u>AND</u> 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.5	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	24 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources – Shutdown

LCO 3.8.5 DC electrical power subsystems shall be OPERABLE to support the DC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems – Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required DC electrical power subsystems inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.4	Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	-------------------NOTE-------------------- The following SRs are not required to be performed: SR 3.8.4.2, SR 3.8.4.3, and SR 3.8.4.4. -- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.3 SR 3.8.4.2 SR 3.8.4.4.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for batteries 31, 32, 33 and 34 shall be within the limits of Table 3.8.6-1.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

------------------------------------NOTE------------------------------------

Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1	Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	<u>AND</u>		
	A.2	Verify battery cell parameters meet Table 3.8.6-1 Category C limits.	24 hours <u>AND</u> Once per 7 days thereafter
	<u>AND</u>		
	A.3	Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits of SR 3.8.6.3. OR One or more batteries with one or more battery cell parameters not within Category C values.	B.1	Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	31 days
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is within the following limits: a. ≥ 60°F for batteries 31, 32 and 34; and b. ≥ 35°F for battery 33.	92 days

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[(a)]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[(a)]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[(b)(c)]	≥ 1.205	≥ 1.195 AND Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature.

(c) A battery charging current of <2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters – Operating

LCO 3.8.7 Inverters 31, 32, 33 and 34 shall be OPERABLE; and
Two constant voltage transformers (CVTs) capable of supplying 120 V AC vital instrument bus (VIB) 34 shall be OPERABLE.

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

ACTIONS

--NOTE--

Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating" with any required bus de-energized.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required CVT inoperable.	A.1 Restore CVT to OPERABLE status.	30 days
B. Two required CVTs inoperable.	B.1 Restore one CVT to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One inverter inoperable.	C.1 --------NOTE-------- Only applicable to feature(s) that require power to perform the required safety function. -------------------- Declare required feature(s) supported by associated inverter inoperable when the required redundant feature(s) is inoperable.	 2 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	C.2 Restore inverter to OPERABLE status.	7 days
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	D.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.7.1	------------------ NOTE ------------------ Frequency verification not required to be performed for inverter 34. -- Verify correct inverter voltage, frequency, and alignment to required 120V AC vital instrument buses.	7 days
SR 3.8.7.2	Verify manual transfer of the AC power source for VIB 34 from inverter 34 to each required CVT.	24 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters – Shutdown

LCO 3.8.8 Inverters shall be OPERABLE to support the onsite 120 V AC vital instrument bus (VIB) electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems – Shutdown."

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2.4	Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	------------------ NOTE ------------------ Frequency verification not required to be performed for inverter 34. -- Verify correct inverter voltage, frequency, and alignments to required 120 V AC vital instrument buses.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9 AC, DC, and 120 V AC vital instrument bus VIB electrical power distribution subsystems for safeguards power trains 5A, 6A and 2A/3A shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One AC electrical power distribution subsystem inoperable with no loss of safety function.	A.1	Restore AC electrical power distribution subsystem to OPERABLE status.	8 hours __AND__ 16 hours from discovery of failure to meet LCO
B. One VIB inoperable with no loss of safety function.	B.1	Restore VIB to OPERABLE status.	2 hours __AND__ 16 hours from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One DC electrical power distribution subsystem inoperable with no loss of safety function.	C.1 Restore DC electrical power distribution subsystem to OPERABLE status.	2 hours AND 16 hours from discovery of failure to meet LCO
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours
E. One or more trains with inoperable distribution subsystems that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and VIB electrical power distribution subsystems.	7 days

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems – Shutdown

LCO 3.8.10 The necessary portion of AC, DC, and 120 V AC vital instrument bus (VIB) electrical power distribution subsystems shall be OPERABLE to support equipment required to be OPERABLE.

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital instrument bus electrical power distribution subsystems inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	<u>OR</u>	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	<u>AND</u>	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate actions to restore required AC, DC, and AC vital instrument bus electrical power distribution subsystems to OPERABLE status.	Immediately
	<u>AND</u>	
	A.2.5 Declare associated required residual heat removal subsystem(s) inoperable and not in operation.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.10.1	Verify correct breaker alignments and voltage to required AC, DC, and 120 V AC vital instrument bus (VIB) electrical power distribution subsystems.	7 days

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

LCO 3.9.1 Boron concentrations of the Reactor Coolant System and the refueling cavity shall be maintained within the limit specified in the COLR.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boron concentration not within limit.	A.1 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	A.2 Suspend positive reactivity additions.	Immediately
	<u>AND</u>	
	A.3 Initiate action to restore boron concentration to within limit.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.9.1.1 Verify boron concentration is within the limit specified in COLR.	72 hours

3.9 REFUELING OPERATIONS

3.9.2 Nuclear Instrumentation

LCO 3.9.2 Two source range neutron flux monitors shall be OPERABLE.

