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1.0 USE AND APPLICATION

1.0.1 General Description

Changes to the technical specifications may result in relocating various technical specification items to the UFSAR. This maintains control of the relocated items and allows changing these requirements in accordance with the provisions of 10 CFR 50.59 without the need to process a license amendment request. Items relocated from the technical specifications and other applicable licensing requirements associated with the operation of structures, systems and components are to be included in Section 16A of the UFSAR and are maintained in the LICENSING REQUIREMENTS MANUAL (LRM). Because the information removed from the Technical Specifications is considered relocated to the UFSAR, this information is explicitly "incorporated by reference" into the UFSAR when it is placed into the LRM. For information incorporated by reference, the information must be publicly available and is subject to the update and reporting requirements of 10 CFR 50.71(e) in addition to other change controls (e.g., 10 CFR 50.59 and 10 CFR 50.54(a)).

Other information placed into the LRM by BVPS that was previously not located within the Technical Specifications is not considered part of the UFSAR and is not considered "incorporated by reference." This type of criteria in the LRM is self-imposed by the station and is included in the LRM for consistency with the other type of information included in the LRM and for the convenience of the station for the type of control offered by the LRM document. This self-imposed information is subject to the requirements of 10 CFR 50.59; however, it is not subject to the requirements of 10 CFR 50.71(e). Other self-imposed information is listed in Section A below and is not listed in UFSAR Section 16A.

A. Information Not Incorporated by Reference from the UFSAR

NONE

1.0 USE AND APPLICATION

1.0.2 LRM Revisions

Modifications to the content of the LRM (including information such as the tables and reports referenced by the Technical Specifications) shall be processed in accordance with the provisions of 10 CFR 50.59 as set forth in administrative procedures.

1.0 USE AND APPLICATION

1.1 Definitions

a) The defined terms contained in the Technical Specifications (TS) Section 1.1, "Definitions" apply to the requirements contained in the Licensing Requirements Manual (LRM). In the LRM, defined terms are shown in all capital letters, consistent with their use in the Technical Specifications. Definitions specific to the LRM are defined as follows:

Term	Definition
----------------------------- - NOTE - Some components in the LRM have both LRM and TS functions and requirements. Such components are required by the LRM to be FUNCTIONAL, and are also required by TSs to be OPERABLE. In these cases, if a component is OPERABLE, it will be functional; however, if it is FUNCTIONAL, it may not be OPERABLE. -----------------------------	
FUNCTIONAL - FUNCTIONALITY	A structure, system or component (SSC), shall be FUNCTIONAL or have FUNCTIONALITY when it is capable of performing its specified function(s) as set forth in the Current License Basis. FUNCTIONALITY does not apply to specified safety functions, but does apply to the ability of non-TS SSCs to perform other specified functions that have a necessary support function.

b) The value of RATED THERMAL POWER, as defined in Technical Specification Section 1.1, is 2900 MWt.

1.0 USE AND APPLICATION

1.2 Logical Connectors

The explanation of the use of Logical Connectors contained in Technical Specification Section 1.2, "Logical Connectors" applies to the requirements contained in the LRM. Logical Connectors in the LRM are applied in the same manner as in the Technical Specifications.

1.0 USE AND APPLICATION

1.3 Completion Times

The explanation of the use of Action Completion Times contained in Technical Specification Section 1.3, "Completion Times" applies to the requirements contained in the LRM. Action Completion Times in the LRM are applied in the same manner as in the Technical Specifications.

1.0 USE AND APPLICATION

1.4 Frequency

The explanation of the use of surveillance Frequencies contained in Technical Specification Section 1.4, "Frequency" applies to the Licensing Requirement Surveillances contained in the LRM. Surveillance Frequencies in the LRM are applied in the same manner as in the Technical Specifications.

3.0 LICENSING REQUIREMENT (LR) APPLICABILITY

LR 3.0.1 LRs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LR 3.0.2 and LR 3.0.6.

LR 3.0.2 Upon discovery of a failure to meet an LR, the Required Actions of the associated Conditions shall be met, except as provided in LR 3.0.4.

If the LR 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.

LR 3.0.3 When an LR and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, action shall be initiated immediately to communicate the situation to the Shift Manager and document the condition in accordance with the FENOC Corrective Action Program. The safety significance of the condition shall be evaluated per NOP-OP-1009 “Operability Determinations and Functionality Assessments” and appropriate corrective actions initiated, within the time frame determined by the Shift Manager that shall not exceed 48 hours from the time of entry into LR 3.0.3. The time frame for completion of the corrective actions shall be commensurate with the safety significance of the condition, consistent with the guidance of NOP-OP-1009.

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

LR 3.0.4 Equipment removed from service or declared inoperable/Nonfunctional to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY/FUNCTIONALITY or the OPERABILITY/FUNCTIONALITY of other equipment. This is an exception to LR 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY/FUNCTIONALITY.

3.0 LR Applicability (continued)

LR 3.0.5	Requirements are specified in the LRM that are referenced from the Technical Specifications. These requirements include the information contained in tables, reports, and figures (e.g., Instrumentation Response Times and the COLR). Although these requirements are contained in the LRM, they are utilized by, and referenced from, the Technical Specifications. The guidance in Section 3.0 of this manual for LR Applicability does not apply to the LRM requirements referenced by the Technical Specifications. The failure to meet LRM requirements referenced by the Technical Specifications shall be controlled in accordance with the applicable Technical Specifications.
LR 3.0.6	Test Exception LR 3.1.11 allows the specified LR requirements to be changed to permit performance of special tests and operations. Unless otherwise specified, all other LR requirements remain unchanged. Compliance with Test Exception LRs is optional. When a Test Exception LR is desired to be met but is not met, the ACTIONS of the Test Exception LR shall be met. When a Test Exception LR 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 LRs.

3.0 LICENSING REQUIREMENT SURVEILLANCE (LRS) APPLICABILITY

LRS 3.0.1

LRS shall be met during the MODES or other specified conditions in the Applicability for individual LRs, unless otherwise stated in the LRS. Failure to meet an LRS, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LR. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the LR except as provided in LRS 3.0.3. LRS do not have to be performed on inoperable/Nonfunctional equipment or variables outside specified limits.

LRS 3.0.2

The specified Frequency for each LRS 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 LRS are stated in the individual Surveillances.

LRS 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 LR not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater. This delay period is permitted to allow performance of the surveillance. A risk evaluation shall be performed for any surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the surveillance is not performed within the delay period, the LR must immediately be declared not met, and the applicable ACTION(s) must be entered.

When the surveillance is performed within the delay period and the surveillance is not met, the LR must immediately be declared not met, and the applicable ACTION(s) must be entered.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.1 Boration Flow Paths - Shutdown

LR 3.1.1 One of the following boron injection flow paths shall be FUNCTIONAL:

a. A flow path from the boric acid storage system via a boric acid transfer pump to a charging pump to the Reactor Coolant System when the boric acid storage tank is required FUNCTIONAL in accordance with LR 3.1.7, or

b. The flow path from the refueling water storage tank (RWST) via a charging pump or a low head safety injection pump (with an open RCS vent of greater than or equal to 3.14 square inches) to the Reactor Coolant System when the RWST is required FUNCTIONAL in accordance with LR 3.1.7.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required flow path Nonfunctional.	A.1 Suspend all operations involving CORE ALTERATIONS or positive reactivity changes.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.1.1	Cycle each testable power operated or automatic valve in the flow path through at least one complete cycle of full travel.	7 days

LICENSING REQUIREMENT SURVEILLANCES (continued)

SURVEILLANCE		FREQUENCY
LRS 3.1.1.2	-- **- NOTE -** Only required to be met when a flow path from the boric acid storage tanks is required FUNCTIONAL and the ambient air temperature of the Auxiliary Building is < 65°F. -- Verify the temperature of the heat traced portion of the flow path is ≥ 65°F.	7 days
LRS 3.1.1.3	Verify each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.	31 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Boration Flow Paths - Operating

LR 3.1.2 Each of the following boron injection flow paths shall be FUNCTIONAL:

a. The flow path from the boric acid tanks via a boric acid transfer pump and one charging pump to the Reactor Coolant System, and

b. The flow path from the refueling water storage tank via one charging pump to the Reactor Coolant System.

- NOTES -

1. With any non-isolated RCS cold leg temperature ≤ the OPPS enable temperature specified in the PTLR, one of the required centrifugal charging pumps may be made incapable of injecting to support the requirements of LCO 3.4.12.

2. With all non-isolated RCS cold leg temperatures > the OPPS enable temperature specified in the PTLR, one of the required centrifugal charging pumps may be made incapable of injecting to support transition into or from the Applicability of LCO 3.4.12 for up to 4 hours or until the temperature of all non-isolated RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25^{o}F, whichever comes first.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Flow path from the boric acid tanks Nonfunctional.	A.1 Restore the flow path to FUNCTIONAL status.	72 hours
B. Required Action, and associated Completion Time of Condition A not met.	B.1 Apply LR 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Flow path from the refueling water storage tank Nonfunctional.	C.1	Restore the flow path to FUNCTIONAL status.	1 hour
D. Required Action and associated Completion Time of Condition C not met.	D.1	Be in MODE 3.	6 hours
	AND		
	D.2	Be in MODE 5.	36 hours

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.2.1	Cycle each testable power operated or automatic valve in the flow path through at least one complete cycle of full travel.	92 days
LRS 3.1.2.2	-- **- NOTE -** Only required to be met when the ambient air temperature of the Auxiliary Building is < 65°F. -- Verify the temperature of the heat traced portion of the flow path from the boric acid tanks is ≥ 65°F.	7 days
LRS 3.1.2.3	Verify each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.	31 days
LRS 3.1.2.4	Cycle each power operated (excluding automatic) valve in the flow path that is not testable during plant operation, through at least one complete cycle of full travel.	18 months during shutdown

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Charging Pump - Shutdown

LR 3.1.3 One of the following pumps shall be FUNCTIONAL as specified below:

a. A charging pump in the boron injection flow path required FUNCTIONAL in accordance with LR 3.1.1, or

b. A low head safety injection pump (with an open Reactor Coolant System vent of ≥ 3.14 square inches).

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required pump Nonfunctional.	A.1 Suspend all operations involving CORE ALTERATIONS or positive reactivity changes.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.3.1	The required charging pump shall be demonstrated FUNCTIONAL pursuant to Technical Specification Surveillance SR 3.5.2.4.	In Accordance with SR 3.5.2.4
LRS 3.1.3.2	The required low head safety injection pump shall be demonstrated FUNCTIONAL by: a. Verification of a FUNCTIONAL RWST pursuant to LRS 3.1.7.1 and LRS 3.1.7.3, b. Verification of a FUNCTIONAL low head safety injection pump pursuant to Technical Specification Surveillance SR 3.5.2.4, and c. Verification that the vent is open in accordance with Technical Specification Surveillance SR 3.4.12.3.	In Accordance with the applicable SRs or LRS

LICENSING REQUIREMENT SURVEILLANCES (continued)

SURVEILLANCE		FREQUENCY
LRS 3.1.3.3	-- **- NOTE -** Only required to be met when the low head safety injection pump is required FUNCTIONAL in accordance with LR 3.1.3.b. -- Verify a FUNCTIONAL low head safety injection flow path from the RWST to the Reactor Coolant System.	12 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Charging Pumps - Operating

LR 3.1.4 Two charging pumps shall be FUNCTIONAL.

- NOTES -

1. With any non-isolated RCS cold leg temperature ≤ the OPPS enable temperature specified in the PTLR, one of the required centrifugal charging pumps may be made incapable of injecting to support the requirements of LCO 3.4.12.

2. With all non-isolated RCS cold leg temperatures > the OPPS enable temperature specified in the PTLR, one of the required centrifugal charging pumps may be made incapable of injecting to support transition into or from the Applicability of LCO 3.4.12 for up to 4 hours or until the temperature of all non-isolated RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25°F, whichever comes first.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required charging pump Nonfunctional.	A.1 Restore the charging pump to FUNCTIONAL status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.4.1	Each required charging pump shall be demonstrated FUNCTIONAL pursuant to Technical Specification Surveillance SR 3.5.2.4.	In Accordance with SR 3.5.2.4

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Boric Acid Transfer Pumps - Shutdown

LR 3.1.5 One boric acid transfer pump shall be FUNCTIONAL.

APPLICABILITY: In MODES 5 and 6 when the associated flow path from the boric acid storage system is required FUNCTIONAL in accordance with LR 3.1.1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required boric acid transfer pump Nonfunctional.	A.1 Suspend all operations involving CORE ALTERATIONS or positive reactivity changes.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.5.1	The required boric acid transfer pump shall be demonstrated FUNCTIONAL by verifying, that on recirculation flow, the pump develops a differential pressure of ≥ 102 psid.	In accordance with the Inservice Testing Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Boric Acid Transfer Pumps - Operating

LR 3.1.6 One boric acid transfer pump shall be FUNCTIONAL.

APPLICABILITY: In MODES 1, 2, 3, and 4 when the associated flow path from the boric acid tanks is required FUNCTIONAL in accordance with LR 3.1.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required boric acid transfer pump Nonfunctional.	A.1 Restore the boric acid transfer pump to FUNCTIONAL status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.6.1	The required boric acid transfer pump shall be demonstrated FUNCTIONAL by verifying, that on recirculation flow, the pump develops a differential pressure of ≥ 102 psid.	In Accordance with the Inservice Testing Program

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Borated Water Sources - Shutdown

LR 3.1.7 One of the following borated water sources shall be FUNCTIONAL:

a. A boric acid storage system with:

1. A minimum contained volume of 2315 gallons,
2. Between 7000 and 7700 ppm of boron, and
3. A minimum solution temperature of 65°F.

b. The refueling water storage tank (RWST) with:

1. A minimum contained volume of 217,000 gallons,
2. A minimum boron concentration of 2400 ppm, and
3. A minimum solution temperature of 45°F.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required borated water source Nonfunctional.	A.1	Suspend all operations involving CORE ALTERATIONS or positive reactivity changes.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.7.1	-- **- NOTE -** Only required to be met when the outside ambient air temperature is < 45°F. -- Verify the required RWST temperature.	24 hours

LICENSING REQUIREMENT SURVEILLANCES (continued)

SURVEILLANCE		FREQUENCY
LRS 3.1.7.2	Verify the required boric acid storage tank solution temperature.	7 days
LRS 3.1.7.3	The required borated water source shall be demonstrated FUNCTIONAL by: a. Verifying the boron concentration of the water, and b. Verifying the water level of the tank.	7 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Borated Water Sources - Operating

LR 3.1.8 The Boric Acid Storage System shall be FUNCTIONAL as required by LR 3.1.2 with:

a. Minimum usable volume of 13,390 gallons,

b. Between 7000 and 7700 ppm of boron, and

c. A minimum solution temperature of 65°F.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Boric Acid Storage System Nonfunctional.	A.1 Restore the storage system to FUNCTIONAL status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.8.1	The Boric Acid Storage System shall be demonstrated FUNCTIONAL by: a. Verifying the boron concentration of the water, b. Verifying the water level of the tank, and c. Verifying the boric acid storage system solution temperature.	7 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.9 Rod Position Indication System - Shutdown

LR 3.1.9 One digital rod position indicator (excluding demand position indication) shall be FUNCTIONAL and capable of determining the control rod position within ± 12 steps for each shutdown or control rod not fully inserted.

APPLICABILITY: MODES 3, 4, and 5 with the reactor trip system breakers in the closed position.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required digital rod position indicator(s) Nonfunctional.	A.1 Open the reactor trip system breakers.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.9.1	Verify required digital rod position indicator(s) FUNCTIONAL in accordance with Technical Specification Surveillance SR 3.1.7.2.1.	In accordance with applicable SR.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Boron Dilution

LR 3.1.10 The flow rate of reactor coolant through the core shall be ≥ 3000 gpm.

APPLICABILITY: In all MODES when a reduction in Reactor Coolant System (RCS) boron concentration is being made.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Flow rate of reactor coolant through the core < 3000 gpm.	A.1 Suspend all operations involving a reduction in boron concentration of the RCS.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.10.1	The flow rate of reactor coolant through the core shall be determined to be ≥ 3000 gpm by either: a. Verifying at least one reactor coolant pump is in operation, or b. Verifying that at least one RHR pump is in operation and supplying ≥ 3000 gpm through the core.	Prior to the start of and at least once per hour during a reduction in the RCS boron concentration

3.1 REACTIVITY CONTROL SYSTEMS

3.1.11 Rod Position Indication System - Shutdown Test Exceptions

LR 3.1.11 The limitations of LR 3.1.9 may be suspended during the performance of individual full-length shutdown and control rod drop time measurements provided:

a. Only one shutdown or control bank is withdrawn from the fully inserted position at a time, and

----

- NOTE -

The following requirement is not applicable during the initial calibration of the Digital Rod Position Indication System provided: (1) K_{eff} is maintained ≤ 0.95, and (2) only one shutdown or control rod bank is withdrawn from the fully inserted position at one time.

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b. The rod position indicator is FUNCTIONAL during the withdrawal of the rods.

APPLICABILITY: MODES 3, 4, and 5 during performance of rod drop time measurements.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Position Indication Systems Nonfunctional or with more than one bank of rods withdrawn.	A.1 Open the Reactor trip breakers.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.1.11.1	The Position Indication Systems shall be determined to be FUNCTIONAL during rod drop time measurements by verifying the Demand Position Indication System and the Digital Rod Position Indication System agree: a. Within 12 steps when the rods are stationary, and b. Within 24 steps during rod motion.	Within 24 hours prior to the start of rod drop time measurements and at least once per 24 hours thereafter

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System Instrumentation Response Times

LR 3.3.1 Each reactor trip system instrumentation response time listed in Table 3.3.1-1 shall be maintained in the manner specified in Technical Specification (TS) 3.3.1, Reactor Trip System Instrumentation.

APPLICABILITY: As specified in TS 3.3.1.

TABLE 3.3.1-1 (Page 1 of 2)
REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

	FUNCTION	RESPONSE TIME
1.	Manual Reactor Trip	NOT APPLICABLE
2.	Power Range, Neutron Flux	≤ 0.5 second(1)
3.	Power Range, Neutron Flux, High Positive Rate	NOT APPLICABLE
4.	Intermediate Range, Neutron Flux	NOT APPLICABLE
5.	Source Range, Neutron Flux (Below P-10)	NOT APPLICABLE
6.	Overtemperature ΔT	Variable(1)(2)
7.	Overpower ΔT	Variable(1)(2)
8.	a. Pressurizer Pressure - Low	≤ 2.0 seconds
	b. Pressurizer Pressure - High	≤ 2.0 seconds
9.	Pressurizer Water Level - High	NOT APPLICABLE
10.	Reactor Coolant Flow - Low	
	a. Single loop	≤ 1.0 second
	b. Two loops	≤ 1.0 second
11.	Reactor Coolant Pump (RCP) Breaker Position Trip	NOT APPLICABLE
12.	Undervoltage-RCPs	≤ 1.5 seconds
13.	Underfrequency-RCPs	≤ 0.9 second
14.	Steam Generator Water Level - Low Low	≤ 2.0 seconds
15.	Turbine Trip	
	a. Emergency Trip Header Low Pressure	NOT APPLICABLE
	b. Turbine Stop Valve Closure	NOT APPLICABLE
16.	Safety Injection Input from ESFAS	NOT APPLICABLE
17.	Reactor Trip System Interlocks	NOT APPLICABLE

TABLE 3.3.1-1 (Page 2 of 2)
REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

18.	Reactor Trip Breakers (RTBs)	NOT APPLICABLE
19.	RTB Undervoltage and Shunt Trip Mechanisms	NOT APPLICABLE
20.	Automatic Trip Logic	NOT APPLICABLE

TABLE NOTATION

(1) Neutron detectors are exempt from response time testing. Response time shall be measured from detector output or input of first electronic component in channel.

(2) Refer to Table 3.3.1-1.a for required response times.

TABLE 3.3.1-1.a (Page 1 of 1)
Overtemperature Delta-T & Overpower Delta-T Response Times

This table represents the maximum allowable plant testing, electronic response time acceptance criteria based on measured RTD response time. All listed values are in seconds.

To use this table, take the slowest measured RTD response time in a loop, round up to the nearest 1/10 second, and obtain the corresponding acceptance criteria.

RTD Time Response	Final Accept. Criteria Overtemperature ΔT - T_{avg} Input	Final Accept. Criteria Overpower ΔT - T_{avg} Input	Final Accept. Criteria Measured ΔT - ΔT Input	RTD Time Response	Final Accept. Criteria Overtemperature ΔT - T_{avg} Input	Final Accept. Criteria Overpower ΔT - T_{avg} Input	Final Accept. Criteria Measured ΔT - ΔT Input
2.0	2.862	2.643	9.883	4.6	2.366	2.264	7.367
2.1	2.840	2.625	9.777	4.7	2.349	2.251	7.279
2.2	2.818	2.609	9.672	4.8	2.333	2.239	7.190
2.3	2.796	2.592	9.568	4.9	2.316	2.226	7.102
2.4	2.775	2.575	9.464	5.0	2.300	2.214	7.014
2.5	2.754	2.559	9.362	5.1	2.283	2.202	6.927
2.6	2.733	2.543	9.260	5.2	2.267	2.190	6.840
2.7	2.713	2.527	9.159	5.3	2.250	2.178	6.754
2.8	2.693	2.512	9.059	5.4	2.235	2.166	6.668
2.9	2.673	2.497	8.960	5.5	2.218	2.154	6.582
3.0	2.654	2.481	8.861	5.6	2.202	2.143	6.497
3.1	2.634	2.467	8.763	5.7	2.187	2.131	6.412
3.2	2.615	2.452	8.666	5.8	2.171	2.120	6.327
3.3	2.596	2.438	8.569	5.9	2.156	2.108	6.242
3.4	2.578	2.423	8.473	6.0	2.140	2.097	6.158
3.5	2.559	2.409	8.378	6.1	2.040	1.997	6.058
3.6	2.541	2.395	8.283	6.2	1.940	1.897	5.958
3.7	2.523	2.382	8.189	6.3	1.840	1.797	5.858
3.8	2.505	2.368	8.096	6.4	1.740	1.697	5.758
3.9	2.487	2.354	8.003	6.5	1.640	1.597	5.658
4.0	2.469	2.341	7.911	6.6	1.540	1.497	5.558
4.1	2.452	2.328	7.819	6.7	1.440	1.397	5.458
4.2	2.434	2.315	7.728	6.8	1.340	1.297	5.358
4.3	2.417	2.302	7.637	6.9	1.240	1.197	5.258
4.4	2.400	2.289	7.547	7.0	1.140	1.097	5.158
4.5	2.383	2.276	7.457				

The following are the response time acceptance criteria for the pressurizer pressure and neutron flux input to the Overtemperature ΔT function:

Pressurizer pressure input: ≤ 2.0 seconds.
Neutron detector input (for f(ΔI) penalty): ≤ 2.0 seconds.

All of the channel time responses noted above for the Overtemperature ΔT, Overpower ΔT, and measured ΔT channels are for all portions of the channel downstream of the RTD output (i.e., includes channel electronics, trip breaker, and rod gripper release). The time responses are based on all channel setpoints (i.e., all gains and time constants) implemented as per the Licensing Requirements Manual values.

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Features Response Times

LR 3.3.2 Each engineered safety feature response time listed in Table 3.3.2-1 shall be maintained in the manner specified in Technical Specification (TS) 3.3.2, Engineered Safety Feature Actuation System Instrumentation and TS 3.3.5, Loss of Power Diesel Generator Start and Bus Separation Instrumentation as applicable.

APPLICABILITY: As specified in the applicable TS.

TABLE 3.3.2-1 (Page 1 of 4)
ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME IN SECONDS
1.	Manual		
	a.	Safety Injection (ECCS)	Not Applicable
		Feedwater Isolation	Not Applicable
		Reactor Trip (SI)	Not Applicable
		Containment Isolation-Phase "A"	Not Applicable
		Containment Vent and Purge Isolation	Not Applicable
		Auxiliary Feedwater Pumps	Not Applicable
		Service Water System	Not Applicable
	b.	Containment Quench Spray Pumps	Not Applicable
		Containment Quench Spray Valves	Not Applicable
		Containment Isolation-Phase "B"	Not Applicable
	c.	Containment Isolation-Phase "A"	Not Applicable
	d.	Control Room Ventilation Isolation	Not Applicable
2.	Containment Pressure-High		
	a.	Safety Injection (ECCS)	≤ 27.0(3)
	b.	Reactor Trip (from SI)	≤ 3.0
	c.	Feedwater Isolation	≤ 7.0(6)
	d.	Containment Isolation-Phase "A"	≤ 61.5(9)/115.5(10)
	e.	Auxiliary Feedwater Pumps	≤ 60.0
	f.	Service Water System	≤ 72.5(7)/181.5(8)

TABLE 3.3.2-1 (Page 2 of 4)
ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME IN SECONDS
3.	Pressurizer Pressure-Low		
	a.	Safety Injection (ECCS)	≤ 17.0(11)/27.0(3)/27.0(4)
	b.	Reactor Trip (from SI)	≤ 3.0
	c.	Feedwater Isolation	≤ 7.0(6)
	d.	Containment Isolation-Phase "A"	≤ 61.0(9)/115.0(10)
	e.	Auxiliary Feedwater Pumps	≤ 60.0
	f.	Service Water System	≤ 72.0(7)/181.0(8)
4.	Steam Line Pressure-Low		
	a.	Safety Injection (ECCS)	≤ 37.0(5)/27.0(4)
	b.	Reactor Trip (from SI)	≤ 3.0
	c.	Feedwater Isolation	≤ 7.0(6)
	d.	Containment Isolation-Phase "A"	≤ 61.0(9)/115.0(10)
	e.	Auxiliary Feedwater Pumps	≤ 60.0
	f.	Service Water System	≤ 72.0(7)/181.0(8)
	g.	Steam Line Isolation	≤ 7.0(13)
5.	Containment Pressure-High High		
	a.	Containment Quench Spray	≤ 74.5(12)
	b.	Containment Isolation-Phase "B"	Not Applicable
	c.	Control Room Ventilation Isolation (on CIB)	≤ 22.0(9)/77.0(10)
	d.	Recirculation Spray	Not Applicable
6.	Steam Generator Water Level-High High		
	a.	Turbine Trip	Not Applicable
	b.	Feedwater Isolation	≤ 7.0(6)

TABLE 3.3.2-1 (Page 3 of 4)
ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME IN SECONDS
7.	Containment Pressure-Intermediate High High		
	a.	Steam Line Isolation	≤ 7.0(13)
8.	Steamline Pressure Rate-High Negative		
	a.	Steamline Isolation	≤ 7.0(13)
9.	Loss of Power (TS 3.3.5)		
	a.	4.16kv Emergency Bus Undervoltage (Loss of Voltage) (Trip Feeder)	≤ 1.3 sec.
	b.	4.16kv and 480v Emergency Bus Undervoltage (Degraded voltage)	90 ± 5 sec.
10.	Steam Generator Water Level-Low Low		
	a.	Motor-driven Auxiliary Feedwater Pumps(1)	≤ 60.0
	b.	Turbine-driven Auxiliary Feedwater Pump(2)	≤ 60.0
11.	Undervoltage RCP		
	a.	Turbine-driven Auxiliary Feedwater Pump	≤ 60.0
12.	Trip of Main Feedwater Pumps		
	a.	Motor-driven Auxiliary Feedwater Pumps	≤ 60.0

TABLE 3.3.2-1 (Page 4 of 4)
ENGINEERED SAFETY FEATURES RESPONSE TIMES

TABLE NOTATION

(1) on 2/3 in 2/3 Steam Generators

(2) on 2/3 any Steam Generator

(3) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps and Low Head Safety Injection pumps. Sequential transfer of charging pump suction from the volume control tank (VCT) to the refueling water storage tank (RWST) (RWST valves open, then VCT valves close) is **not** included.

(4) Diesel generator starting and sequence loading delays **not** included. Offsite power available. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps. Sequential transfer of charging pump suction from the volume control tank (VCT) to the refueling water storage tank (RWST) (RWST valves open, then VCT valves close) is included.

(5) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps. Sequential transfer of charging pump suction from the volume control tank (VCT) to the refueling water storage tank (RWST) (RWST valves open, then VCT valves close) is included.

(6) Feedwater system overall response time shall include verification of valve stroke times applicable to the feedwater containment isolation valves for Train A and the main feedwater regulating valves and bypass valves for Train B. Valve isolation times shall be limited such that when added to the actuation circuitry time the total response time does not exceed 7 seconds.

(7) Diesel generator starting and sequence loading delays included. Response time limit includes attainment of discharge pressure for service water pumps.

(8) Diesel generator starting and sequence loading delays **not** included. Response time limit only includes opening of valves to establish the flowpath to the diesel coolers.

(9) Diesel generator starting and sequence loading delays **not** included. Offsite power available. Response time limit includes operation of valves/dampers.

(10) Diesel generator starting and sequence loading delays included. Response time limit includes operation of valves/dampers.

(11) Diesel generator starting and sequence loading delays **not** included. Offsite power available. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps and Low Head Safety Injection pumps. Sequential transfer of charging pump suction from the volume control tank (VCT) to the refueling water storage tank (RWST) (RWST valves open, then VCT valves close) is **not** included.

(12) Diesel generator starting and sequence loading delays included. Response time does **not** include operation of the valves because Quench Spray valves are maintained open.

(13) The main steam isolation valve isolation time shall be limited to ≤ 6 seconds.

3.3 INSTRUMENTATION

3.3.3 Meteorological Monitoring Instrumentation

LR 3.3.3 The meteorological monitoring instrumentation channels specified in Table 3.3.3-1 shall be FUNCTIONAL.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required meteorological monitoring channels Nonfunctional.	A.1 Suspend all release of gaseous radioactive material from the radwaste gas decay tanks.	Immediately
B. One or more required meteorological monitoring channels Nonfunctional for more than 7 days.	B.1 Prepare and present a report to the onsite safety review committee for their review outlining the cause of the malfunction and the plans for restoring the channel(s) to FUNCTIONAL status.	30 days

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.3.1	Perform a CHANNEL CHECK on each required meteorological monitoring instrument channel.	24 hours
LRS 3.3.3.2	Perform a CHANNEL CALIBRATION on each required meteorological monitoring instrument channel.	184 days

TABLE 3.3.3-1 (Page 1 of 1)
METEOROLOGICAL MONITORING INSTRUMENTATION

	INSTRUMENT		INSTRUMENT MINIMUM ACCURACY	REQUIRED CHANNELS
1.	WIND SPEED			
	a.	Nominal Elev. 500'	± 0.5 mph*	1
	b.	Nominal Elev. 150'	± 0.5 mph*	1
	c.	Nominal Elev. 35'	± 0.5 mph*	1
2.	WIND DIRECTION			
	a.	Nominal Elev. 500'	± 5°	1
	b.	Nominal Elev. 150'	± 5°	1
	c.	Nominal Elev. 35'	± 5°	1
3.	AIR TEMPERATURE ΔT			
	a.	ΔT Elev. 500' - 35'	± 0.1°C	1
	b.	ΔT Elev. 150' - 35'	± 0.1°C	1

*Starting speed of anemometer shall be < 1 mph.

3.3 INSTRUMENTATION

3.3.4 Axial Flux Difference (AFD) Monitor Alarm

LR 3.3.4 AFD shall be monitored and logged.

APPLICABILITY: When the AFD monitor alarm is Nonfunctional and power is > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.4.1	Monitor and log the indicated AFD for each FUNCTIONAL channel.	Once per hour for 24 hours <u>AND</u> Once per 30 minutes thereafter

3.3 INSTRUMENTATION

3.3.5 Quadrant Power Tilt Ratio (QPTR) Monitor Alarm

LR 3.3.5 QPTR shall be verified within the limits.

APPLICABILITY: When the QPTR monitor alarm is Nonfunctional and power is > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE	FREQUENCY
LRS 3.3.5.1 Verify QPTR is within the limits.	12 hours

3.3 INSTRUMENTATION

3.3.6 Seismic Monitoring Instrumentation

LR 3.3.6 The seismic monitoring instrumentation specified in Table 3.3.6-1 shall be FUNCTIONAL.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required seismic monitoring instruments Nonfunctional.	A.1 Restore the Nonfunctional instrument(s) to FUNCTIONAL status.	30 days
B. One or more required seismic monitoring instruments Nonfunctional for more than 30 days.	B.1 Prepare and present a report to the onsite safety review committee for their review outlining the cause of the malfunction and the plans for restoring the instrument(s) to FUNCTIONAL status.	10 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Seismic event ≥ 0.02g.	C.1	Report to NRC.	1 hour
	AND		
	C.2	Restore actuated instruments to FUNCTIONAL status.	24 hours
	AND		
	C.3	Perform CHANNEL CALIBRATION on actuated instruments.	30 days
	AND		
	C.4	Retrieve and analyze data from actuated instruments to determine magnitude of vibratory ground motion and prepare and submit a special report in accordance with 10 CFR 50.4 describing the magnitude, frequency spectrum and resultant effect upon facility features important to safety.	30 days

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.6.1	Perform a CHANNEL CHECK as specified in Table 3.3.6-2.	In accordance with Table 3.3.6-2
LRS 3.3.6.2	Perform a CHANNEL OPERATIONAL TEST as specified in Table 3.3.6-2.	In accordance with Table 3.3.6-2
LRS 3.3.6.3	Perform a CHANNEL CALIBRATION as specified in Table 3.3.6-2.	In accordance with Table 3.3.6-2

TABLE 3.3.6-1 (Page 1 of 1)
SEISMIC MONITORING INSTRUMENTATION

INSTRUMENTS AND SENSOR LOCATIONS		MEASUREMENT RANGE[(1)]	REQUIRED INSTRUMENTS
1.	TRIAXIAL TIME-HISTORY ACCELEROGRAPHS (2)(3)(4)		
	a. Containment Mat (2ERS-ACS-1)	± 1 g	1
	b. Containment Operating Floor (2ERS-ACS-2)	± 1 g	1
	c. Switchyard (2ERS-ACS-3)	± 1 g	1
	d. Containment Building (2ERS-RRA-1)	± 1 g	1
	e. Aux. Building Mat (2ERS-RRA-2)	± 1 g	1
	f. Aux. Building (2ERS-RRA-3)	± 1 g	1
2.	TRIAXIAL PEAK ACCELEROGRAPHS		
	a. Containment Building - RHS heat exchanger (2ERS-PRA-1)	± 2 g	1
	b. Containment Building - Six Inch SI Pipe (2ERS-PRA-2)	± 2 g	1
	c. Aux. Building (2ERS-PRA-3)	± 5 g	1
3.	RESPONSE SPECTRUM ANALYZER		
	a. Control Room	N/A	1

NOTES

(1) Measurement range tolerance is ± 5% of upper range value.

(2) Units a, b, c are wired to accelerograph recorders in the Control Room. Units d, e, and f are self-contained units.

(3) Each accelerograph trigger setpoint is set at ≤ 0.02g except for item "b"

(4) Triaxial time-history accelerograph - Units a and c are input directly to the response spectrum analyzer in the Control Room.

TABLE 3.3.6-2 (Page 1 of 1)
SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENTS AND SENSOR LOCATIONS	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL OPERATIONAL TEST
1. TRIAXIAL TIME-HISTORY ACCELEROGRAPHS			
a. Containment Mat (2ERS-ACS-1)	M	R	SA
b. Containment Operating floor (2ERS-ACS-2)	M	R	SA
c. Switchyard (2ERS-ACS-3)	M	R	SA
d. Containment Building (2ERS-RRA-1)	N/A	R	SA
e. Aux. Building Mat (2ERS-RRA-2)	M	R	SA
f. Aux. Building (2ERS-RRA-3)	M	R	SA
2. TRIAXIAL PEAK ACCELEROGRAPHS			
a. Containment Building - RHS heat exchanger (2ERS-PRA-1)	N/A	R	N/A
b. Containment Building - Six inch SI pipe (2ERS-PRA-2)	N/A	R	N/A
c. Aux. Building (2ERS-PRA-3)	N/A	R	N/A
3. RESPONSE SPECTRUM ANALYZER			
a. Control Room	N/A	N/A	R

M = 31 days
R = 18 months
SA = 184 days

3.3 INSTRUMENTATION

3.3.7 Movable Incore Detectors

LR 3.3.7 The movable incore detection system shall be FUNCTIONAL with:

a. At least 38 detector thimbles,

b. A minimum of 2 detector thimbles per core quadrant, and

c. Sufficient movable detectors, drive, and readout equipment to map these thimbles.

- NOTE -

Except for flux maps during the startup physics program, up to and including the first full power flux map, the movable incore detector system will remain FUNCTIONAL with ≤ 37 but ≥ 25 detector thimbles, if there is a minimum of three detector thimbles per core quadrant and an additional uncertainty is applied to the measured values of $F^N_{\Delta H}$ and $F_Q(Z)$ as specified in the COLR.

APPLICABILITY: When the movable incore detection system is used for:

a. Recalibration of the axial flux offset detection system,

b. Monitoring the QUADRANT POWER TILT RATIO, or

c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z)$.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Movable incore detection system Nonfunctional.	A.1 Suspend use of the system for the above applicable monitoring or calibration functions.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.7.1	The incore movable detection system shall be demonstrated FUNCTIONAL by normalizing each detector output to be used for: a. Recalibration of the excore axial flux offset detection system, or b. Monitoring the QUADRANT POWER TILT RATIO, or c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z)$.	Within 24 hours prior to use

3.3 INSTRUMENTATION

3.3.8 Leading Edge Flow Meter

LR 3.3.8 A FUNCTIONAL Leading Edge Flow Meter (LEFM) shall be used in the performance of the daily calorimetric heat balance measurements to determine steady-state THERMAL POWER as required by Technical Specification Surveillance SR 3.3.1.2.