APPLICABILITY: MODE 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required source range neutron flux monitor inoperable.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend positive reactivity additions.	Immediately
B. Two required source range neutron flux monitors inoperable.	B.1	Initiate action to restore one source range neutron flux monitor to OPERABLE status.	Immediately
	<u>AND</u>		
	B.2	Perform SR 3.9.1.1.	Once per 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.9.2.2	------------------NOTE------------------ Neutron detectors are excluded from CHANNEL CALIBRATION. -- Perform CHANNEL CALIBRATION.	24 months

3.9 REFUELING OPERATIONS

3.9.3 Containment Penetrations

LCO 3.9.3 The containment penetrations shall be in the following status:

a. The equipment hatch closed and held in place by at least four bolts or the equipment hatch opening is closed using an equipment hatch closure plate that may include a closed personnel access door;

b. One door in each air lock closed;

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:

1. closed by a manual or automatic isolation valve, a blind flange, or equivalent, or

2. capable of being closed by OPERABLE Containment Purge and Pressure Relief Isolation System.

-------------------------NOTE-------------------------
LCO 3.9.3.d and LCO 3.9.3.e are not required to be met if the reactor has been subcritical for $\geq$ 550 hours.
----

d. The Containment Purge System flow path shall be either:

1. closed by a manual or automatic isolation valve, a blind flange, or equivalent, or

2. aligned to discharge through the HEPA filters and charcoal adsorbers.

e. The Containment Pressure Relief Line shall be closed by a manual or automatic isolation valve, a blind flange, or equivalent.

APPLICABILITY: During CORE ALTERATIONS,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more containment penetrations not in required status.	A.1	Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>		
	A.2	Suspend movement of irradiated fuel assemblies within containment.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.3.1	Verify each required containment penetration is in the required status.	7 days
SR 3.9.3.2	------------------------------NOTE------------------------------ Not required to be met if the reactor has been subcritical for ≥ 550 hours. -- Verify Containment Purge System is either: a. closed by a manual or automatic isolation valve, blind flange, or equivalent, or b. aligned to discharge through the HEPA filters and charcoal adsorbers.	7 days
SR 3.9.3.3	Verify each required containment purge system valve actuates to the isolation position on an actual or simulated actuation signal.	92 days
SR 3.9.3.4	------------------------------NOTE------------------------------ Not required to be met if the reactor has been subcritical for ≥ 550 hours. -- Perform required Containment Purge System filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP

3.9 REFUELING OPERATIONS

3.9.4 Residual Heat Removal (RHR) and Coolant Circulation – High Water Level

LCO 3.9.4 One RHR loop shall be OPERABLE and in operation.

-----------------------------NOTE-----------------------------
The required RHR loop may not be in operation for ≤ 1 hour per 8 hour period, provided no operations are permitted that would cause reduction of the Reactor Coolant System boron concentration.

APPLICABILITY: MODE 6 with the water level ≥ 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. RHR loop requirements not met.	A.1	Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	<u>AND</u>		
	A.2	Suspend loading irradiated fuel assemblies in the core.	Immediately
	<u>AND</u>		
	A.3	Initiate action to satisfy RHR loop requirements.	Immediately
	<u>AND</u>		
			(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.4	Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.4.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 1000 gpm.	12 hours

3.9 REFUELING OPERATIONS

3.9.5 Residual Heat Removal (RHR) and Coolant Circulation – Low Water Level

LCO 3.9.5 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Less than the required number of RHR loops OPERABLE.	A.1 Initiate action to restore required RHR loops to OPERABLE status.	Immediately
	<u>OR</u>	
	A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately
B. No RHR loop in operation.	B.1 Suspend operations involving a reduction in reactor coolant boron concentration.	Immediately
	<u>AND</u>	
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.2	Initiate action to restore one RHR loop to operation.	Immediately
	AND		
	B.3	Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.5.1	Verify one RHR loop is in operation and circulating reactor coolant at a flow rate of ≥ 1000 gpm.	12 hours
SR 3.9.5.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days

3.9 REFUELING OPERATIONS

3.9.6 Refueling Cavity Water Level

LCO 3.9.6 Refueling cavity water level shall be maintained ≥ 23 ft above the top of reactor vessel flange.