APPLICABILITY: MODE 1 when steady-state THERMAL POWER is > 98.6% of RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LEFM Nonfunctional.	A.1 Restore LEFM to FUNCTIONAL status.	Prior to the next required daily calorimetric heat balance measurement.
B. Required Action and associated Completion Time not met.	B.1 Reduce steady-state THERMAL POWER to ≤ 98.6% of RTP.	1 hour
	<u>AND</u>	
	B.2 Perform the calorimetric heat balance measurement using the feedwater flow venturis and Resistance Temperature Detector (RTD) indications.	In accordance with the requirements of SR 3.3.1.2
	<u>AND</u>	
	B.3 Maintain THERMAL POWER at ≤ 98.6% of RTP steady state.	Until the LEFM is restored to FUNCTIONAL status and the calorimetric heat balance measurement has been performed using the LEFM

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.8.1	The LEFM shall be demonstrated to be FUNCTIONAL by using the self-diagnostic features of the LEFM.	24 hours
LRS 3.3.8.2	The LEFM shall be demonstrated to be FUNCTIONAL by performing periodic maintenance and inspections based on the vendor's recommendation.	18 months

3.3 INSTRUMENTATION

3.3.9 Turbine Overspeed Protection

LR 3.3.9 At least one Turbine Overspeed Protection System shall be FUNCTIONAL.

APPLICABILITY: MODE 1,
MODES 2 and 3 except when all main steam isolation valves and associated bypass valves are in the closed position and all other steam flow paths to the turbine are isolated.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One throttle valve or one governor valve per high pressure turbine steam line Nonfunctional and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line Nonfunctional.	A.1	Restore the Nonfunctional valve(s) to FUNCTIONAL status.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Close at least one valve in the affected steam line(s).	6 hours
	<u>OR</u>		
	B.2	Isolate the turbine from the steam supply.	6 hours
	<u>OR</u>		
	B.3	Apply LR 3.0.3.	6 hours
C. Turbine Overspeed Protection System Nonfunctional for reasons other than Condition A.	C.1	Isolate the turbine from the steam supply.	6 hours
	<u>OR</u>		
	C.2	Apply LR 3.0.3.	6 hours

LICENSING REQUIREMENT SURVEILLANCES

	SURVEILLANCE	FREQUENCY
LRS 3.3.9.1	-- **- NOTE -** Not required to be performed until 72 hours after entering MODE 3 during station startup with any steam flow path to the turbine not isolated. -- Cycle each of the following valves through at least one complete cycle from the running position: a. Four high pressure turbine throttle valves. b. Four high pressure turbine governor valves.	6 months
LRS 3.3.9.2	-- **- NOTE -** Not required to be performed until 72 hours after entering MODE 3 during station startup with any steam flow path to the turbine not isolated. -- Directly observe the movement of each of the following valves through one complete cycle from the running position: a. Four high pressure turbine throttle valves. b. Four high pressure turbine governor valves.	6 months
LRS 3.3.9.3	-- **- NOTE -** Not required to be performed until 72 hours after entering MODE 3 during station startup with any steam flow path to the turbine not isolated. -- Cycle each of the following valves through at least one complete cycle from the running position: a. Four low pressure turbine reheat stop valves. b. Four low pressure turbine reheat intercept valves.	18 months

LICENSING REQUIREMENT SURVEILLANCES (continued)

	SURVEILLANCE	FREQUENCY
LRS 3.3.9.4	-- **- NOTE -** Not required to be performed until 72 hours after entering MODE 3 during station startup with any steam flow path to the turbine not isolated. -- Directly observe the movement of each of the following valves through one complete cycle from the running position: a. Four low pressure turbine reheat stop valves. b. Four low pressure turbine reheat intercept valves.	18 months
LRS 3.3.9.5	Perform a CHANNEL CALIBRATION on the turbine overspeed protection systems.	18 months
LRS 3.3.9.6	Disassemble at least one of each of the above valves and perform a visual and surface inspection of valve seats, disks, and stems and verify no unacceptable flaws or excessive corrosion. If unacceptable flaws or excessive corrosion are found, all other valves of that type shall be inspected unless the nature of the problem can be directly attributed to a service condition specific to that valve.	40 months <u>OR</u> ------------------------ **- NOTE -** Only applicable to reheat stop and intercept valves provided there is no indication of operational distress. ------------------------ 60 months

3.3 INSTRUMENTATION

3.3.10 RTS, ESFAS, and Loss of Power Trip Setpoints

LR 3.3.10.1 Each Reactor Trip System Instrumentation Trip Setpoint listed in Table 3.3.10-1 shall be maintained in the manner specified in Technical Specification (TS) 3.3.1, Reactor Trip System Instrumentation.

LR 3.3.10.2 Each Engineered Safety Features Actuation System Instrumentation Trip Setpoint listed in Table 3.3.10-2 shall be maintained in the manner specified in TS 3.3.2, Engineered Safety Feature Actuation System Instrumentation.

LR 3.3.10.3 Each Loss of Power Instrumentation Trip Setpoint listed in Table 3.3.10-3 shall be maintained in the manner specified in TS 3.3.5, Loss of Power Diesel Generator Start and Bus Separation Instrumentation.

APPLICABILITY: As specified in the applicable TS.

TABLE 3.3.10-1 (Page 1 of 2)
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

	FUNCTION	NOMINAL TRIP SETPOINT[(a)]
1.	Manual Reactor Trip	N.A.
2.	Power Range, Neutron Flux	
	a. High Setpoint	109% of RATED THERMAL POWER
	b. Low Setpoint	25% RATED THERMAL POWER
3.	Power Range, Neutron Flux High Positive Rate	5% of RATED THERMAL POWER with a time constant ≥ 2 seconds
4.	Intermediate Range, Neutron Flux	25% RATED THERMAL POWER
5.	Source Range, Neutron Flux	10^5 counts per second
6.	Overtemperature ΔT	See Technical Specification Table Notation 3 on Table 3.3.1-1
7.	Overpower ΔT	See Technical Specification Table Notation 4 on Table 3.3.1-1
8.	Pressurizer	
	a. Pressure-Low	1945 psig[(b)]
	b. Pressure-High	2375 psig
9.	Pressurizer Water Level-High	92% of instrument span
10.	Reactor Coolant Flow-Low	90% of indicated loop flow
11.	Reactor Coolant Pump (RCP) Breaker Position Trip	N.A.
12.	Undervoltage - RCPs	3120 V
13.	Underfrequency - RCPs	57.5 Hz
14.	Steam Generator Water Level-Low Low	20.5% of narrow range instrument span[(c)]

(a) The Unit 2 Setpoint Methodology used to establish the Reactor Trip System Setpoints is defined in WCAP-11366.

(b) Time constants utilized in the lead-lag controller for Pressurizer Pressure-Low are ≥ 2 seconds for lead and ≤ 1 second for lag. Channel calibration shall ensure that these time constants are adjusted for those values.

(c) The predefined as-found acceptance criteria band, and as-left setpoint tolerance band is ± 0.5% span.

TABLE 3.3.10-1 (Page 2 of 2)
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

	FUNCTION	NOMINAL[(d)] TRIP SETPOINT[(a)]
15.	Turbine Trip	
	a. Emergency Trip Header Low Pressure	1013 psig
	b. Turbine Stop Valve Closure	≥ 1% open
16.	Safety Injection Input from ESFAS	N.A.
17.	Reactor Trip System Interlocks	
	a. Intermediate Range Neutron Flux, P-6	1 x 10^{-10} amps
	b. Low Power Reactor Trips Block, P7	N.A.
	c. Power Range Neutron Flux, P-8	30% of RATED THERMAL POWER
	d. Power Range Neutron Flux, P-9	49% of RATED THERMAL POWER
	e. Power Range Neutron Flux, P-10	10% of RATED THERMAL POWER
	f. Turbine First Stage Pressure, P-13	10% of RATED THERMAL POWER Turbine First Stage Pressure Equivalent
18.	Reactor Trip Breakers (RTBs)	N.A.
19.	RTB Undervoltage and Shunt Trip Mechanisms	N.A.
20.	Automatic Trip Logic	N.A.

(a) The Unit 2 Setpoint Methodology used to establish the Reactor Trip System Setpoints is defined in WCAP-11366.

(d) With the exception of Functional Unit number 15.b.

TABLE 3.3.10-2 (Page 1 of 3)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTION	NOMINAL TRIP SETPOINT[a]
1. SAFETY INJECTION AND FEEDWATER ISOLATION	
a. Manual Initiation	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.
c. Containment Pressure - High	5.0 psig[b]
d. Pressurizer Pressure - Low	1856 psig
e. Steamline Pressure - Low	500 psig[c]
2. CONTAINMENT SPRAY SYSTEMS	
a. Quench Spray	
1. Manual Initiation	N.A.
2. Automatic Actuation Logic and Actuation Relays	N.A.
3. Containment Pressure-High High	11.1 psig[b]
b. Recirculation Spray	
1. Automatic Actuation Logic and Actuation Relays	N.A.
2. Refueling Water Storage Tank (RWST) Level Low Coincident with	32 feet 9 inches[d]
Containment Pressure High-High	11.1 psig[b]
3. CONTAINMENT ISOLATION	
a. Phase "A" Isolation	
1. Manual Initiation	N.A.
2. Automatic Actuation Logic and Actuation Relays	N.A.
3. Safety Injection	See Function 1. above for all Safety Injection Trip Setpoints.

(a) The Unit 2 Setpoint Methodology used to establish the Engineered Safety Feature Actuation System Setpoints is defined in WCAP-11366.

(b) The predefined as-found acceptance band, and the as-left tolerance band is ± 0.3 psig.

(c) Time constants utilized in the lead-lag controllers for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

(d) The predefined as-found acceptance band, and the as-left tolerance band is ± 1".

TABLE 3.3.10-2 (Page 2 of 3)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTION	NOMINAL TRIP SETPOINT[a]
3. CONTAINMENT ISOLATION (continued)	
b. Phase "B" Isolation	
1. Manual Initiation	N.A.
2. Automatic Actuation Logic and Actuation Relays	N.A.
3. Containment Pressure-High High	11.1 psig[b]
4. STEAM LINE ISOLATION	
a. Manual Initiation	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.
c. Containment Pressure-Intermediate High High	7.0 psig[b]
d. Steam Line Pressure	
1. Low	500 psig[c]
2. Negative Rate - High	100 psi with a time constant ≥ 50 seconds
5. TURBINE TRIP & FEEDWATER ISOLATION	
a. Automatic Actuation Logic and Actuation Relays	N.A.
b. Steam Generator Water Level-High High, P-14	92.2% of narrow range instrument span[d]
c. Safety Injection	See Function 1. above for all Safety Injection Trip Setpoints.

(a) The Unit 2 Setpoint Methodology used to establish the Engineered Safety Feature Actuation System Setpoints is defined in WCAP-11366.

(b) The predefined as-found acceptance band, and the as-left tolerance band is ±0.3 psig.

(c) Time constants utilized in the lead-lag controllers for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.

(d) The predefined as-found acceptance criteria band, and as-left setpoint tolerance band is ± 0.5% span.

TABLE 3.3.10-2 (Page 3 of 3)
ENGINEERED SAFETY FEATURES ACTUATION SYSTEM
INSTRUMENTATION TRIP SETPOINTS

FUNCTION			NOMINAL TRIP SETPOINT[(a)]
6.	AUXILIARY FEEDWATER		
	a.	Automatic Actuation Logic and Actuation Relays	N.A.
	b.	Steam Generator Water Level-Low Low	20.5% of narrow range instrument span[(d)]
	c.	Safety Injection (Start All Auxiliary Feedwater Pumps)	See Function 1. above for all Safety Injection Trip Setpoints.
	d.	Undervoltage - RCP (Start Turbine Driven Pump)	3120 V
	e.	Trip of Main Feedwater Pumps (Start Motor Driven Pumps)	N.A.
7.	AUTOMATIC SWITCHOVER TO CONTAINMENT SUMP		
	a.	Automatic Actuation Logic	N.A.
	b.	Refueling Water Storage Tank Level - Extreme Low	31 feet 9 inches[(e)]
		Coincident with Safety Injection	See Function 1. above for all Safety Injection Trip Setpoints.
8.	ESFAS INTERLOCKS		
	a.	Reactor Trip, P-4	N.A.
	b.	Pressurizer Pressure, P-11	2000 psig
	c.	T_{avg} - Low-Low, P-12	541°F

(a) The Unit 2 Setpoint Methodology used to establish the Engineered Safety Feature Actuation System Setpoints is defined in WCAP-11366.

(d) The predefined as-found acceptance criteria band, and as-left setpoint tolerance band is ± 0.5% span.

(e) The predefined as-found acceptance band, and the as-left tolerance band is ± 1".

TABLE 3.3.10-3 (Page 1 of 1)
LOSS OF POWER
DIESEL GENERATOR START AND BUS SEPARATION
INSTRUMENTATION TRIP SETPOINTS

FUNCTION	NOMINAL TRIP SETPOINT[(a)]
LOSS OF VOLTAGE	
1. 4160V Emergency Bus DG Start	3120 V with a time delay of 0.33 ± 0.03 seconds
2. 4160V Emergency Bus Separation	3120 V with a 1 ± 0.1 second time delay
DEGRADED VOLTAGE	
3. 4160V Emergency Bus Separation	3885.4 V with a 90 ± 5 second time delay
4. 480V Emergency Bus Separation	448.3 V with a 90 ± 5 second time delay

(a) The Unit 2 Setpoint Methodology used to establish the Engineered Safety Feature Actuation System Setpoints is defined in WCAP-11366.

3.3 INSTRUMENTATION

3.3.11 Fuel Storage Pool Area Radiation Monitor

LR 3.3.11 The Fuel Storage Pool Area Radiation Monitor (2RMF-RQ202) shall be FUNCTIONAL with:

a. Setpoint of ≤ 75.8 mR/hr above background, and

b. Measurement range of 10^{-1} - 10^{4} mR/hr.

APPLICABILITY: With fuel in the storage pool or building.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Setpoint not within limit.	A.1	Adjust the setpoint to within the limit.	4 hours
	OR		
	A.2	Declare the monitor Nonfunctional.	4 hours
B. Required monitor Nonfunctional.	B.1	Perform area surveys of the monitored area with portable monitoring instrumentation.	Once per 24 hours

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.11.1	Perform a CHANNEL CHECK.	12 hours
LRS 3.3.11.2	Perform a CHANNEL OPERATIONAL TEST.	31 days
LRS 3.3.11.3	Perform a CHANNEL CALIBRATION.	18 months

3.3 INSTRUMENTATION

3.3.12 Explosive Gas Monitoring Instrumentation

LR 3.3.12 Two channels of the Gaseous Waste System Surge Tank Discharge Oxygen Monitor (2GWS-OA100A&B) shall be OPERABLE with Alarm/Trip Setpoints set to ensure the limits of LR 3.7.6 are not exceeded.

- NOTE -

The requirements of LR 3.3.12 are part of the Technical Specification 5.5.8, “Explosive Gas and Storage Tank Radioactivity Monitoring Program.”

APPLICABILITY: During waste gas decay tank filling operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels with Alarm/Trip setpoint less conservative than required.	A.1 Declare the affected channel(s) inoperable.	Immediately
B. One required channel inoperable.	B.1 Take and analyze grab samples.	Once per 24 hours
	<u>AND</u>	
	B.2 Restore inoperable channel to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required channels inoperable.	C.1 Take and analyze grab samples. AND C.2 Restore inoperable channels to OPERABLE status.	Once per 4 hours during degassing operations AND Once per 24 hours during other operations 30 days
D. Required Action and associated Completion Time not met.	D.1 Prepare and submit a Special Report in accordance with 10 CFR 50.4 to explain why the inoperability was not corrected in a timely manner.	30 days

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.12.1	Perform CHANNEL CHECK.	24 hours
LRS 3.3.12.2	Perform CHANNEL OPERATIONAL TEST.	31 days
LRS 3.3.12.3	-- **- NOTE -** The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal: 1. One volume percent oxygen, balance nitrogen, and 2. Four volume percent oxygen, balance nitrogen. -- Perform CHANNEL CALIBRATION.	92 days

3.3 INSTRUMENTATION

3.3.13 Containment Hydrogen Analyzers

LR 3.3.13 Two separate and independent wide-range containment hydrogen analyzers shall be FUNCTIONAL.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One wide-range hydrogen analyzer Nonfunctional.	A.1	Restore the Nonfunctional analyzer to FUNCTIONAL status.	30 days
B. Two wide-range hydrogen analyzers Nonfunctional.	B.1	Restore at least one wide-range hydrogen analyzer to FUNCTIONAL status.	72 hours
C. Required Action and associated Completion Time not met.	C.1	Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.13.1	Perform a CHANNEL CALIBRATION using sample gases containing: 1. One volume percent hydrogen, balance nitrogen, and 2. Four volume percent hydrogen, balance nitrogen.	46 days on a STAGGERED TEST BASIS

3.3 INSTRUMENTATION

3.3.14 Control Room Isolation Radiation Monitors

LR 3.3.14 Two Control Room Isolation Radiation Monitors (2RMC-RQ201 & 202) shall be FUNCTIONAL with:

a. Setpoint of ≤ 0.476 mR/hr above background, and

b. Measurement range of 10^{-2} - 10^{3} mR/hr.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Setpoint not within limit.	A.1 Adjust the setpoint to within the limit.	4 hours
	OR	
	A.2 Declare the monitor Nonfunctional.	4 hours
B. One monitor Nonfunctional.	B.1 Restore the Nonfunctional monitor to FUNCTIONAL status.	7 days
	OR	
	B.2 Isolate the combined control room by closing all series normal air intake and exhaust isolation dampers for both Unit 1 and Unit 2.	7 days
C. Two monitors Nonfunctional.	C.1 Restore one monitor to FUNCTIONAL status.	1 hour
	OR	
	C.2 Isolate the combined control room by closing all series normal air intake and exhaust isolation dampers for both Unit 1 and Unit 2.	1 hour

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.14.1	Perform a CHANNEL CHECK.	12 hours
LRS 3.3.14.2	Perform a CHANNEL OPERATIONAL TEST.	92 days
LRS 3.3.14.3	Perform a CHANNEL CALIBRATION.	18 months

3.3 INSTRUMENTATION

3.3.15 Containment Area Radiation Alarm

LR 3.3.15 Two channels of Containment Area Radiation Alarms (2RMR-RQ206 & 207) shall be FUNCTIONAL with:

a. Setpoints of $\leq 2.0 \times 10^4$ R/hr above background, and

b. Measurement range of 1 to 10^7 R/hr.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Setpoint(s) not within limit.	A.1 Adjust the setpoint(s) to within the limit. OR A.2 Declare the radiation monitor alarm Nonfunctional.	4 hours 4 hours
B. One or more alarm channels Nonfunctional.	B.1 Restore the Nonfunctional alarm channel(s) to FUNCTIONAL status. OR B.2.1 Initiate the preplanned alternate method of monitoring the appropriate parameter(s). AND B.2.2 Restore the alarm channel(s) to FUNCTIONAL status. OR B.2.3 Explain why the Nonfunctionality was not corrected in a timely manner.	72 hours 72 hours 30 days In the next Annual Radioactive Effluent Release Report

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.15.1	Perform a CHANNEL CHECK.	12 hours
LRS 3.3.15.2	Perform a CHANNEL OPERATIONAL TEST.	31 days
LRS 3.3.15.3	Perform a CHANNEL CALIBRATION.	18 months

3.3 INSTRUMENTATION

3.3.16 Accident Monitoring Instrumentation

LR 3.3.16 The Accident Monitoring instrumentation for each Function in Table 3.3.16-1 shall be OPERABLE/FUNCTIONAL.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

- NOTES -

1. Separate Condition entry is allowed for each Function.

2. For Functions 2 and 3 refer to LCO 3.4.11, Pressurizer Power Operated Relief Valves, for the appropriate ACTIONS in lieu of the LR 3.3.16 ACTIONS below.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel Nonfunctional.	A.1 Restore the Nonfunctional channel to FUNCTIONAL status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.16.1	Perform a CHANNEL CHECK.	31 days
LRS 3.3.16.2	-- **- NOTE -** Only applicable to the Reactor Coolant System Subcooling Margin Monitor Function. -- Perform a CHANNEL CALIBRATION.	18 months

LICENSING REQUIREMENT SURVEILLANCES (continued)

	SURVEILLANCE	FREQUENCY
LRS 3.3.16.3	-- **- NOTE -** Only applicable to the following Functions: a. PORV Limit Switch Position Indicator, b. PORV Block Valve Limit Switch Position Indicator, and c. Safety Valve Position Indicator. -- Perform a TADOT.	18 months

Table 3.3.16-1 (page 1 of 1)
Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS
1.	Reactor Coolant System Subcooling Margin Monitor	1
2.	PORV Limit Switch Position Indicator	1 per valve
3.	PORV Block Valve Limit Switch Position Indicator	1 per valve
4.	Safety Valve Position Indicator	1 per valve

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Loop Isolation Valves - Shutdown

LR 3.4.1 The loop isolation valves in an isolated RCS loop shall have power removed from the associated loop isolation valve operators.