APPLICABILITY: During CORE ALTERATIONS, except during latching and unlatching of control rod drive shafts,
During movement of irradiated fuel assemblies within containment.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Refueling cavity water level not within limit.	A.1 Suspend CORE ALTERATIONS. AND A.2 Suspend movement of irradiated fuel assemblies within containment.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.6.1	Verify refueling cavity water level is ≥ 23 ft above the top of reactor vessel flange.	24 hours

4.0 DESIGN FEATURES

4.1 Site Location

Indian Point 3 is located on the east bank of the Hudson River at Indian Point, Village of Buchanan, in upper Westchester County, New York. The site is approximately 24 miles north of the New York City boundary line. The nearest city is Peekskill which is 2.5 miles northeast of Indian Point.

The minimum distance from the reactor center line to the boundary of the site exclusion area and the outer boundary of the low population zone as defined in 10 CFR 100.3 is 350 meters and 1100 meters, respectively.

4.2 Reactor Core

4.2.1 Fuel Assemblies

The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of Zircalloy or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Reload fuel will have a U-235 enrichment of ≤ 5.0 weight percent. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

4.2.2 Control Rod Assemblies

The reactor core shall contain 53 control rod assemblies. The control material shall be silver indium cadmium, as approved by the NRC.

(continued)

4.0 DESIGN FEATURES (continued)

4.3 Fuel Storage

4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. $k_{eff} \leq 0.95$ if assemblies are inserted in accordance with Technical Specification 3.7.16, Spent Fuel Assembly Storage.

c. A nominal 9.075 inch center to center distance between fuel assemblies placed in the high density fuel storage racks (Region II);

d. A nominal 10.76 inch center to center distance between fuel assemblies placed in low density fuel storage racks (Region I);

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. $k_{eff} \leq 0.95$ under all possible moderation conditions (Credit may be taken for burnable integral neutron absorbers);

c. A nominal 20.5 inch center to center distance between fuel assemblies placed in the storage racks.

4.3.2 Drainage

The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below a nominal elevation of 88 ft.

(continued)

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

4.3.3 Capacity

The spent fuel pit is designed and shall be maintained with a storage capacity limited to no more than 1345 fuel assemblies.

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibility

5.1.1 The plant manager shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

The plant manager or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety.

5.1.2 The shift supervisor (SS) shall be responsible for the control room command function. During any absence of the SS from the control room while the unit is in MODE 1, 2, 3, or 4, an individual with an active Senior Reactor Operator (SRO) license shall be designated to assume the control room command function. During any absence of the SS from the control room while the unit is in MODE 5 or 6, an individual with an active SRO license or Reactor Operator license shall be designated to assume the control room command function.

5.0 ADMINISTRATIVE CONTROLS

5.2 Organization

5.2.1 Onsite and Offsite Organizations

Onsite and offsite organizations shall be established for unit operation and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting safety of the nuclear power plant.

a. Lines of authority, responsibility, and communication shall be defined and established throughout highest management levels, intermediate levels, and all operating organization positions. These relationships shall be documented and updated, as appropriate, in organization charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements, including the plant specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications, shall be documented in the FSAR and Quality Assurance Plan, as appropriate;

b. The plant manager shall be responsible for overall safe operation of the plant and shall have control over those onsite activities necessary for safe operation and maintenance of the plant;

c. The corporate officer with direct responsibility for the plant shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure nuclear safety; and

d. The individuals who train the operating staff, carry out health physics, or perform quality assurance functions may report to the appropriate onsite manager; however, these individuals shall have sufficient organizational freedom to ensure their independence from operating pressures.

(continued)

5.2 Organization

5.2.2 Unit Staff

The unit staff organization shall include the following:

a. A non-licensed operator shall be assigned to each reactor containing fuel and an additional non-licensed operator shall be assigned for each control room from which a reactor is operating in MODES 1, 2, 3, or 4.

b. At least one licensed Reactor Operator (RO) shall be present in the control room when fuel is in the reactor. In addition, while the unit is in MODE 1, 2, 3, or 4, at least one licensed Senior Reactor Operator (SRO) shall be present in the control room.

c. Shift crew composition may be less than the minimum requirement of 10 CFR 50.54(m)(2)(i) and 5.2.2.a and 5.2.2.g for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements.

d. A radiation protection technician shall be on site when fuel is in the reactor. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.

e. Administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform safety related functions (e.g., licensed SROs, licensed ROs, radiation protection technician, auxiliary operators, and key maintenance personnel).

   Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work an 8 or 12 hour day, nominal 40 hour week while the unit is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance, or major plant modification, on a temporary basis the following guidelines shall be followed:

(continued)

5.2 Organization

5.2.2 Unit Staff (continued)

1. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time;

2. An individual should not be permitted to work more than 16 hours in any 24 hour period, nor more than 24 hours in any 48 hour period, nor more than 72 hours in any 7 day period, all excluding shift turnover time;

3. A break of at least 8 hours should be allowed between work periods, shift turnover can be included in the break;

4. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

Any deviation from the above guidelines shall be authorized in advance by the plant manager or his designee, in accordance with approved administrative procedures, or by higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation.

Controls shall be included in the procedures such that individual overtime shall be reviewed periodically by the plant manager or his designee to ensure that excessive hours have not been assigned. Routine deviation from the above guidelines is not authorized.

f. The operations manager or assistant operations manager shall hold an SRO license.

g. The Shift Technical Advisor (STA) shall provide advisory technical support to the Shift Supervisor (SS) in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit. In addition, the STA shall meet the qualifications specified by the Commission Policy Statement on Engineering Expertise on Shift. The STA position must be manned in Mode 1, 2, 3 or 4 only.

5.0 ADMINISTRATIVE CONTROLS

5.3 Unit Staff Qualifications

5.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions, except for the following:

a. The radiation protection manager shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975; and

b. The operations manager shall meet or exceed the minimum qualifications of ANSI N18.1-1971 except for the SRO license requirement which shall be in accordance with Technical Specification 5.2.2.f.

5.0 ADMINISTRATIVE CONTROLS

5.4 Procedures

5.4.1 Written procedures shall be established, implemented, and maintained covering the following activities:

a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 0, Appendix A, November 1972;

b. The emergency operating procedures required to implement the requirements of NUREG-0737 and to NUREG-0737, Supplement 1, as stated in Generic Letter 82-33;

c. Quality assurance for effluent and environmental monitoring;

d. Fire Protection Program implementation; and

e. All programs specified in Specification 5.5.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.5.1 Offsite Dose Calculation Manual (ODCM)

a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and

b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.2 and Specification 5.6.3.

c. Licensee initiated changes to the ODCM:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

   (a) Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

   (b) A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

2. Shall become effective after the approval of the plant manager; and

3. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report

(continued)

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the following:

a. Residual Heat Removal System;

b. Cross Connect Between Low Head Recirculation System and High Head Safety Injection System;

c. High Head Safety Injection system (partial);

d. Reactor Coolant Sampling System;

e. Post Accident Containment Air Sampling System;

f. Volume Control Tank (including Reactor Coolant Pump seal return line);

g. Containment Hydrogen Monitoring system.

The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at refueling cycle intervals or less.

(continued)

5.5 Programs and Manuals

5.5.3 Post Accident Sampling

This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents and containment atmosphere samples under accident conditions.

The program shall include the following:

a. Training of personnel;

b. Procedures for sampling and analysis; and

c. Provisions for maintenance of sampling and analysis equipment.

5.5.4 Radioactive Effluent Controls Program

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;

b. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to 10 times the concentration values in 10 CFR 20, Appendix B, Table 2, Column 2;

c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I;

e. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;

f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;

g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary shall be limited to the following:

   a. For noble gases: Less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and

   b. For iodine-131, tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to dose rate of 1500 mrems/yr to any organ.

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR, Section 4.1.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Reactor Coolant Pump Flywheel Inspection Program

This program shall provide for the inspection of each reactor coolant pump flywheel. The program shall include inspection frequencies and acceptance criteria. The inspection frequency will ensure that each reactor coolant pump flywheel is surface and volumetrically inspected within 10 years after a flywheel is placed in service following inspection.

(continued)

5.5 Programs and Manuals

5.5.7 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports. The program shall include the following:

a. Testing frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

(continued)

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Tube Surveillance Program

This program provides controls for the inservice inspection of SG tubes to assure the continued integrity of the Reactor Coolant System pressure boundary and shall include the following:

a. SG Selection and SG Tube Sample Size

The minimum sample size shall be in conformance with the requirements specified in Table 5.5-1. Selection and testing of steam generator tubes shall be made on the following basis:

1. At the first inservice inspection subsequent to the pre-service inspection, six percent of the tubes in each of two steam generators shall be inspected as a minimum.

2. At the second inservice inspection subsequent to the pre-service inspection, twelve percent of the tubes in one of the two steam generators not inspected during the first inservice inspection shall be inspected as a minimum.

3. At the third inservice inspection subsequent to the pre-service inspection, twelve percent of the tubes in the steam generator not inspected during the first two inservice inspections shall be inspected as a minimum.

4. Fourth and subsequent inservice inspections may be limited to one steam generator on a rotating schedule encompassing 12% of the tubes if the results of the first or previous inspections indicate that all steam generators are performing in like manner. 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 sequences should be modified to inspect the steam generator with the most severe conditions.

5. Unscheduled inspections should be conducted on the affected steam generator(s) in accordance with the first sample

(continued)

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Tube Surveillance Program (continued)

inspection specified in Table 5.5-1 in the event of primary-to-secondary tube leaks (not including leaks originated from tube-to-tube sheet welds) exceeding technical specifications, a seismic occurrence greater than an operating basis earthquake, a loss-of-coolant accident requiring actuation of engineered safeguards, or a major steam line or feedwater line break.

b. SG Tube Selection Criteria

1. Tubes for the inspection should be selected on a random basis except where experience in similar plants with similar water chemistry indicates critical areas to be inspected.

2. The first sample inspection subsequent to the pre-service inspection should include all non-plugged tubes that previously had detectable wall penetration (> 20%) and should also include tubes in those areas where experience has indicated potential problems.

3. The second and third sample inspections in Table 5.5-1 may be limited to the partial tube inspection only, concentrating on tubes in the areas of the tube sheet array and on the portion of the tube where tubes with imperfections were found.

4. In all inspections, previously degraded tubes must exhibit significant (>10%) further wall penetration to be included in the percentage calculation for the result categories in Table 5.5-1.

c. Inspection FREQUENCY

1. Inservice inspections should be not less than 12 or more than 24 calendar months after the previous inspection.

(continued)

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Tube Surveillance Program (continued)

2. If the results of two consecutive inspections, not including the preservice inspection, all fall into the C-1 category, the frequency of inspection may be extended to 40-month intervals. Also, if it can be demonstrated through two consecutive inspections that previously observed degradation has not continued and no additional degradation has occurred, a 40-month inspection interval may be initiated.

3. SR 3.0.2 is applicable to the Steam Generator Tube Surveillance Program test frequencies.

d. Classification of Test Results

1. Definitions:

Imperfection is an exception to the dimension, finish, or contour required by drawing or specification.

Degradation means a service-induced cracking, wastage, wear or corrosion.

Degraded Tube is a tube that contains imperfections caused by degradation large enough to be reliably detected by eddy current inspection. This is considered to be 20% degradation.

% Degradation is an estimate % of the tube wall thickness affected or removed by degradation.

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

(continued)

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Tube Surveillance Program (continued)

Tube Plugging Limit is the tube imperfection depth at or beyond which the tube must either be removed from service or repaired. This is considered to be an imperfection depth of 40%.

Sleeve Plugging Limit is the sleeve imperfection depth at or beyond which the sleeved tube must be removed from service or repaired. This is considered to be an imperfection depth of 40% for tube sleeves.

Tube Inspection is a full length inspection for the initial 3% sample specified in Table 5.5-1. Supplemental sample inspections (after the initial 3% sample) may be limited to a partial length inspection concentrating on those locations where degradation has been found.

2. Results Classifications

The results of each sampling examination of a steam generator shall be classified into the following three categories:

Category C-1: Less than 5% of the total tubes inspected are degraded tubes and none are defective.

Category C-2: One or more but not more than 1% of the total tubes inspected are defective or between 5 and 10% of the tubes inspected are degraded tubes.

Category C-3: More than 10% of the total tubes inspected are degraded or more than 1% of the tubes inspected are defective.

e. Corrective Action

1. The inspection result classification and the corresponding required action are specified in Table 5.5-1.

(continued)

5.5 Programs and Manuals

5.5.8 Steam Generator (SG) Tube Surveillance Program (continued)

2. All leaking tubes and defective tubes should be plugged or repaired.

3. Results of steam generator tube inspections which fall into Category C-3 of Table 5.5-1 require notification of the NRC within 15 days of this determination.

4. NRC approval prior to startup is required when SG Tube Inspections identify Category C-3 degradation or defects in more than one SG.