- NOTE -

Power may be restored to the associated RCS isolated loop isolation valve operator(s) provided the requirements of Technical Specification Surveillance 3.4.18.2 have been satisfied.

APPLICABILITY: In MODES 5 and 6 when an RCS loop has been isolated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Remove power from the isolated loop isolation valve operators.	1 hour

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.4.1.1	Verify that power is removed from the RCS isolated loop stop valve operators.	7 days

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Chemistry

LR 3.4.2 The RCS chemistry shall be maintained within the limits specified in Table 3.4.2-1.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------------------------------- **- NOTE -** Only applicable in MODES 1, 2, 3, and 4. ----------------------------------- One or more chemistry parameters in excess of its Steady State Limit but within its Transient Limit.	A.1 Restore the Parameter to within its Steady State Limit.	24 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Apply LR 3.0.3.	Immediately
C. ----------------------------------- **- NOTE -** Only applicable in MODES 1, 2, 3, and 4. ----------------------------------- One or more chemistry parameters in excess of its Transient Limit.	C.1 Apply LR 3.0.3.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. ------------------------------------ **- NOTE -** Not applicable in MODES 1, 2, 3, and 4. ------------------------------------ Concentration of either chloride or fluoride in the RCS in excess of its Steady State Limit for more than 24 hours or in excess of its Transient Limit.	D.1 Reduce the pressurizer pressure to $\leq$ 500 psig, if applicable, and perform an analysis to determine the effects of the out-of-limit condition on the structural integrity of the RCS; determine that the RCS remains acceptable for continued operations.	Prior to increasing the pressurizer pressure above 500 psig or prior to proceeding to MODE 4
E. ------------------------------------ **- NOTE -** Not applicable in MODES 1, 2, 3, 4, 5 and 6. ------------------------------------ Unable to determine limits of chloride or fluoride in the RCS due to the inability to sample the RCS.	E.1 ------------------------------------ **- NOTE -** Required Action E.1 is only applicable when the ability to sample the RCS is restored. ------------------------------------ Initiate action to perform LRS 3.4.2.1.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.4.2.1	The RCS chemistry shall be determined to be within the limits specified in Table 3.4.2-1 by analysis.	72 hours

TABLE 3.4.2-1 (Page 1 of 1)
REACTOR COOLANT SYSTEM CHEMISTRY LIMITS

PARAMETER	STEADY-STATE LIMIT	TRANSIENT LIMIT
DISSOLVED OXYGEN*	< 0.10 ppm*	≤ 1.00 ppm*
CHLORIDE	< 0.15 ppm	≤ 1.50 ppm
FLUORIDE	≤ 0.15 ppm	≤ 1.50 ppm

*Limit not applicable with $T_{avg} \leq 250°F$.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Pressurizer

LR 3.4.3 The pressurizer temperature shall be limited to:

a. A maximum heatup of 100°F in any one hour period,

b. A maximum cooldown of 200°F in any one hour period,

c. A maximum normal spray water temperature differential of 320°F, and

d. A maximum auxiliary spray water temperature differential of 380°F.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer temperature limit(s) exceeded.	A.1 Restore temperature to within the limit(s).	30 minutes
	<u>AND</u>	
	A.2 Perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the pressurizer.	72 hours
	<u>AND</u>	
	A.3 Determine that the pressurizer remains acceptable for continued operation.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	B.2 Reduce the pressurizer pressure to less than 500 psig.	36 hours

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.4.3.1	The pressurizer temperatures shall be determined to be within the limits.	Once per 30 minutes during system heatup or cooldown
LRS 3.4.3.2	The normal spray water temperature differential shall be determined to be within the limit.	Once per 30 minutes during system heatup or cooldown
LRS 3.4.3.3	The auxiliary spray water temperature differential shall be determined to be within the limit.	Once per 30 minutes during auxiliary spray operation

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.4 DELETED

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.5 RCS Head Vents

LR 3.4.5 All power operated RCS head vent valves shall be FUNCTIONAL and closed for each of the reactor vessel head vent paths.

- NOTES -

1. For purposes of this LR, a Nonfunctional vent valve is defined as: a valve which exhibits leakage in excess of LCO 3.4.13, "RCS Operational LEAKAGE," limits, or cannot be opened and closed on demand.

2. The vent valves may be operated for required venting operations and leak testing in MODES 3 and 4.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One vent path from the above location FUNCTIONAL and one or more power operated vent valves Nonfunctional.	A.1	------------------------------ **- NOTE -** Power operation may continue and entry into MODES 1-4 is not restricted until the next scheduled outage, at which time all RCS head vent valves shall be FUNCTIONAL prior to entry into MODE 1. ------------------------------ Maintain the Nonfunctional valve(s) closed with power removed.	 Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. All vent paths from the above location Nonfunctional.	B.1	Maintain the Nonfunctional valves closed with power removed.	Immediately
	<u>OR</u>		
	B.2.1	Close the manual isolation valves.	Immediately
	<u>AND</u>		
	B.2.2	Restore one vent path from the above locations to FUNCTIONAL status.	72 hours
	<u>OR</u>		
	B.3	Apply LR 3.0.3.	72 hours

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.4.5.1	Each RCS head vent path shall be demonstrated FUNCTIONAL by: a. Verifying the manual isolation valve in the vent path is locked or sealed in the open position. b. Cycling each valve in the vent path through at least one complete cycle of full travel from the control room. c. Verifying flow through the RCS Head vent path to the Pressurizer Relief Tank.	18 months

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.6 Pressurizer Safety Valve Lift Involving Loop Seal or Water Discharge

LR 3.4.6 The OPERABILITY of pressurizer safety valve(s) shall be evaluated after a lift involving loop seal or water discharge.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 with all RCS cold leg temperatures > the enable temperature specified in the PTLR.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
--------------------------------------- **- NOTE -** Required Action A.3 shall be completed whenever this Condition is entered. ---------------------------------------		
A. One or more pressurizer safety valve(s) lift as indicated by the safety valve position indicator with loop seal or water discharge.	A.1 Be in MODE 3.	6 hours
	<u>AND</u>	
	A.2 Be in MODE 4 with any RCS cold leg temperature ≤ the enable temperature specified in the PTLR with RCS overpressure protection provided in accordance with the requirements of Technical Specification 3.4.12.	24 hours
	<u>AND</u>	
	A.3 Initiate action to evaluate the OPERABILITY of the affected valve(s).	30 hours

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.4.6.1	No additional requirements other than the applicable requirements of the Inservice Testing Program.	In accordance with the Inservice Testing Program.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 RCS Pressure Isolation Valves

LR 3.4.7 Each Pressure Isolation Valve listed in Table 3.4.7-1 shall be maintained OPERABLE in accordance with the requirements of Technical Specification (TS) 3.4.14, "RCS Pressure Isolation Valves (PIV) Leakage."

APPLICABILITY: As specified in TS 3.4.14.

TABLE 3.4.7-1 (Page 1 of 1)
RCS PRESSURE ISOLATION VALVES

SYSTEM	VALVE NO.	NOTES
Loop 21, Cold leg, LHSI	2SIS-107	(1)(2)
Loop 22, Cold leg, LHSI	2SIS-108	(1)(2)
Loop 23, Cold leg, LHSI	2SIS-109	(1)(2)
Common, Cold leg, LHSI	2SIS-132 2SIS-133	(2) (2)
Loop 22, Hot leg, LHSI	2SIS-128	(1)
Loop 23, Hot leg, LHSI	2SIS-129	(1)
Common, Hot leg, LHSI	2SIS-130	
Loop 21, Cold leg, SIACC	2SIS-151 2SIS-148	(1)
Loop 22, Cold leg, SIACC	2SIS-145 2SIS-147	(1)(2)
Loop 23, Cold leg, SIACC	2SIS-141 2SIS-142	(1)(2)
Loop 21, Hot leg, RHS-A	2RHS-MOV702A 2RHS-MOV701A	(1) (1)
Loop 22, Cold leg	2RHS-MOV720A	(1)
Loop 21, Hot leg, RHS-B	2RHS-MOV702B 2RHS-MOV701B	(1) (1)
Loop 23, Cold leg	2RHS-MOV720B	(1)

NOTES:

1. Minimum test differential pressures shall not be less than 150 psid.

2. Valve requires additional verification of leakage within the limit 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 months as specified in SR 3.4.14.1.

3.6 CONTAINMENT

3.6.1 Containment Isolation Valves

LR 3.6.1 Each containment isolation valve listed in Table 3.6.1-1 shall be maintained in the manner specified in Technical Specification (TS) 3.6.3.

APPLICABILITY: As specified in TS 3.6.3.

TABLE 3.6.1-1 (Page 1 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-1	Comp Cool from Res Heat Exch	(B)2CCP-MOV157-2 2CCP-RV105	< 60 N/A	(B)2CCP-MOV157-1	< 60
X-2	Comp Cool to Res Heat Exch	(B)2CCP-MOV150-2 2CCP-RV102	< 60 N/A	(B)2CCP-MOV150-1	< 60
X-4	Comp Cool to Res Heat Exch	(B)2CCP-MOV151-2 2CCP-RV103	< 60 N/A	(B)2CCP-MOV151-1	< 60
X-5	Comp Cool from Res Heat Exch	(B)2CCP-MOV156-2 2CCP-RV104	< 60 N/A	(B)2CCP-MOV156-1	< 60
X-6	SPARE				
X-7	High Head Safety Injection	(2) 2SIS-83	N/A	(2)2SIS-MOV869A	N/A
X-9	SPARE				
X-11	Instrument Air	(A)2IAC-MOV133	< 60	(A)2IAC-MOV134	< 60
X-13	SPARE				
X-14	Chill & Service Wtr to Cont. Air Recirc Cooling Coils	(3)(14)2SWS-MOV153-2	N/A	(3)(14)2SWS-MOV153-1 2SWS-RV153	N/A N/A
X-15	CHARGING	(2)2CHS-31	N/A	(2)2CHS-MOV289	< 10
X-16	SPARE				

TABLE 3.6.1-1 (Page 2 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-17	High Head Safety Injection	(2)2SIS-84	N/A	(2)2SIS-MOV869B	N/A
X-19	Seal Water from Reactor Coolant Pump	(A)2CHS-MOV378 2CHS-473	< 60 N/A	(A)2CHS-MOV381	< 60
X-20	Safety Injection Accumulator Makeup	2SIS-42	N/A	2SIS-41 2SIS-RV130	N/A N/A
X-21	Chill & Service Wtr from Cont. Air Recirc Cooling Coils	(B)2SWS-MOV155-2	< 60	(B)2SWS-MOV155-1 2SWS-RV155	< 60 N/A
X-22	SPARE				
X-23	SPARE				
X-24	Residual Heat Removal to Refueling Water Tank	2RHS-107	N/A	2RHS-15 2RHS-RV100	N/A N/A
X-25	Chill & Service Wtr from Cont. Air Recirc Cooling Coils	(3)(14)2SWS-MOV154-2	N/A	(3)(14)2SWS-MOV154-1 2SWS-RV154	N/A N/A
X-27	Chill & Service Wtr to Cont. Air Recirc Cooling Coils	(B)2SWS-MOV152-2	< 60	(B)2SWS-MOV152-1 2SWS-RV152	< 60 N/A

TABLE 3.6.1-1 (Page 3 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-28	Reactor Coolant Letdown	(A)2CHS-AOV200A (A)2CHS-AOV200B (A)2CHS-AOV200C (1)2CHS-HCV142 2CHS-RV203	< 60 < 60 < 60 N/A N/A	(A)2CHS-AOV204	< 60
X-29	Pri Dr. Trans Pump Disch	(A)2DGS-AOV108A	< 60	(A)2DGS-AOV108B 2DGS-RV115	< 60 N/A
X-30	SPARE				
X-31	SPARE				
X-32	SPARE				
X-33	SPARE				
X-34	High Head Injection Line	(2)2SIS-94	N/A	(2)2SIS-MOV836 (2)2SIS-MOV840	N/A N/A
X-35	Inj Seal Wtr to Reactor Coolant Pump	(2)2CHS-474	N/A	(2)2CHS-MOV308A	N/A
X-36	Inj Seal Wtr to Reactor Coolant Pump	(2)2CHS-476	N/A	(2)2CHS-MOV308B	N/A
X-37	Inj Seal Wtr to Reactor Coolant Pump	(2)2CHS-475	N/A	(2)2CHS-MOV308C	N/A
X-38	Sump Pump Discharge	(A)2DAS-AOV100A	< 60	(A)2DAS-AOV100B 2DAS-RV110	< 60 N/A

TABLE 3.6.1-1 (Page 4 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-39	St Gen Blowdown	Closed System	N/A	(2)2BDG-AOV100A-1	< 60
X-40	St Gen Blowdown	Closed System	N/A	(2)2BDG-AOV100B-1	< 60
X-41	St Gen Blowdown	Closed System	N/A	(2)2BDG-AOV100C-1	< 60
X-42	Service Air	2SAS-15	N/A	2SAS-14	N/A
X-43	Air Monitor Sample	2CVS-93	N/A	(A)2CVS-SOV102	< 60
X-44	Air Monitor Sample	(A)2CVS-SOV153B	< 60	(A)2CVS-SOV153A	< 60
X-45	Primary Grade Water	2RCS-72	N/A	(A)2RCS-AOV519 2RCS-RV100	< 60 N/A
X-46	Loop Fill	(2)2CHS-472	N/A	(1)(2)2CHS-FCV160	N/A
X-47	SPARE				
X-48	Primary Vent Header	(A)2VRS-AOV109A-2	< 60	(A)2VRS-AOV109A-1	< 60
X-49	Nitrogen Supply Manifold	2RCS-68	N/A	(A)2RCS-AOV101	< 60
X-50	SPARE				
X-51	SPARE				
X-52	SPARE				
X-53	Nitrogen Manifold	(A)2GNS-AOV101-2	< 10	(A)2GNS-AOV101-1	< 60

TABLE 3.6.1-1 (Page 5 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-55A	Press Relief Tank	(A)2SSR-SOV130A-1	< 60	(A)2SSR-SOV130A-2	< 60
X-55B	Leakage Detection	Open to Containment	N/A	(2)(16)(19)2LMS-SOV953	< 60(4)
X-55C	Hydrogen Analyzer	(1)2HCS-SOV136A	N/A	(1)2HCS-SOV136B	N/A
X-55D	Accumulator Water Sample	(A)2SSR-AOV109A-1	< 60	(A)2SSR-AOV109A-2 2SSR-RV117	< 60 N/A
X-56A	Blowdown Sample	Closed System	N/A	(2)2SSR-AOV117A	< 60
X-56B	Hot Leg Sample	(A)2SSR-SOV128A-1	< 60	(A)2SSR-SOV128A-2 2SSR-RV120	< 60 N/A
X-56C	Cold Leg Sample	(A)2SSR-AOV102A-1	< 60	(A)2SSR-AOV102A-2 2SSR-RV118	< 60 N/A
X-56D	Pressurizer Liquid Space Sample	(A)2SSR-AOV100A-1	< 60	(A)2SSR-AOV100A-2 2SSR-RV119	< 60 N/A
X-57A	Pressurizer Vapor Space Sample	(A)2SSR-AOV112A-1	< 60	(A)2SSR-AOV112A-2 2SSR-RV121	< 60 N/A
X-57B	Leak Detection	Open to Containment	N/A	(2)(16)(19)2LMS-SOV950	< 60(4)
X-57C	Hydrogen Analyzer	(1)2HCS-SOV135A	N/A	(1)2HCS-SOV135B	N/A
X-57D	Blowdown Sample	Closed System	N/A	(2)2SSR-AOV117B	< 60
X-59	Instrument Air Containment	2IAC-22	N/A	(A)2IAC-MOV130	< 60

TABLE 3.6.1-1 (Page 6 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-60	Low Head Safety Injection Discharge	(2)2SIS-132	N/A	(2)2SIS-MOV8888B	N/A
X-61	Low Head Safety Injection Discharge	(2)2SIS-130	N/A	(2)2SIS-MOV8889	N/A
X-62	Low Head Safety Injection Discharge	(2)2SIS-133	N/A	(2)2SIS-MOV8888A	N/A
X-63	Quench Pump Discharge	2QSS-4	N/A	(B)2QSS-MOV101A 2QSS-RV101A	< 60(4) N/A
X-64	Quench Pump Discharge	2QSS-3	N/A	(B)2QSS-MOV101B 2QSS-RV101B	< 60(4) N/A
X-65	Fuel Transfer Tube	(7)Flange	N/A	(6)2ISC-102	N/A
X-66	Recirc Spray Pump Suction	Open to Containment	N/A	(B)(2)2RSS-MOV155A	< 60(4)
X-67	Recirc Spray Pump Suction	Open to Containment	N/A	(B)(2)2RSS-MOV155C	< 60(4)
X-68	Recirc Spray Pump Suction	Open to Containment	N/A	(B)(2)2RSS-MOV155D	< 60(4)
X-69	Recirc Spray Pump Suction	Open to Containment	N/A	(B)(2)2RSS-MOV155B	< 60(4)
X-70	Recirculation Pump Discharge	(2)2RSS-29	N/A	(B)(2)2RSS-MOV156A (6) 2RSS-RV156A	< 60(4) N/A