(continued)

5.5 Programs and Manuals

TABLE 5.5-1 (page 1 of 2)
STEAM GENERATOR TUBE INSPECTION

<table>
<tr><th colspan="2">First Sample</th><th colspan="2">Second Sample</th><th colspan="2">Third Sample</th></tr>
<tr><th>Result</th><th>Required Action</th><th>Result</th><th>Required Action</th><th>Result</th><th>Required Action</th></tr>
<tr><td>C-1</td><td>Acceptable for Service</td><td>C-1</td><td>Acceptable for Service</td><td>C-1</td><td>Acceptable for Service</td></tr>
<tr><td rowspan="5">C-2</td><td rowspan="5">Plug or Repair defective tubes

AND

Inspect additional 2S tubes in this SG</td><td>C-1</td><td>Acceptable for Service</td><td>N/A</td><td>N/A</td></tr>
<tr><td rowspan="3">C-2</td><td rowspan="3">Plug or Repair defective tubes

AND

Inspect additional 4S tubes in this SG</td><td>C-1</td><td>Acceptable for Service</td></tr>
<tr><td>C-2</td><td>Plug or Repair defective tubes

AND

Acceptable for Service</td></tr>
<tr><td>C-3</td><td>Inspect all tubes in this SG

AND

Plug or Repair defective tubes

AND

Inspect 2S tubes in each other SG</td></tr>
<tr><td>C-3</td><td>Inspect all tubes in this SG

AND

Plug or Repair defective tubes

AND

Inspect 2S tubes in each other SG</td><td>N/A</td><td>N/A</td></tr>
</table>

(continued)

5.5 Programs and Manuals

TABLE 5.5-1 (page 2 of 2)
STEAM GENERATOR TUBE INSPECTION

First Sample		Second Sample		Third Sample	
Result	Required Action	Result	Required Action	Result	Required Action
C-3	Inspect all tubes in this SG AND Plug or Repair defective tubes AND Inspect 2S tubes in each other SG	All other SGs C-1	Acceptable for Service	N/A	
		Some SGs C-2 AND No other SG C-3	Plug or Repair defective tubes AND Inspect additional 4S tubes in this SG		
		Other SG C-3	Inspect all tubes in all SGs. AND Plug or Repair defective tubes AND Report and NRC Approval required prior to startup		

Sample Size shall consist of a minimum of S tubes per Steam Generator (SG)

$S=3(N/n)\%$

where:

N is the number of steam generators in the plant

n is the number of steam generators inspected during an examination

Result Classifications (C-1, C-2 and C-3) are defined in Section 5.5.8.d.

(continued)

5.5 Programs and Manuals

5.5.9 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the condenser hot wells for evidence of condenser in leakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

(continued)

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP)

This program provides controls for implementation of required testing the ventilation filter function for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, Containment Fan Cooler Units, and Containment Purge System.

Applicable tests described in Specifications 5.5.10.a, 5.5.10.b, 5.5.10.c and 5.5.10.d shall be performed:

1) After 720 hours of charcoal adsorber use since the last test; and,

2) Every 24 months for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, and Containment Fan Cooler Units; and,

3) Every 18 months for the Containment Purge System; and,

4) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; and,

5) After any structural maintenance on the system housing that could alter system integrity; and,

6) After significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

SR 3.0.2 is applicable to the Ventilation Filter Testing Program.

(continued)

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP) (continued)

a. Demonstrate for each system that an inplace test of the high efficiency particulate air (HEPA) filters shows the specified penetration and system bypass leakage when tested in accordance with the referenced standard at the flowrate specified below.

Ventilation System	Removal Efficiency	Flowrate (cfm)	Reference Standard
Fuel Storage Building Emergency Ventilation System	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.c
Control Room Ventilation System	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.c
Containment Fan Cooler Units	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.c
Containment Purge System	≥ 99%	90% to 110% of design operating rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.c

(continued)

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP) (continued)

b. Demonstrate for each system that an inplace test of the charcoal adsorber shows the specified penetration and system bypass leakage when tested in accordance with the referenced standard at the flowrate specified below.

Ventilation System	Removal Efficiency	Flowrate (cfm)	Reference Standard
Fuel Storage Building Emergency Ventilation System	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.d
Control Room Ventilation System	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.d
Containment Fan Cooler Units	≥ 99%	80% to 120% of design accident rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.d
Containment Purge System	≥ 99%	90% to 110% of design operating rate	Regulatory Guide 1.52, Rev 2, Sections C.5.a and C.5.d

(continued)

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP) (continued)

c. Demonstrate for each system that a laboratory test of a sample of the charcoal adsorber shows the methyl iodide removal efficiency specified below when tested at the conditions specified below.

Ventilation System	Methyl iodide removal efficiency (%):	Methyl iodide inlet concentration (mg/m^3):	Flow velocity equivalent to following flow rate (cfm):	Temperature (degrees F):	Relative Humidity (%):
Fuel Storage Building Emergency Ventilation System	≥ 90	0.05 to 0.15	80% to 120% of design accident rate	≥ 125	≥ 95
Control Room Ventilation System	≥ 90	0.05 to 0.15	80% to 120% of design accident rate	≥ 125	≥ 95
Containment Fan Cooler Units	≥ 85	5 to 15	80% to 120% of design accident rate	≥ 250	≥ 95
Containment Purge System	≥ 90	*	80% to 120% of design operating rate	*	*

* Per test 5.b in Table 2 of Regulatory Guide 1.52, March 1978.

(continued)

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP) (continued)

d. Demonstrate for each system that the pressure drop across the combined HEPA filters, the demisters and prefilters (if installed), and the charcoal adsorbers is less than the value specified below when tested at the flowrate specified below.

Ventilation System	Delta P (inches wg)	Flowrate (cfm):
Fuel Storage Building Emergency Ventilation System	6	≥ 90% of design accident rate
Control Room Ventilation System	6	≥ 90% of design accident rate
Containment Fan Cooler Units	6	≥ 90% of design accident rate

(continued)

5.5 Programs and Manuals

5.5.11 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Waste Gas Holdup System, the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The quantities of radioactivity in gas and liquid radwaste storage tanks shall be determined in accordance with methodology and parameters specified in the ODCM.

The program shall include:

a. The limits for concentrations of hydrogen and oxygen in the Waste Gas Holdup System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion);

b. A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 50,000 curies noble gases (considered as DOSE EQUIVALENT Xe-133); and

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

(continued)

5.5 Programs and Manuals

5.5.12 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established for the DG fuel oil onsite storage tanks and the DG reserve fuel oil storage tanks. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Verification of the acceptability of new fuel oil for use prior to addition to the DG fuel oil onsite storage tanks by determining that the fuel oil has:

1. Relative density within the limits of 0.83 to 0.89,

2. kinematic viscosity within the limits of 1.8 to 5.8, and

3. a clear and bright appearance with proper color

b1. Verification of the acceptability of the fuel oil in the onsite storage tanks and the reserve storage tanks every 92 days by verifying that the properties of the fuel oil in the tanks, other than those addressed in item a., are within limits for ASTM2D fuel oil. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required.

or

b2. Verification of the acceptability of each new fuel addition made subsequent to the last verification made in accordance with item b1. by verifying within 31 days following the addition that the properties of the new fuel oil, other than those properties addressed in item a. are within limits for ASTM 2D fuel oil.

c. Verification every 92 days that total particulate concentration of the fuel oil in the onsite and reserve storage tanks is less than or equal to 10 mg/l when tested in accordance with ASTM D-2276, Method A-2 or A-3. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required.

(continued)

5.5 Programs and Manuals

5.5.12 Diesel Fuel Oil Testing Program (continued)

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies.

5.5.13 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

   1. a change in the TS incorporated in the license; or

   2. a change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that do not meet the criteria of Specification 5.5.13.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.14 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

(continued)

5.5 Programs and Manuals

5.5.14 Safety Function Determination Program (SFDP) (continued)

a. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to the support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

(continued)

5.5 Programs and Manuals

5.5.15 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, dated September 1995" as modified by the following exception:

> ANS 56.8-1994, Section 3.3.1: WCCPPS isolation valves are not Type C tested.

The maximum allowable primary containment leakage rate, L_a, at a minimum test pressure equal to P_a, shall be 0.1% of primary containment air weight per day. P_a is the peak calculated containment internal pressure related to the design basis accident.

Leakage acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and C tests and $\leq 0.75\ L_a$ for Type A tests;

b. Air lock testing acceptance criteria are:

 1) Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$,

 2) For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq P_a$,

c. Isolation Valve Seal Water System leakage rate acceptance criterion is $\leq$ 14,700 cc/hr at $\geq 1.1\ P_a$.

d. Acceptance criterion for leakage into containment from isolation valves sealed with the service water system is $\leq$ 0.36 gpm per fan cooler unit when pressurized at $\geq 1.1\ P_a$. This limit protects the internal recirculation pumps from flooding during the 12-month period of post accident recirculation.