TABLE 3.6.1-1 (Page 7 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-71	Recirculation Pump Discharge	(2)2RSS-31	N/A	(10)(B)(2)2RSS-MOV156C (6)2RSS-RV156C	< 60(4) N/A
X-73	Main Steam System “A”	Closed System	N/A	(2)2MSS-AOV101A	6(21)
		Closed System	N/A	(2)2MSS-AOV102A	N/A
		Closed System	N/A	(2)(17)2MSS-SOV105A	N/A
		Closed System	N/A	(2)(15)2MSS-SOV120	N/A
		Closed System	N/A	(6)2MSS-SV101A	N/A
		Closed System	N/A	(6)2MSS-SV102A	N/A
		Closed System	N/A	(6)2MSS-SV103A	N/A
		Closed System	N/A	(6)2MSS-SV104A	N/A
		Closed System	N/A	(6)2MSS-SV105A	N/A
	Steam Drains System	Closed System	N/A	(2)2SDS-AOV111A-1	< 60
		Closed System	N/A	(2)2SDS-AOV129B	< 60
	Steam Vent System	Closed System	N/A	(6)2SVS-PCV101A	N/A
		Closed System	N/A	(6)2SVS-HCV104	N/A

TABLE 3.6.1-1 (Page 8 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-74	Main Steam System “B”	Closed System	N/A	(2)2MSS-AOV101B	6(21)
		Closed System	N/A	(2)2MSS-AOV102B	N/A
		Closed System	N/A	(2)(17)2MSS-SOV105B	N/A
		Closed System	N/A	(2)(15)2MSS-SOV120	N/A
		Closed System	N/A	(6)2MSS-SV101B	N/A
		Closed System	N/A	(6)2MSS-SV102B	N/A
		Closed System	N/A	(6)2MSS-SV103B	N/A
		Closed System	N/A	(6)2MSS-SV104B	N/A
		Closed System	N/A	(6)2MSS-SV105B	N/A
	Steam Drains System	Closed System	N/A	(2)2SDS-AOV111B-1	< 60
		Closed System	N/A	(2)2SDS-AOV129B	< 60
	Steam Vent System	Closed System	N/A	(6)2SVS-PCV101B	N/A
		Closed System	N/A	(6)2SVS-HCV104	N/A

TABLE 3.6.1-1 (Page 9 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-75	Main Steam System “C”	Closed System	N/A	(2)2MSS-AOV101C	6(21)
		Closed System	N/A	(2)2MSS-AOV102C	N/A
		Closed System	N/A	(2)(17)2MSS-SOV105C	N/A
		Closed System	N/A	(2)(15)2MSS-SOV120	N/A
		Closed System	N/A	(6)2MSS-SV101C	N/A
		Closed System	N/A	(6)2MSS-SV102C	N/A
		Closed System	N/A	(6)2MSS-SV103C	N/A
		Closed System	N/A	(6)2MSS-SV104C	N/A
		Closed System	N/A	(6)2MSS-SV105C	N/A
	Steam Drains System	Closed System	N/A	(2)2SDS-AOV111C-1	< 60
		Closed System	N/A	(2)2SDS-AOV129B	< 60
	Steam Vent System	Closed System	N/A	(6)2SVS-PCV101C	N/A
		Closed System	N/A	(6)2SVS-HCV104	N/A
X-76	Feedwater “A”	Closed System	N/A	(2)2FWS-HYV157A (20)(6)2FWS-28	7(18) N/A

TABLE 3.6.1-1 (Page 10 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-77	Feedwater “B”	Closed System	N/A	(2)2FWS-HYV157B (20)(6)2FWS-29	7(18) N/A
X-78	Feedwater “C”	Closed System	N/A	(2)2FWS-HYV157C (20)(6)2FWS-30	7(18) N/A
X-79	Aux Feed “A”	Closed System (20)(6)2FWE-99	N/A	(2)2FWE-HCV100E (2)2FWE-HCV100F (20)(6)2FWE-42A (20)(6)2FWE-42B	N/A N/A N/A N/A
X-80	Aux Feed “B”	Closed System (20)(6)2FWE-100	N/A	(2)2FWE-HCV100C (2)2FWE-HCV100D (20)(6)2FWE-43A (20)(6)2FWE-43B	N/A N/A N/A N/A
X-83	Aux Feed “C”	Closed System (20)(6)2FWE-101	N/A	(2)2FWE-HCV100A (2)2FWE-HCV100B (20)(6)2FWE-44A (20)(6)2FWE-44B	N/A N/A N/A N/A
X-87	Hydrogen Recombiner Discharge	Open to Containment	N/A	(1)2HCS-MOV117 2HCS-111	N/A N/A
X-88	Hydrogen Recombiner Discharge	Open to Containment	N/A	(1)2HCS-MOV116 2HCS-110	N/A N/A
X-89	SPARE				
X-90	Purge Duct Exhaust	(5)(14)2HVR-MOD23B	10	(5)(14)2HVR-MOD23A	10

TABLE 3.6.1-1 (Page 11 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-91	Purge Duct Supply	(5)(14)2HVR-MOD25B	10	(5)(14)2HVR-MOD25A (5)(14)2HVR-DMP206	10 N/A
X-92	Hydrogen Recombiner Isolation	Open to Containment	N/A	(1)2HCS-SOV114B (1)2HCS-SOV115B	N/A N/A
	Reactor Cont. Vacuum Pump Suction			(A)2CVS-SOV151B (A)2CVS-SOV152B	< 5 < 5
X-93	Hydrogen Recombiner Isolation	Open to Containment	N/A	(1)2HCS-SOV114A (1)2HCS-SOV115A	N/A N/A
	Reactor Cont. Vacuum Isolation			(A)2CVS-SOV151A (A)2CVS-SOV152A	< 5 < 5
X-94	Ejector Suction	(14)2CVS-151	N/A	(14)2CVS-151-1	N/A
X-96	SPARE				
X-97A	Leakage Detection	Open to Containment	N/A	(2)(16)(19)2LMS-SOV952	< 60(4)
X-97B	Hydrogen Analyzer	(1)2HCS-SOV133B	N/A	(1)2HCS-SOV134B	N/A
X-97C	Liquid Sample - Cont. Sump & RHS	(A)2SSR-SOV129A-1	< 60	(A)2SSR-SOV129A-2 2SSR-RV122	< 60 N/A
X-97D	Blowdown Sample	Closed System	N/A	(2)2SSR-AOV117C	< 60

TABLE 3.6.1-1 (Page 12 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-98	SPARE				
X-99	Hose Rack Supply	2FPW-761	N/A	(A)2FPW-AOV206	< 60
X-100	SPARE				
X-101	Reactor Cont. Deluge - Cable Pent. Area & RHS Pump	2FPW-753	N/A	(A)2FPW-AOV205	< 60
X-103	Reactor Cavity Purif Inlet	2FNC-121	N/A	2FNC-38	N/A
X-104	Reactor Cavity Purif Outlet	2FNC-122	N/A	2FNC-9	N/A
X-105A	Post Accident Sampling	(A)2PAS-SOV105A-1	< 60	(A)2PAS-SOV105A-2	< 60
X-105B	Hydrogen Analyzer	(1)2HCS-SOV133A	N/A	(1)2HCS-SOV134A	N/A
X-105C	Leak Detection	Open to Containment	N/A	(2)(16)(19)2LMS-SOV951	< 60(4)
X-105D	Leak Detection	Open to Containment	N/A	2LMS-51 2LMS-52	N/A N/A
X-106	Safety Inj. Test Line	(A)2SIS-MOV842	< 60	(A)2SIS-AOV889 2SIS-RV175	< 60 N/A
X-108	SPARE				

TABLE 3.6.1-1 (Page 13 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-110A	SPARE				
X-110B	SPARE				
X-110C	SPARE				
X-110D	SPARE				
X-113	Safety Injection	(2)2SIS-95	N/A	(2)2SIS-MOV867C (2)2SIS-MOV867D	< 10(4) < 10(4)
X-114	Recirculation Pump Discharge	(2)2RSS-32	N/A	(10)(B)(2)2RSS-MOV156D (6)2RSS-RV156D	< 60(4) N/A
X-115	Recirculation Pump Discharge	(2)2RSS-30	N/A	(B)(2)2RSS-MOV156B (6)2RSS-RV156B	< 60(4) N/A
X-116	SPARE				
X-117	SPARE				
X-118A	SPARE				
X-118B	SPARE				
X-118C	SPARE				

TABLE 3.6.1-1 (Page 14 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
X-118D	SPARE				
X-118E	SPARE				
X-119A	RVLIS			(2)(12)	N/A
X-119B	RVLIS			(2)(12)	N/A
X-119C	RVLIS			(2)(12)	N/A
X-119D	RVLIS			(2)(12)	N/A
X-119E	RVLIS			(2)(12)	N/A
X-119F	RVLIS			(2)(12)	N/A

TABLE 3.6.1-1 (Page 15 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)
Primary Containment Personnel Air Lock 2PHS-PAL 1					
	Equalizing Valve	(1)(7)2PHS-112	N/A		
	Equalizing Valve	(1)(7)2PHS-113	N/A		
	Equalizing Valve	(1)(7)2PHS-101	N/A		
	Equalizing Valve			(1)(7)2PHS-110	N/A
	Equalizing Valve			(1)(7)2PHS-111	N/A
	Equalizing Valve			(1)(7)2PHS-100	N/A
Emergency Containment Air Lock 2PHS-EAL 1					
	Equalizing Valve	(1)(7)2PHS-202	N/A		
	Equalizing Valve			(1)(7)2PHS-201	N/A

NOTES:

(A) Containment Isolation Phase A.

(B) Containment Isolation Phase B.

(1) May be opened on an intermittent basis under administrative control.

(2) Not subject to Type C leakage tests.

(3) No credit is taken for the CIB actuation.

(4) Maximum opening time.

(5) When required by Technical Specification 3.9.3.

TABLE 3.6.1-1 (Page 16 of 17)
CONTAINMENT PENETRATIONS

PENT. No.	IDENTIFICATION DESCRIPTION	INSIDE VALVE	MAXIMUM STROKE TIME (SEC)	OUTSIDE VALVE	MAXIMUM STROKE TIME (SEC)

NOTES (Continued):

(6) Not subject to the requirements of Specifications 3.6.1 and 3.6.3. Listed for information only.

(7) Tested under Type "B" testing.

(8) Not used.

(9) Not used.

(10) Auto close on Safety Injection recirculation signal.

(11) Not used.

(12) Isolation is provided by bellows operated hydraulic isolators.

(13) Not used.

(14) Valve will be locked shut in Modes 1, 2, 3 and 4.

(15) Auto open on Safety Injection Signal.

(16) Valve operability includes remote closure capability.

TABLE 3.6.1-1 (Page 17 of 17)
CONTAINMENT PENETRATIONS

NOTES (Continued):

(17) The downstream SOV in the steam supply line to the turbine driven AFW pump may be used as the containment isolation valve. The valves may be substituted as follows:

2MSS-SOV105D	for	2MSS-SOV105A
2MSS-SOV105E	for	2MSS-SOV105B
2MSS-SOV105F	for	2MSS-SOV105C

It is noted for reference that rendering one of the subject valves inoperable may also invoke additional restrictions per Technical Specification 3.7.5 for the steam driven AFW pump. The following criteria provides an acceptable interim arrangement to meet both Technical Specifications 3.6.3 and 3.7.5:

VALVE CLOSED AND INOPERABLE	INOPERABLE ISOLATED STEAM SUPPLY	STEAM SUPPLY REQUIRED TO REMAIN OPERABLE, 3.7.5	VALVE REQUIRED TO REMAIN ADMIN. CONTROLLED OPEN
2MSS-SOV105A	A	B,C	2MSS-SOV105F
2MSS-SOV105D	A	B,C	2MSS-SOV105F
2MSS-SOV105B	B	A,C	2MSS-SOV105C
2MSS-SOV105E	B	A,C	2MSS-SOV105C
2MSS-SOV105C	C	A,B	None
2MSS-SOV105F	C	A,B	None

(18) Feedwater isolation time specified includes signal processing time and valve closure time. Valve closure times shall be limited such that when added to the signal processing time the total isolation time specified on Table 3.6.1-1 is not exceeded. Valve closure time required within limit by Technical Specification SR 3.7.3.1.

(19) May be open as described in UFSAR.

(20) This valve is not a containment isolation valve as described in UFSAR Section 6.2.4.

(21) Valve isolation time required by Technical Specification SR 3.7.2.1.

3.6 CONTAINMENT

3.6.2 Containment Sump

LR 3.6.2 The containment does not have loose debris present that could be transported to the containment sump and cause restriction of the Emergency Core Cooling System pump suctions during LOCA conditions.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply the provisions of LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.6.2.1	-- **- NOTE -** Only required to be performed if LRS 3.6.2.2 is not met for each containment entry. -- Verify by visual inspection of all accessible areas of the containment that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the Emergency Core Cooling System pump suctions during LOCA conditions.	Prior to establishing containment OPERABILITY per Technical Specification 3.6.1
LRS 3.6.2.2	Verify by visual inspection of the areas affected within containment that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the Emergency Core Cooling System pump suctions during LOCA conditions.	At the completion of each containment entry

3.7 PLANT SYSTEMS

3.7.1 Steam Generator Pressure/Temperature Limitation

LR 3.7.1 The pressure of the primary and secondary coolants in each steam generator shall be ≤ 200 psig.

APPLICABILITY: Whenever the temperature of the primary or secondary coolant in the associated steam generator is ≤ 70°F and the primary or secondary systems of the associated steam generator are capable of being pressurized.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Reduce the steam generator pressure of the applicable side to ≤ 200 psig.	30 minutes
	AND	
	A.2 Perform an analysis to determine the effect of the overpressurization on the structural integrity of the steam generator. Determine that the steam generator remains acceptable for continued operation.	Prior to increasing its temperatures above 200°F

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.1.1	Verify the pressure in each side of the steam generator is ≤ 200 psig.	Once per hour

3.7 PLANT SYSTEMS

3.7.2 Flood Protection

LR 3.7.2 Flood protection shall be provided for all safety related systems, components and structures when the water level of the Ohio River exceeds 695 Mean Sea Level at the intake structure.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Water level at the intake structure above elevation 695 Mean Sea Level.	A.1 Install and seal the flood doors in the intake structure.	8 hours
B. ----------------------------------- **- NOTE -** Only applicable in MODES 1, 2, 3, and 4. ----------------------------------- Water level at the intake structure above elevation 695 Mean Sea Level.	B.1 Confirm the actual Ohio River level is ≤ 700 Mean Sea Level. AND B.2 Verify the forecasted peak Ohio River level is ≤ 700 Mean Sea Level.	Immediately 2 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODES 1, 2, 3, and 4.	C.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.2.1	When the water level is < elevation 690 Mean Sea Level, verify water level at the intake structure.	24 hours
LRS 3.7.2.2	When the water level is ≥ elevation 690 Mean Sea Level, verify water level at the intake structure.	2 hours

3.7 PLANT SYSTEMS

3.7.3 Sealed Source Contamination

LR 3.7.3 Each sealed source containing radioactive material either in excess of 100 microcuries of beta and/or gamma-emitting material or 5 microcuries of alpha-emitting material shall be free of ≥ 0.005 microcuries of removable contamination.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Sealed source removable contamination in excess of the limit.	A.1	Withdraw the sealed source from use.	Immediately
	AND		
	A.2.1	Initiate action to decontaminate and repair the sealed source.	Immediately
	OR		
	A.2.2	Initiate action to dispose of the sealed source in accordance with Commission Regulations.	Immediately
B. Sealed source or fission detector leakage tests reveal the presence of ≥ 0.005 microcuries of removable contamination.	B.1	Prepare and submit a Special Report in accordance with 10 CFR 50.4.	On an annual basis

LICENSING REQUIREMENT SURVEILLANCES

- NOTES -

1. Each sealed source shall be tested for leakage and/or contamination by the licensee or other persons specifically authorized by the Commission or an Agreement State.
2. The test method shall have a detection sensitivity of at least 0.005 microcuries per test sample.
3. Startup sources and fission detectors previously subjected to core flux are excluded from the following test requirements.

SURVEILLANCE		FREQUENCY
LRS 3.7.3.1	For sealed sources in use containing radioactive materials with a half-life > 30 days (excluding Hydrogen 3) and in any form other than gas, verify removable contamination within the limit.	6 months
LRS 3.7.3.2	For stored sealed sources and fission detectors not in use, verify removable contamination within the limit.	Prior to use or transfer to another licensee unless tested within the previous 6 months
LRS 3.7.3.3	For sealed sources and fission detectors transferred without a certificate indicating the last test date, verify removable contamination within the limit.	Prior to use
LRS 3.7.3.4	For sealed startup sources and fission detectors, verify removable contamination within the limit.	31 days prior to being installed in the core or exposed to core flux <u>AND</u> Following repair or maintenance to the source

3.7 PLANT SYSTEMS

3.7.4 Snubbers

LR 3.7.4 All snubbers shall be FUNCTIONAL.

- NOTE -

Snubbers excluded from this LR are those installed on non-safety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, 3, and 4,
MODES 5 and 6 for snubbers located on systems required OPERABLE/ FUNCTIONAL in those MODES.

- NOTE -

The systems required in MODES 5 and 6 are defined as those portions or subsystems required to prevent releases in excess of 10 CFR 50.67 limits.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required snubbers Nonfunctional.	A.1 Replace or restore the Nonfunctional snubber(s) to FUNCTIONAL status.	In accordance with Table 3.7.4-1
	<u>AND</u>	
	A.2.1 Perform an engineering evaluation per Paragraph ISTD-1800 of the ASME OM Code on the supported component.	In accordance with Table 3.7.4-1
	<u>OR</u>	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.2.2	Declare the supported system inoperable/ Nonfunctional (as applicable) and follow the appropriate ACTIONS for that system.	In accordance with Table 3.7.4-1

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.4.1	Each snubber shall be demonstrated FUNCTIONAL in accordance with Subsection ISTD, “Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Power Plants,” ASME OM Code 2004 Edition up to and including the 2006 Addenda. Preservice and inservice examinations of snubbers shall be performed in accordance with ASME OM Code Subsection ISTD-4000. (Reference: Paragraph (b)(3)(v)(B) of 10 CFR 50.55a, “Codes and Standards.”)	In accordance with Subsection ISTD of the ASME OM Code 2004 Edition up to and including the 2006 Addenda. Inservice examination frequency may be extended in accordance with Code Case OMN-13, Rev. 0 (2004 Edition).

TABLE 3.7.4-1 (Page 1 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2BDG-PSSP868	2" Steam Sample line from S/G 21A	Between 2RCS*SG21A &2BDG*457	Yes	72
2BDG-PSSP876	2" Steam Sample line from S/G 21A	Between 2BDG*457 & 2BDG*AOV102A1	Yes	72
2BDG-PSSP927	3" line from S/G 21B to Tk21	Between 2BDG*AOV101B1 & 2BDG*AOV101B2	Yes	72
2BDG-PSSP945	2" Steam Sample line from S/G 21C	Between 2RCS*SG21C &2BDG*459	Yes	72
2BDG-PSSP947	2" Steam sample line from S/G 21A	Between 2BDG*AOV102A1 & 2SSR*AOV117A	Yes	72
2BRS-PSSP091Y	2" supply line to Degas Steam Heater, E21A	Between 2BRS*AOV106A/2BRS*1 & 2BRS*E21A	Yes	72
2CCP-PSSP301	20" CCP supply line to CCP Hx 21A	Between 20 " CCP Hdr & 2CCP*DCV101A	Yes	12
2CCP-PSSP317A	20" CCP supply header to CCP Hx's	Between 2CCP*7, *27A & *DCV101A	Yes	12
2CCP-PSSP317B	20" CCP supply header to CCP Hx's	Between 2CCP*7, *27A & *DCV101A	Yes	12
2CHS-PSSP006	3" Charging line from Regen Hx to Loop B	Between 2CHS*871 & 2CHS*870	Yes	12
2CHS-PSSP015X	3" Charging line from Regen Hx to Loop B	Between 2CHS*871 & 2CHS*870	Yes	12
2CHS-PSSP016X	Loop C CHS Fill line	Between 2CHS*170 & 2RCS*MOV556C	Yes	72
2CHS-PSSP017X	Loop A CHS Fill line	Between 2CHS*170 & 2RCS*MOV556A	Yes	72
2CHS-PSSP024	CHS Seal Water Injection to 2RCS*P21A	Between 2CHS*181 & 2CHS*184	Yes	12
2CHS-PSSP025	CHS Seal Water Injection to 2RCS*P21A	Between 2CHS*181 & 2CHS*184	Yes	12
2CHS-PSSP025X	CHS Seal Water Injection to 2RCS*P21B	Between 2CHS*182 & 2CHS*185	No	

TABLE 3.7.4-1 (Page 2 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2CHS-PSSP252Y	4" HHSI line to RCS loops	Between 2CHS*25/*MOV8132A & MOV867B/869A&B	Yes	12
2CHS-PSSP308A	3" CHS line to Seal Water Hx	Between 2CHS*MOV381 & 2CHS*214	Yes	12
2CHS-PSSP308B	3" CHS line to Seal Water Hx	Between 2CHS*MOV381 & 2CHS*214	Yes	12
2CHS-PSSP660X	Loop B CHS Fill line	Between 2CHS*170 & 2RCS*MOV556B	Yes	72
2CHS-PSSP673X	2" Letdown line from Loop A to Regen Hx	Between Loop A & 2CHS*1	Yes	12
2CHS-PSSP685C	2" Letdown line to Non-regen Hx	Between 2CHS*AOV204 & Non-regen Hx	No	
2DGS-PSSP879	Loop C 2" drain line	Between 2RCS*9 & 2DGS*300	Yes	72
2EDG-PSSP029A	Diesel Gen 2EGS*EG2-1 exhaust hdr	Exhaust Silencer 3A discharge to atmosphere	Yes	12
2EDG-PSSP029B	Diesel Gen 2EGS*EG2-1 exhaust hdr	Exhaust Silencer 3A discharge to atmosphere	Yes	12
2EDG-PSSP030Y	Diesel Gen 2EGS*EG2-1 exhaust hdr	Exhaust Silencer 3A discharge to atmosphere	Yes	12
2EDG-PSSP033Y	Diesel Gen 2EGS*EG2-2 exhaust hdr	Exhaust Silencer 3B discharge to atmosphere	Yes	12
2EDG-PSSP042A	Diesel Gen 2EGS*EG2-2 exhaust hdr	Exhaust Silencer 3B discharge to atmosphere	Yes	12
2EDG-PSSP042B	Diesel Gen 2EGS*EG2-2 exhaust hdr	Exhaust Silencer 3B discharge to atmosphere	Yes	12
2FWE-PSSP009	4" Aux Feed Water line to S/G 21C	Between 2FWE*44B * 2FWE*101	Yes	72
2FWE-PSSP010	4" Aux Feed Water line to S/G 21C	Between 2FWE*44B * 2FWE*101	Yes	72
2FWE-PSSP354A	Aux FW Pump P22 6" discharge line	Between 2FWE*P22 & 2FWE*FCV122	No	
2FWE-PSSP354B	Aux FW Pump P22 6" discharge line	Between 2FWE*P22 & 2FWE*FCV122	No	
2FWS-PSSP001	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	
2FWS-PSSP002A	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	

TABLE 3.7.4-1 (Page 3 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2FWS-PSSP002B	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	
2FWS-PSSP003A	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	
2FWS-PSSP003B	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	
2FWS-PSSP005	16" FW supply line to S/G 21B	Between 2FWS*29 & 2RCS*SG21B	No	
2FWS-PSSP006	16" FW supply line to S/G 21C	Between 2FWS*30 & 2RCS*SG21C	No	
2FWS-PSSP012	16" FW supply line to S/G 21A	Between 2FWS*28 & 2RCS*SG21A	No	
2FWS-PSSP016	16" FW supply line to S/G 21A	Between 2FWS-25 & 2FWS*HYV157A	No	
2FWS-PSSP036	16" FW supply line to S/G 21B	Between 2FWS-26 & 2FWS*HYV157B	No	
2FWS-PSSP039	16" FW supply line to S/G 21B	Between 2FWS-26 & 2FWS*HYV157B	No	
2FWS-PSSP060	16" FW supply line to S/G 21C	Between 2FWS*FCV498 & 2FWS-27	No	
2MSS-PSSP001	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP002A	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP002B	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP003A	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP003B	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP005	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP006	32" Main Steam line from S/G 21A	Between 2RCS*SG21A & Cnmt Pen X-73	No	
2MSS-PSSP007	32" Main Steam line from S/G 21B	Between 2RCS*SG21B & Cnmt Pen X-74	No	
2MSS-PSSP008A	32" Main Steam line from S/G 21B	Between 2RCS*SG21B & Cnmt Pen X-74	No	
2MSS-PSSP008B	32" Main Steam line from S/G 21B	Between 2RCS*SG21B & Cnmt Pen X-74	No	

TABLE 3.7.4-1 (Page 4 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2MSS-PSSP009	32" Main Steam line from S/G 21C	Between 2RCS*SG21C & Cnmt Pen X-75	No	
2MSS-PSSP011A	32" Main Steam line from S/G 21C	Between 2RCS*SG21C & Cnmt Pen X-75	No	
2MSS-PSSP011B	32" Main Steam line from S/G 21C	Between 2RCS*SG21C & Cnmt Pen X-75	No	
2MSS-PSSP012	32" Main Steam line from S/G 21C	Between 2RCS*SG21C & Cnmt Pen X-75	No	
2MSS-PSSP103	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP107	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP108A	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP108B	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP110	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP111A	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP111B	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP112A	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP112B	32" Main Steam line from S/G 21A	Between 2MSS*AOV101A & 38" Steam Hdr	No	
2MSS-PSSP124	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP128A	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP128B	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP130	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP131A	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP131B	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	

TABLE 3.7.4-1 (Page 5 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2MSS-PSSP132A	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP132B	32" Main Steam line from S/G 21B	Between 2MSS*AOV101B & 38" Steam Hdr	No	
2MSS-PSSP144	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP147A	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP147B	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP149	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP150A	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP150B	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP151A	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP151B	32" Main Steam line from S/G 21C	Between 2MSS*AOV101C & 38" Steam Hdr	No	
2MSS-PSSP164	Restraint to 38" Steam Header	Attached to west end of Header	No	
2MSS-PSSP165	Restraint to 38" Steam Header	Attached to west end of Header	No	
2MSS-PSSP168	Restraint to 38" Steam Header	Attached to east end of Header	No	
2MSS-PSSP456	Steam supply line to Aux FW Pump P22	Between 2MSS*18 & 2FWE*TTV22	No	
2MSS-PSSP476	Steam supply line to Aux FW Pump P22	Between 2MSS*18/*196/*199 & 2SDS*251/*252	No	
2QSS-PSSP101Y	QSS Pump 21B SWS discharge line	Between 2QSS*P21B & 2QSS*MOV101B/*9	No	
2QSS-PSSP129Y	QSS Pump 21A SWS discharge line	Between 2QSS*P21A & 2QSS*MOV101A	No	
2QSS-PSSP131Y	QSS Pump 21A SWS discharge line	Between 2QSS*P21A & 2QSS*MOV101A/*98	No	

TABLE 3.7.4-1 (Page 6 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	**Plant Location**	**System Boundaries**	**LCO 3.0.8 Applies**	**Completion Time**
2QSS-PSSP138Y	QSS Pump 21B SWS discharge line	Between 2QSS*P21B & 2QSS*MOV101B/*9	No	
2QSS-PSSP154X	RWST supply to Refuel Wtr Cooling pumps	Between 2QSS*AOV120B & 2QSS*AOV120A	Yes	12
2QSS-PSSP217X	RWST supply to Refuel Wtr Cooling pumps	Between RWST & 2QSS*AOV120B	Yes	12
2RCS-PSSP001X	4" PZR Spray line from Loop A	From Loop A cold leg to 2RCS*PCV455A	Yes	12
2RCS-PSSP006A	6" PZR relief line to PORV's	Between PZR & PORV's	No	
2RCS-PSSP007X	6" PZR relief line to PORV	Between PZR & 2RCS*MOV536	No	
2RCS-PSSP009A	6" PZR relief line from PORV	Downstream of 2RCS*PCV456	No	
2RCS-PSSP009B	6" PZR relief line from PORV	Downstream of 2RCS*PCV456	No	
2RCS-PSSP010A	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP010B	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP011X	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP012A	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP012B	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP014A	PZR Code Safety Valve discharge line	Between 2RCS*RV551B & 12" Hdr to PRT	No	
2RCS-PSSP014B	PZR Code Safety Valve discharge line	Between 2RCS*RV551B & 12" Hdr to PRT	No	
2RCS-PSSP015X	PZR Code Safety Valve discharge line	Between 2RCS*RV551B & 12" Hdr to PRT	No	
2RCS-PSSP016X	PZR Code Safety Valve discharge line	Between 2RCS*RV551B & 12" Hdr to PRT	No	
2RCS-PSSP017X	PZR Code Safety Valve discharge line	Between 2RCS*RV551B & 12" Hdr to PRT	No	
2RCS-PSSP018X	PZR Code Safety Valve discharge line	Between 2RCS*RV551A & 12" Hdr to PRT	No	

TABLE 3.7.4-1 (Page 7 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2RCS-PSSP019X	PZR Code Safety Valve discharge line	Between 2RCS*RV551A & 12" Hdr to PRT	No	
2RCS-PSSP020X	PZR Code Safety Valve discharge line	Between 2RCS*RV551A & 12" Hdr to PRT	No	
2RCS-PSSP021X	PZR Code Safety Valve discharge line	Between 2RCS*RV551A & 12" Hdr to PRT	No	
2RCS-PSSP022	Loop A 2" drain line	Between 2RCS*5 & 2DGS*300	Yes	72
2RCS-PSSP022X	6" PZR relief line to PORV	Between PZR & 2RCS*MOV535	No	
2RCS-PSSP022Y	6" PZR relief line to PORV	Between PZR & 2RCS*MOV535	No	
2RCS-PSSP023X	3" PZR relief line to PORV	Between 2RCS*MOV535 & 2RCS*PCV455C	No	
2RCS-PSSP026	Loop B 2" drain line	Between 2RCS*7 & 2DGS*300	Yes	72
2RCS-PSSP026A	6" PZR relief line from PORV	Between 2RCS*PCV455C & 12" Hdr to PRT	No	
2RCS-PSSP026B	6" PZR relief line from PORV	Between 2RCS*PCV455C & 12" Hdr to PRT	No	
2RCS-PSSP028	Loop A 2" drain line	Between 2RCS*5 & 2DGS*300	Yes	72
2RCS-PSSP029X	6" PZR relief line from PORV's	Between 2RCS*PCV455C/D & 12" Hdr to PRT	No	
2RCS-PSSP030	Loop B 2" drain line	Between 2RCS*7 & 2DGS*300	Yes	72
2RCS-PSSP030X	6" PZR relief line to PORV	Between PZR & 2RCS*MOV537	No	
2RCS-PSSP031X	3" PZR relief line to PORV	Between 2RCS*MOV537 & 2RCS*PCV455D	No	
2RCS-PSSP035	Loop C 2" drain line	Between 2RCS*9 & 2DGS*300	Yes	72
2RCS-PSSP035X	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP653	Loop B 2" drain line	Between 2RCS*7 & 2DGS*300	Yes	72
2RCS-PSSP882	12" Header from PZR to PRT	Upstream of PRT	No	

TABLE 3.7.4-1 (Page 8 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	**Plant Location**	**System Boundaries**	**LCO 3.0.8 Applies**	**Completion Time**
2RCS-PSSP883A	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP883B	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP884A	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP884B	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP885	12" Header from PZR to PRT	Upstream of PRT	No	
2RCS-PSSP887A	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP887B	PZR Code Safety Valve discharge line	Between 2RCS*RV551C & 12" Hdr to PRT	No	
2RCS-PSSP890	6" PZR relief line from PORV	Between 2RCS*PCV455C & 12" Hdr to PRT	No	
2RCS-PSSP891A	6" PZR relief line from PORV	Between 2RCS*PCV455C & 12" Hdr to PRT	No	
2RCS-PSSP891B	6" PZR relief line from PORV	Between 2RCS*PCV455C & 12" Hdr to PRT	No	
2RCS-PSSP892A	6" PZR relief line from PORV's	Between PORV's & 12" Hdr to PRT	No	
2RCS-PSSP892B	6" PZR relief line from PORV's	Between PORV's & 12" Hdr to PRT	No	
2RCS-PSSP893	6" PZR relief line from PORV's	Between PORV's & 12" Hdr to PRT	No	
2RCS-PSSP894	6" PZR relief line from PORV	Between 2RCS*PCV455D & 12" Hdr to PRT	No	
2RCS-PSSP896	6" PZR relief line from PORV	Between 2RCS*PCV455D & 12" Hdr to PRT	No	
2RCS-PSSP897	6" PZR relief line from PORV	Between 2RCS*PCV456 & 12" Hdr to PRT	No	
2RCS-PSSP898	3" PZR relief line to PORV	Between 2RCS*MOV536 & 2RCS*PCV456	No	
2RCS-PSSP906	6" relief line from four RV's to PRT	Between RV's for RHS/CHS & 12" Hdr to PRT	No	
2RCS-SN21A10	Upper S/G Restraint	2RCS*SG21A	No	

TABLE 3.7.4-1 (Page 9 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2RCS-SN21A12	Upper S/G Restraint	2RCS*SG21A	No	
2RCS-SN21B10	Upper S/G Restraint	2RCS*SG21B	No	
2RCS-SN21B12	Upper S/G Restraint	2RCS*SG21B	No	
2RCS-SN21C10	Upper S/G Restraint	2RCS*SG21C	No	
2RCS-SN21C12	Upper S/G Restraint	2RCS*SG21C	No	
2RHS-PSSP003	10" Return line from RHS Hx 21B	Between 2RHS*HCV758B & 2RHS*MOV720B	Yes	72
2RHS-PSSP005	6" RHS relief line to PRT	Downstream from 2RHS*RV721A/*RV721B	No	
2RHS-PSSP007	10" RHS Pump 21A SWS discharge line	Between 2RHS*5 & 2RHS*E21A/*FCV605A	Yes	72
2RHS-PSSP008A	10" Return line from RHS Hx 21A	Between 2RHS*HCV758A & 2RHS*MOV720A	Yes	72
2RHS-PSSP008B	10" Return line from RHS Hx 21A	Between 2RHS*HCV758A & 2RHS*MOV720A	Yes	72
2RHS-PSSP013X	6" RHS relief line to PRT	Downstream from 2RHS*RV721B	No	
2RHS-PSSP521X	12" RHS supply line from RCS	Between Loop A & 2RHS*MOV702A/B	No	
2RHS-PSSP522X	12" RHS supply line from RCS	Between 2RHS*MOV702A & 2RHS*MOV701A	No	
2RSS-PSSP124A	12" RSS intake to RSS Hx 21A	Between 2RSS*P21A & 2RSS*E21A	No	
2RSS-PSSP124B	12" RSS intake to RSS Hx 21A	Between 2RSS*P21A & 2RSS*E21A	No	
2RSS-PSSP129A	12" RSS intake to RSS Hx 21C	Between 2RSS*P21C & 2RSS*E21C	No	
2RSS-PSSP129B	12" RSS intake to RSS Hx 21C	Between 2RSS*P21C & 2RSS*E21C	No	

TABLE 3.7.4-1 (Page 10 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	**Plant Location**	**System Boundaries**	**LCO 3.0.8 Applies**	**Completion Time**
2RSS-PSSP134A	12" RSS intake to RSS Hx 21D	Between 2RSS*P21D & 2RSS*E21D	No	
2RSS-PSSP134B	12" RSS intake to RSS Hx 21D	Between 2RSS*P21D & 2RSS*E21D	No	
2RSS-PSSP139A	12" RSS intake to RSS Hx 21B	Between 2RSS*P21B & 2RSS*E21B	No	
2RSS-PSSP139B	12" RSS intake to RSS Hx 21B	Between 2RSS*P21B & 2RSS*E21B	No	
2RSS-PSSP465X	RSS Hx 21D 12"SWS discharge line	Between E21D & 2RSS*MOV156D	No	
2RSS-PSSP572A	4" recirc line to RSS Pump 21A	Between 2RSS*5 & 2RSS*P21A	Yes	72
2RSS-PSSP572B	4" recirc line to RSS Pump 21A	Between 2RSS*5 & 2RSS*P21A	Yes	72
2RSS-PSSP577	4" recirc line to RSS Pump 21D	Between 2RSS*8 & 2RSS*P21D	Yes	72
2RSS-PSSP579A	4" recirc line to RSS Pump 21B	Between 2RSS*6 & 2RSS*P21B	Yes	72
2RSS-PSSP579B	4" recirc line to RSS Pump 21B	Between 2RSS*6 & 2RSS*P21B	Yes	72
2SIS-PSSP006A	6" LHSI line to Loop A cold leg	Between 2SIS*132/133 & 2SIS*107	Yes	12
2SIS-PSSP006B	6" LHSI line to Loop A cold leg	Between 2SIS*132/133 & 2SIS*107	Yes	12
2SIS-PSSP014A	4" HHSI line to RCS	Between 2CHS*25/*MOV8132A & 2SIS*MOV869A	Yes	72
2SIS-PSSP014B	4" HHSI line to RCS	Between 2CHS*25/*MOV8132A & 2SIS*MOV869A	Yes	72
2SIS-PSSP208X	6" SIS line to Loop B cold leg	Between 2SIS*108 & 2SIS*550	Yes	72
2SIS-PSSP209A	6" SIS line to Loop C cold leg	Between 2SIS*109 & 2SIS*552	Yes	72
2SIS-PSSP209B	6" SIS line to Loop C cold leg	Between 2SIS*109 & 2SIS*552	Yes	72
2SIS-PSSP301Y	10" LHSI to RCS hot legs	Between 2SIS*MOV8887A/B & 2SIS*MOV8889	Yes	12