(continued)

5.5 Programs and Manuals

5.5.15 Containment Leakage Rate Testing Program (continued)

The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10CFR50, Appendix J.

The peak calculated containment internal pressure for the design basis main steam line break, Pa, is 42.40 psig. The minimum test pressure is 42.42 psig.

The maximum allowable primary containment leakage rate, La, at Pa, shall be 0.1% of primary containment air weight per day.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Occupational Radiation Exposure Report

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors), for whom monitoring was performed, receiving an annual deep dose equivalent ≥ 100 mrems and the associated collective deep dose equivalent (reported in person - rem) according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance, waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignments to various duty functions may be estimated based on pocket ionization chamber, thermoluminescence dosimeter (TLD), electronic dosimeter, or film badge measurements. Small exposures totaling < 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total deep dose equivalent received from external sources should be assigned to specific major work functions. The report covering the previous calendar year shall be submitted by April 30 of each year.

5.6.2 Annual Radiological Environmental Operating Report

---------------------------------NOTE---------------------------------
A single submittal may be made for a multiple unit station. The submittal should combine sections common to all units at the station.

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the radiological environmental monitoring program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

(continued)

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

A full listing of the information to be contained in the Annual Radiological Environmental Operating Report is provided in the ODCM.

5.6.3 Radioactive Effluent Release Report

-----------------------------------NOTE-----------------------------

A single submittal may be made for a multiple unit station. The submittal shall combine sections common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

The Radioactive Effluent Release Report covering the operation of the unit in the previous year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR Part 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the pressurizer power operated relief valves or pressurizer safety valves, shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

1. Specification 3.1.1, SHUTDOWN MARGIN;
2. Specification 3.1.3, Moderator Temperature Coefficient;
3. Specification 3.1.5, Shutdown Bank Insertion Limits;
4. Specification 3.1.6, Control Bank Insertion Limits;
5. Specification 3.2.1, Heat Flux Hot Channel Factor ($F_Q(Z)$);
6. Specification 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor ($F^N_{\Delta H}$);
7. Specification 3.2.3, AXIAL FLUX DIFFERENCE (AFD); and
8. Specification 3.9.1, Boron Concentration.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July 1985 (W Proprietary). (Specifications 3.1.5, Shutdown Bank Insertion Limits, 3.1.6, Control Bank Insertion Limits, and 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor);

2a. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES, TOPICAL REPORT," September 1974 (W Proprietary). (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control);

2b. T. M. Anderson to K. Kneil (Chief of Core Performance Branch, NRC) January 31, 1980 -- Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package. (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control));

2c. NUREG-0800, Standard Review Plan, U.S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981. Branch

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981. (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control));

3a. WCAP-9220-P-A, Rev. 1, "WESTINGHOUSE ECCS EVALUATION MODEL-1981 VERSION," February 1982 (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3b. WCAP-9561-P-A ADD. 3, Rev. 1, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS, SPECIAL REPORT: THIMBLE MODELING W ECCS EVALUATION MODEL," July 1986 (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3c. WCAP-10266-P-A Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE," March 1987, (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3d. WCAP-10054-P-A, "SMALL BREAK ECCS EVALUATION MODEL USING NOTRUMP CODE," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z));

3e. WCAP-10079-P-A, "NOTRUMP NODAL TRANSIENT SMALL BREAK AND GENERAL NETWORK CODE," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z))); and

3f. WCAP-12610, "VANTAGE+ Fuel Assembly Report," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor).

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided for each reload cycle to the NRC.

5.6.6 NOT USED

(continued)

5.6 Reporting Requirements

5.6.7 Post Accident Monitoring Instrumentation (PAM) Report

When a report is required by LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the next 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6.8 Steam Generator Tube Inspection Report

The number of tubes plugged or repaired in each steam generator during each inservice inspection of steam generator tubes shall be reported to the Commission within 15 days following the inspection.

Complete results of the steam generator tube inservice inspections shall be reported in writing on an annual basis for the period in which the inspection was completed per Specification 5.5.8. This report shall include:

a. Number and extent of tubes inspected.

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

c. Identification of the tubes plugged and the tubes repaired.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., radiation protection technicians) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates < 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the radiation protection manager in the RWP.

(continued)

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the shift supervisor on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.