TABLE 3.7.4-1 (Page 11 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	Plant Location	System Boundaries	LCO 3.0.8 Applies	Completion Time
2SIS-PSSP358Y	10" LHSI line from RSS Pump 21D	Between 2RSS*E21D & 2SIS*46	No	
2SIS-PSSP366Y	LHSI Pump 21B 10" SWS discharge line	Between 2SIS*P21B & 2SIS*7	No	
2SIS-PSSP449A	LHSI Pump 21A 10" SWS discharge line	Between 2SIS*P21A & 2SIS*6	No	
2SIS-PSSP449B	LHSI Pump 21A 10" SWS discharge line	Between 2SIS*P21A & 2SIS*6	No	
2SIS-PSSP450X	LHSI Pump 21A 10" SWS discharge line	Between 2SIS*P21A & 2SIS*6	No	
2SIS-PSSP451X	RWST 14" supply line to LHSI Pump 21A	Between RWST & 2SIS*1	Yes	12
2SIS-PSSP480	RWST 14" supply line to CHS/HHSI Pumps	Between RWST & 2SIS*27	Yes	12
2SIS-PSSP492	RWST 14" supply line to LHSI Pump 21B	Between RWST & 2SIS*2	Yes	12
2SIS-PSSP785	8" LHSI supply line to CHS/HHSI Pumps	Between 2SIS*MOV863B & 2CHS*20/*MOV8131B	Yes	72
2SWS-PSSP752	24"SWS supply hdr B to RSS Hx's	Between 2SWS*MOV103B & SWS*104/*MOV104B&D	Yes	12
2SWS-PSSP753	24"SWS supply hdr A to RSS Hx's	Between 2SWS*MOV103A & SWS*104/*MOV104A&C	Yes	12
2SWS-PSSP754Y	24"SWS supply hdr A to RSS Hx's	Between 2SWS*MOV103A & SWS*104/*MOV104A&C	Yes	12
2SWS-PSSP766A	16" SWS discharge line from RSS Hx 21D	Between 2SWS*MOV105D & the River	No	
2SWS-PSSP768Y	16" SWS discharge line from RSS Hx 21D	Between 2RSS*E21D & 2SWS*MOV105D	No	
2SWS-PSSP769A	16" SWS discharge line from RSS Hx 21C	Between 2SWS*MOV105C & the River	No	

TABLE 3.7.4-1 (Page 12 of 12)
SNUBBERS AND ASSOCIATED COMPLETION TIMES (HOURS)

Functional Location	**Plant Location**	**System Boundaries**	**LCO 3.0.8 Applies**	**Completion Time**
2SWS-PSSP770A	16" SWS discharge line from RSS Hx 21C	Between 2RSS*E21C & 2SWS*MOV105C	No	
2SWS-PSSP770B	16" SWS discharge line from RSS Hx 21C	Between 2RSS*E21C & 2SWS*MOV105C	No	
2SWS-PSSP771Y	16" SWS discharge line from RSS Hx 21C	Between 2RSS*E21C & 2SWS*MOV105C	No	
2SWS-PSSP772A	16" SWS discharge line from RSS Hx 21A	Between 2SWS*MOV105A & the River	No	
2SWS-PSSP772B	16" SWS discharge line from RSS Hx 21A	Between 2SWS*MOV105A & the River	No	
2SWS-PSSP773A	16" SWS discharge line from RSS Hx 21A	Between 2RSS*E21A & 2SWS*MOV105A	No	
2SWS-PSSP773B	16" SWS discharge line from RSS Hx 21A	Between 2RSS*E21A & 2SWS*MOV105A	No	
2SWS-PSSP774Y	16" SWS discharge line from RSS Hx 21A	Between 2RSS*E21A & 2SWS*MOV105A	No	
2SWS-PSSP830Y	16" SWS discharge line from RSS Hx 21B	Between 2RSS*E21B & 2SWS*MOV105B	No	
2SWS-PSSP832A	16" SWS discharge line from RSS Hx 21B	Between 2SWS*MOV105B & the River	No	
2SWS-PSSP832B	16" SWS discharge line from RSS Hx 21B	Between 2SWS*MOV105B & the River	No	

3.7 PLANT SYSTEMS

3.7.5 Standby Service Water System (SWE)

LR 3.7.5 At least one of the two standby service water subsystems shall be FUNCTIONAL.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required SWE subsystem Nonfunctional.	A.1 Restore at least one subsystem to FUNCTIONAL status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.5.1	Verify that the required SWE pump develops at least 109 psid differential pressure, while pumping through its test flow line.	92 days
LRS 3.7.5.2	Start the required SWE pump, shut down one Service Water System Pump, and verify that the SWE subsystem provides at least 8584 gpm cooling water to that portion of the Service Water System under test for at least 2 hours.	18 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.6 Explosive Gas Mixture

LR 3.7.6 The concentration of oxygen in the waste gas holdup system shall be limited to ≤ 2% by volume whenever the hydrogen concentration is > 4% by volume.

- NOTE -

The requirements of LR 3.7.6 are part of the Technical Specification 5.5.8, "Explosive Gas and Storage Tank Radioactivity Monitoring Program."

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Concentration of oxygen in the waste gas holdup system > 2% by volume but ≤ 4% by volume.	A.1 Suspend all additions of waste gases to the gaseous waste decay tank.	Immediately
	<u>AND</u>	
	A.2 Reduce the concentration of oxygen to ≤ 2%.	48 hours
B. Concentration of oxygen in the waste gas holdup system > 4% by volume and the hydrogen concentration > 4% by volume.	B.1 Suspend all additions of waste gases to the affected tank.	Immediately
	<u>AND</u>	
	B.2 Reduce the concentration of oxygen to ≤ 4% by volume.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.6.1	The concentrations of oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the oxygen monitors required OPERABLE by LR 3.3.12 or monitoring in conjunction with its associated ACTIONS.	In accordance with LR 3.3.12

3.7 PLANT SYSTEMS

3.7.7 Supplemental Leak Collection and Release System (SLCRS)

LR 3.7.7 Two SLCRS exhaust air filter trains shall be FUNCTIONAL.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SLCRS exhaust air filter train Nonfunctional.	A.1 Restore the Nonfunctional train to FUNCTIONAL status.	7 days
B. Two SLCRS exhaust filter trains Nonfunctional due to the branch flow path from the charging pump cubicles and component cooling water pump area being isolated.	B.1 Verify by administrative means that both PAB emergency exhaust fans are FUNCTIONAL.	6 hours
	<u>AND</u>	
	B.2 Monitor air temperature of charging pump cubicles and component cooling water pump area.	Once per 24 hours
	<u>AND</u>	
	B.3 Place at least one PAB emergency exhaust fan in service if cubicle/pump area air temperatures exceed 100°F.	6 hours from discovery of air temperature exceeding limit
	<u>AND</u>	
	B.4 Restore one required Nonfunctional SLCRS exhaust filter train to FUNCTIONAL status.	7 days
C. Required Action and associated Completion Time not met.	C.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.7.7.1	Initiate, from the control room, flow through the "standby" HEPA filter and charcoal adsorber train and verify that the train operates for at least 15 minutes with the heater controls operational.	31 days
LRS 3.7.7.2	Each SLCRS exhaust air filter train shall be demonstrated FUNCTIONAL: a. By verifying that the charcoal adsorbers remove $\geq$ 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 57,000 cfm ± 10%. b. By verifying that the HEPA filter banks remove $\geq$ 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1980 while operating the ventilation system at a flow rate of 57,000 cfm ± 10%. c. Within 31 days after removal, subjecting the carbon contained in at least one test canister or at least two carbon samples removed from one of the charcoal adsorbers to a laboratory carbon sample analysis and verifying a removal efficiency of $\geq$ 99% for radioactive methyl iodide at an air flow velocity of 0.7 ft/sec with an inlet methyl iodide concentration of 1.75 mg/m^3, $\geq$ 70% relative humidity, and 30°C; other test conditions including test parameter tolerances shall be in accordance with ASTM D3803-1989. The carbon samples not obtained from test canisters shall be taken with a slotted tube sampler in accordance with ANSI N509-1980. d. By verifying a system flow rate of 57,000 cfm $\pm$ 10% during system operation.	18 months <u>AND</u> After each complete or partial replacement of a HEPA filter or charcoal adsorber bank <u>AND</u> After any structural maintenance on the HEPA filter or charcoal adsorber housings <u>AND</u> Following painting, fire or chemical release in any ventilation zone communicating with the system

LICENSING REQUIREMENT SURVEILLANCES (continued)

SURVEILLANCE		FREQUENCY
LRS 3.7.7.3	Each SLCRS exhaust air filter train shall be demonstrated FUNCTIONAL: a. By verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6.8 inches Water Gauge while operating the ventilation system at a flow rate of 57,000 cfm ± 10%. b. By verifying that the exhaust from the contiguous area is diverted through the SLCRS filter train on a Containment Isolation - Phase "A" signal in less than 5 minutes.	18 months
LRS 3.7.7.4	Verify that the air flow distribution to each HEPA filter and charcoal adsorber is within ± 20% of the averaged flow per unit.	After initial installation <u>AND</u> After any maintenance affecting the flow distribution

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 125V D.C. Battery Banks Maintenance Requirements

LR 3.8.1 The 125V D.C. battery banks (2-1, 2-2, 2-3, & 2-4) shall be maintained in accordance with LRS 3.8.1.1 and LRS 3.8.1.2.

APPLICABILITY: When the battery bank(s) are required to be OPERABLE in accordance with the Technical Specifications.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.8.1.1	Verify no visible corrosion at either terminals or connectors, or the connection resistance of these items are within design specifications.	Once per 92 days <u>AND</u> Within 7 days after a battery discharge with battery terminal voltage below 110V, or battery overcharge with battery terminal voltage above 150V
LRS 3.8.1.2	Verify the following: a. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration, b. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material, and c. The resistance of cell-to-cell and terminal connections are within design specifications.	18 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 Emergency Diesel Generator (EDG) 2000 Hour Rating Limit

LR 3.8.2 The auto-connected loads to each EDG shall not exceed the 2000 hour rating limit of 4,535 kw.

APPLICABILITY: When the EDG is required to be OPERABLE in accordance with the Technical Specifications.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.8.2.1	Verify that the auto-connected loads to each EDG do not exceed the 2000 hour rating.	18 months during shutdown

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Main Fuel Oil Storage Tank Maintenance Requirements

LR 3.8.3 Main Fuel Oil Storage Tanks shall be maintained in accordance with LRS 3.8.3.1.

APPLICABILITY: When the associated Emergency Diesel Generator is required OPERABLE in accordance with Technical Specifications.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Apply LR 3.0.3.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.8.3.1	Drain each main fuel oil storage tank, remove the accumulated sediment, and clean the tank using a sodium hypochlorite solution or other appropriate cleaning solution.	10 years

3.9 REFUELING OPERATIONS

3.9.1 Crane Travel - Spent Fuel Storage Pool Building

LR 3.9.1 Loads in excess of 2450 pounds shall be prohibited from travel over fuel assemblies in the storage pool.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LR not met.	A.1 Place the crane load in a safe condition.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.9.1.1	Crane interlocks and physical stops which prevent crane travel with loads in excess of 2450 pounds over fuel assemblies shall be demonstrated FUNCTIONAL.	30 days prior to crane use whenever the crane has been idle for more than 30 days

3.9 REFUELING OPERATIONS

3.9.2 Manipulator Crane

LR 3.9.2 The manipulator crane and auxiliary hoist shall be used for movement of control rods or fuel assemblies and shall be FUNCTIONAL with:

a. The manipulator crane used for movement of fuel assemblies having:

1. A minimum capacity of 3250 pounds, and

2. An overload cut off limit $\leq$ 2700 pounds.

b. The auxiliary hoist used for movement of control rods having:

1. A minimum capacity of 700 pounds, and

2. A load indicator which shall be used to prevent lifting loads in excess of 600 pounds.

APPLICABILITY: During movement of control rods or fuel assemblies within the reactor pressure vessel.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Requirements for crane and/or hoist FUNCTIONALITY not met.	A.1	Suspend use of any Nonfunctional manipulator crane and/or auxiliary hoist from operations involving the movement of control rods and fuel assemblies within the reactor pressure vessel.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.9.2.1	Each manipulator crane used for movement of fuel assemblies within the reactor pressure vessel shall be demonstrated FUNCTIONAL by performing a load test of at least 3250 pounds and demonstrating an automatic load cut off when the crane load exceeds 2700 pounds.	Within 30 days prior to manipulator crane use when the crane has been idle for more than 30 days
LRS 3.9.2.2	Each auxiliary hoist and associated load indicator used for movement of control rods within the reactor pressure vessel shall be demonstrated FUNCTIONAL by performing a load test of at least 700 pounds.	Within 30 days prior to auxiliary hoist use when the hoist has been idle for more than 30 days

3.9 REFUELING OPERATIONS

3.9.3 Decay Time

LR 3.9.3 The reactor shall be subcritical for at least 100 hours.

APPLICABILITY: During movement of irradiated fuel assemblies in the reactor pressure vessel.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Reactor subcritical for less than 100 hours.	A.1 Suspend all operations involving movement of irradiated fuel assemblies in the reactor pressure vessel.	Immediately

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.9.3.1	The reactor shall be determined to have been subcritical for at least 100 hours by verification of the date and time of subcriticality.	Prior to movement of irradiated fuel assemblies in the reactor pressure vessel

5.0 ADMINISTRATIVE CONTROLS

5.1 Core Operating Limits Report

This Core Operating Limits Report provides the cycle specific parameter limits developed in accordance with the NRC approved methodologies specified in Technical Specification Administrative Control 5.6.3.

5.1.1 SL 2.1.1 Reactor Core Safety Limits

See Figure 5.1-1.

5.1.2 SHUTDOWN MARGIN (SDM)

a. In MODES 1, 2, 3, and 4, SHUTDOWN MARGIN shall be ≥ 1.77% Δk/k.(1)

b. Prior to manually blocking the Low Pressurizer Pressure Safety Injection Signal, the Reactor Coolant System shall be borated to ≥ the MODE 5 boron concentration and shall remain ≥ this boron concentration at all times when this signal is blocked.

c. In MODE 5, SHUTDOWN MARGIN shall be ≥ 1.0% Δk/k.

5.1.3 LCO 3.1.3 Moderator Temperature Coefficient (MTC)

a. Upper Limit - MTC shall be maintained within the acceptable operation limit specified in Technical Specification Figure 3.1.3-1.

b. Lower Limit - MTC shall be maintained less negative than - 4.29 x 10^{-4} Δk/k/°F at RATED THERMAL POWER.

c. 300 ppm Surveillance Limit: (- 35 pcm/°F)

d. The revised predicted near-EOL 300 ppm MTC shall be calculated using Figure 5.1-5 and the following algorithm from Reference 10 :

Revised Predicted MTC = Predicted MTC* + AFD Correction** + Predictive Correction***

where,

* Predicted MTC is calculated from Figure 5.1-5 at the burnup corresponding to the measurement of 300 ppm at RTP conditions,

** AFD Correction is the more negative value of :

{0 pcm/°F or (ΔAFD * AFD Sensitivity)}

where: ΔAFD is the measured AFD minus the predicted AFD from an incore flux map taken at or near the burnup corresponding to 300 ppm.

and

AFD Sensitivity = 0.10 pcm/°F / ΔAFD

***Predictive Correction is -3 pcm/°F.

(1) The MODE 1 and MODE 2 with k_{eff} ≥ 1.0 SDM requirements are included to address SDM requirements (e.g., MODE 1 Required Actions to verify SDM) that are not within the applicability of LCO 3.1.1, SHUTDOWN MARGIN (SDM).

5.1 Core Operating Limits Report

If the revised predicted MTC is less negative than the SR 3.1.3.2 limit (COLR 5.1.3.c) and all of the benchmark data contained in the surveillance procedure are met, then an MTC measurement in accordance with SR 3.1.3.2 is not required.

e. 60 ppm Surveillance Limit: (- 40.5 pcm/°F)

5.1.4 LCO 3.1.5 Shutdown Bank Insertion Limits

The Shutdown Banks shall be withdrawn to at least 225 steps.[(2)]

5.1.5 LCO 3.1.6 Control Bank Insertion Limits

a. Control Banks A and B shall be withdrawn to at least 225 steps.[(2)]

b. Control Banks C and D shall be limited in physical insertion as shown in Figure 5.1-2.[(2)]

c. Sequence Limits - The sequence of withdrawal shall be A, B, C and D bank, in that order.

d. Overlap Limits[(2)] - Overlap shall be such that step 129 on banks A, B, and C corresponds to step 1 on the following bank. When C bank is fully withdrawn, these limits are verified by confirming D bank is withdrawn at least to a position equal to the all-rods-out position minus 128 steps.

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

The Heat Flux Hot Channel Factor - $F_Q(Z)$ limit is defined by:

$$F_Q(Z) \leq \left[\frac{CFQ}{P}\right] * K(Z) \qquad \text{for } P > 0.5$$

$$F_Q(Z) \leq \left[\frac{CFQ}{0.5}\right] * K(Z) \qquad \text{for } P \leq 0.5$$

Where: CFQ = 2.40 $\qquad P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

K(Z) = the function obtained from Figure 5.1-3.

$$F_Q^C(Z) = F_Q^M(Z) * 1.0815^{\$}$$

$$F_Q^W(Z) = F_Q^C(Z) * W(Z)$$

(2) As indicated by the group demand counter

$ An additional uncertainty is to be applied if the number of measured thimbles for the moveable incore detector system is less than 75% of the total number of thimbles. If there are less than 75% of the total number of thimbles and at least 50% of the total number of thimbles measured, and additional uncertainty of (0.01)*(3-T/12.5) is added to the measurement uncertainty, 1.05, where T is the total number of measured thimbles. This adjusted measurement uncertainty is then multiplied by 1.03 to obtain the total uncertainty to be applied. At least three measured thimbles per core quadrant are also required.

5.1 Core Operating Limits Report

The W(Z) values are provided in Tables 5.1-1 and 5.1-2. The W(Z) values in Table 5.1-1 were generated assuming that they will be used for a full power surveillance. The W(Z) values in Table 5.1-2 were generated assuming that they will be used for a part power surveillance during initial cycle startup following the refueling outage. When a part power surveillance is performed, the W(Z) values should be multiplied by the factor 1/P, when P > 0.5. When P is ≤ 0.5, the W(Z) values should be multiplied by the factor 1/(0.5), or 2.0. This is consistent with the adjustment in the $F_Q(Z)$ limit at part power conditions.

The $F_Q(Z)$ penalty function, applied when the analytic $F_Q(Z)$ function increases from one monthly measurement to the next, is provided in Table 5.1-3.

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

$$F^N_{\Delta H} \le CF_{\Delta H} * (1 + PF_{\Delta H}(1-P))^{\$}$$

Where: $CF_{\Delta H}$ = 1.62

$PF_{\Delta H}$ = 0.3

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

5.1.8 LCO 3.2.3 Axial Flux Difference (AFD)

The AFD acceptable operation limits are provided in Figure 5.1-4.

5.1.9 LCO 3.3.1 Reactor Trip System Instrumentation - Overtemperature and Overpower ΔT Parameter Values from Table Notations 3 and 4

a. Overtemperature ΔT Setpoint Parameter Values:

Parameter	Value
Overtemperature ΔT reactor trip setpoint	K1 ≤ 1.239
Overtemperature ΔT reactor trip setpoint Tavg coefficient	K2 ≥ 0.0183/°F
Overtemperature ΔT reactor trip setpoint pressure coefficient	K3 ≥ 0.001/psia
Tavg at RATED THERMAL POWER	T' ≤ 574.2°F(1)

$ An additional uncertainty is to be applied if the number of measured thimbles for the moveable incore detector system is less than 75% of the total number of thimbles. If there are less than 75% of the total number of thimbles and at least 50% of the total number of thimbles measured, and additional uncertainty of (0.01)*(3-T/12.5) is added to the standard uncertainty on FNΔH of 1.04, where T is the total number of measured thimbles. At least three measured thimbles per core quadrant are also required.

(1) T' represents the cycle-specific Full Power Tavg value used in core design.

5.1 Core Operating Limits Report

Nominal pressurizer pressure	P' ≥ 2250 psia
Measured reactor vessel ΔT lead/lag time constants (* The response time is toggled off to meet the analysis value of zero.)	τ_1 = 0 sec* τ_2 = 0 sec*
Measured reactor vessel ΔT lag time constant	$\tau_3 \leq 6$ secs
Measured reactor vessel average temperature lead/lag time constants	$\tau_4 \geq 30$ secs $\tau_5 \leq 4$ secs
Measured reactor vessel average temperature lag time constant	$\tau_6 \leq 2$ secs

f (ΔI) is 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 such that:

(i) For q_t - q_b between -37% and +15%, $f_1(\Delta I)$ = 0, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and q_t + q_b is total THERMAL POWER in percent of RATED THERMAL POWER.

(ii) For each percent that the magnitude of (q_t - q_b) exceeds -37%, the ΔT trip setpoint shall be automatically reduced by 2.52% of its value at RATED THERMAL POWER.

(iii) For each percent that the magnitude of (q_t - q_b) exceeds +15%, the ΔT trip setpoint shall be automatically reduced by 1.47% of its value at RATED THERMAL POWER.

b. Overpower ΔT Setpoint Parameter Values:

Parameter	Value
Overpower ΔT reactor trip setpoint	K4 ≤ 1.094
Overpower ΔT reactor trip setpoint Tavg rate/lag coefficient	K5 ≥ 0.02/°F for increasing average temperature K5 = 0/°F for decreasing average temperature
Overpower ΔT reactor trip setpoint Tavg heatup coefficient	K6 ≥ 0.0021/°F for T > T" K6 = 0/°F for T ≤ T"
Tavg at RATED THERMAL POWER	T" ≤ 574.2°F(1)
Measured reactor vessel ΔT lead/lag time constants	τ_1 = 0 sec* τ_2 = 0 sec*

(* The response time is toggled off to meet the analysis value of zero.)

(1) T" represents the cycle-specific Full Power Tavg value used in core design.

5.1 Core Operating Limits Report

Measured reactor vessel ΔT lag time constant	$\tau_3 \leq 6$ secs
Measured reactor vessel average temperature lag time constant	$\tau_6 \leq 2$ secs
Measured reactor vessel average temperature rate/lag time constant	$\tau_7 \geq 10$ secs

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

Parameter	Indicated Value
Reactor Coolant System Tavg	Tavg ≤ 577.8°F(1)
Pressurizer Pressure	Pressure ≥ 2214 psia(2)
Reactor Coolant System Total Flow Rate	Flow ≥ 267,483 gpm(3)

5.1.11 LCO 3.9.1 Boron Concentration (MODE 6)

The boron concentration of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained ≥ 2400 ppm. This value includes a 50 ppm conservative allowance for uncertainties.

(1) The Reactor Coolant System (RCS) indicated Tavg value is determined by adding the appropriate allowances for rod control operation and verification via control board indication (3.6°F) to the cycle specific full power Tavg used in the core design.

(2) The pressurizer pressure value includes allowances for pressurizer pressure control operation and verification via control board indication.

(3) The RCS total flow rate includes allowances for normalization of the cold leg elbow taps with a beginning of cycle precision RCS flow calorimetric measurement and verification on a periodic basis via control board indication.

5.1 Core Operating Limits Report

5.1.12 References

1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July 1985 (Westinghouse Proprietary).

2. WCAP-8745-P-A, "Design Bases for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions," September 1986.

3. WCAP-12945-P-A, Volume 1 (Revision 2) and Volumes 2 through 5 (Revision 1), "Code Qualification Document for Best Estimate LOCA Analysis," March 1998 (Westinghouse Proprietary).

4. WCAP-10216-P-A, Revision 1A, "Relaxation of Constant Axial Offset Control-F_Q Surveillance Technical Specification," February 1994.

5. WCAP-14565-P-A, "VIPRE-01 Modeling and Qualification for Pressurized Water Reactor Non-LOCA Thermal-Hydraulic Safety Analysis," October 1999.

6. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," April 1995 (Westinghouse Proprietary).

7. WCAP-15025-P-A, "Modified WRB-2 Correlation, WRB-2M, for Predicting Critical Heat Flux in 17x17 Rod Bundles with Modified LPD Mixing Vane Grids," April 1999.

8. Caldon, Inc. Engineering Report-80P, "Improving Thermal Power Accuracy and Plant Safety While Increasing Operating Power Level Using the LEFM√™ System," Revision 0, March 1997.

9. Caldon, Inc. Engineering Report-160P, "Supplement to Topical Report ER-80P: Basis for a Power Uprate With the LEFM√™ System," Revision 0, May 2000.

10. WCAP-13749-P-A, “Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient Measurement,” March 1997 (Westinghouse Proprietary).

11. WCAP-16045-P-A, “Qualification of the Two-Dimensional Transport Code PARAGON,” August 2004.

12. WCAP-16045-P-A, Addendum 1-A, “Qualification of the NEXUS Nuclear Data Methodology,” August 2007.

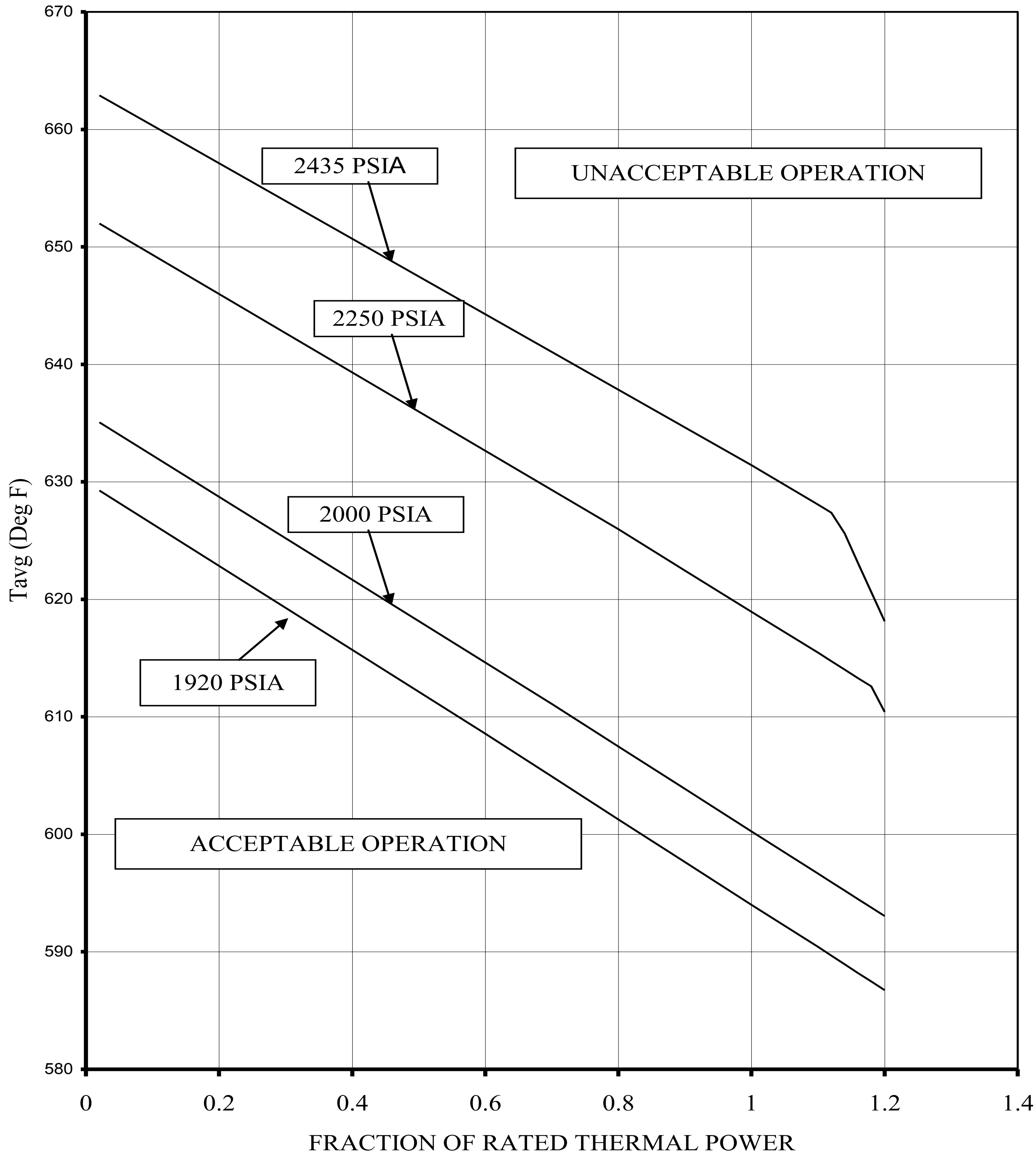

Figure 5.1-1 (Page 1 of 1)

REACTOR CORE SAFETY LIMIT
THREE LOOP OPERATION

(Technical Specification Safety Limit 2.1.1)

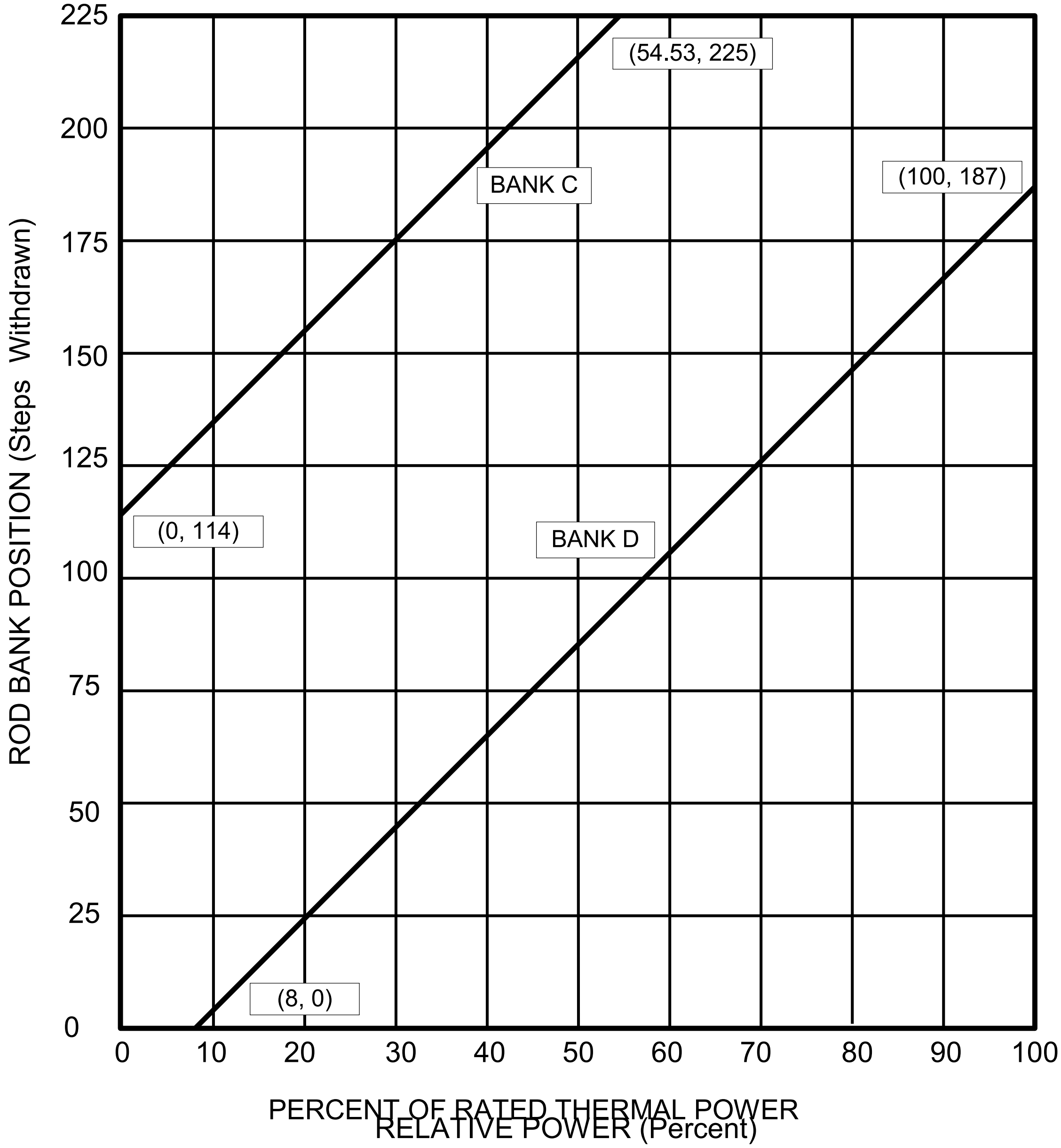

Figure 5.1-2 (Page 1 of 1)

CONTROL ROD INSERTION LIMITS AS A

FUNCTION OF RATED POWER LEVEL

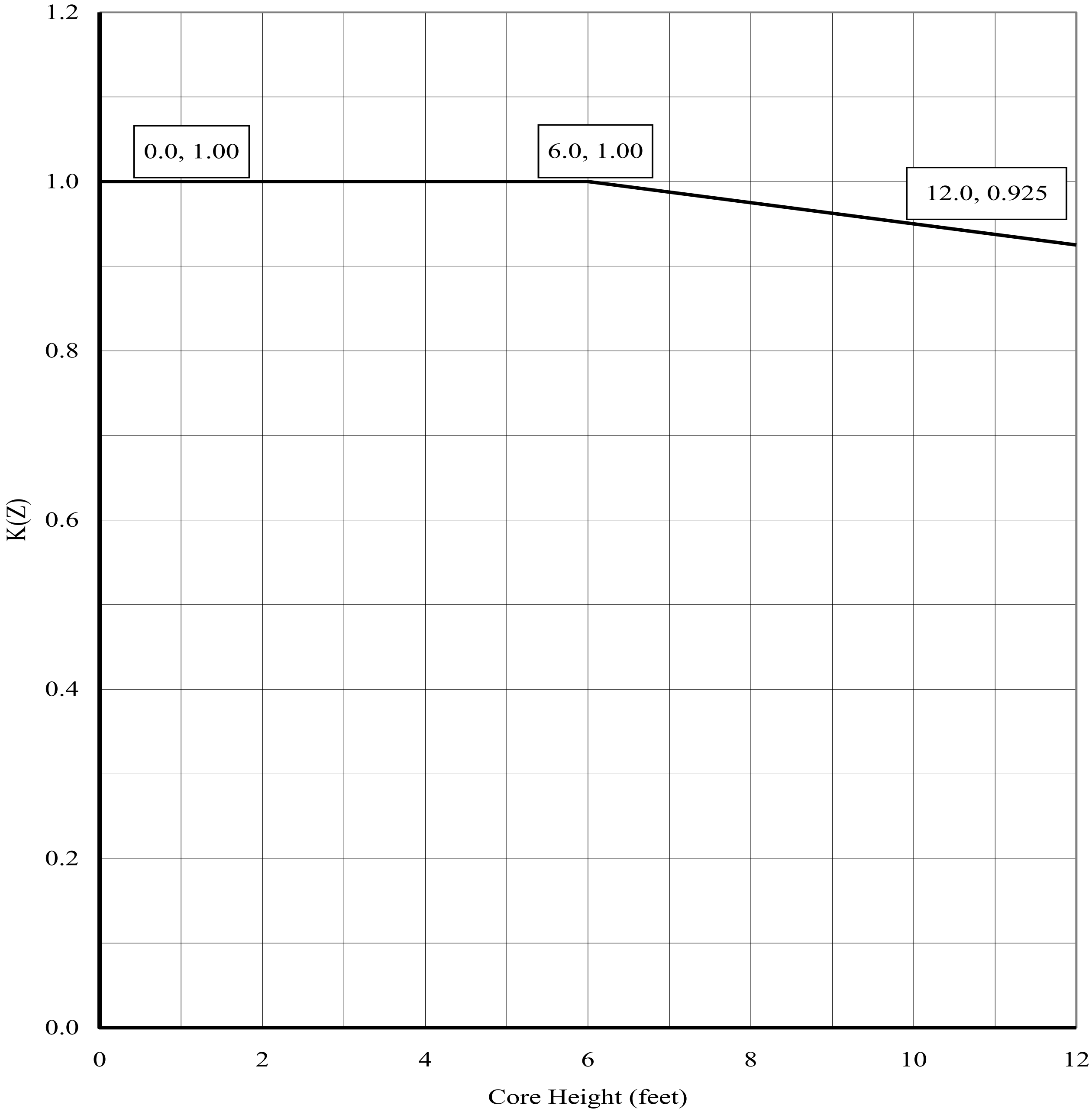

Figure 5.1-3 (Page 1 of 1)

F_QT NORMALIZED OPERATING ENVELOPE, K(Z)

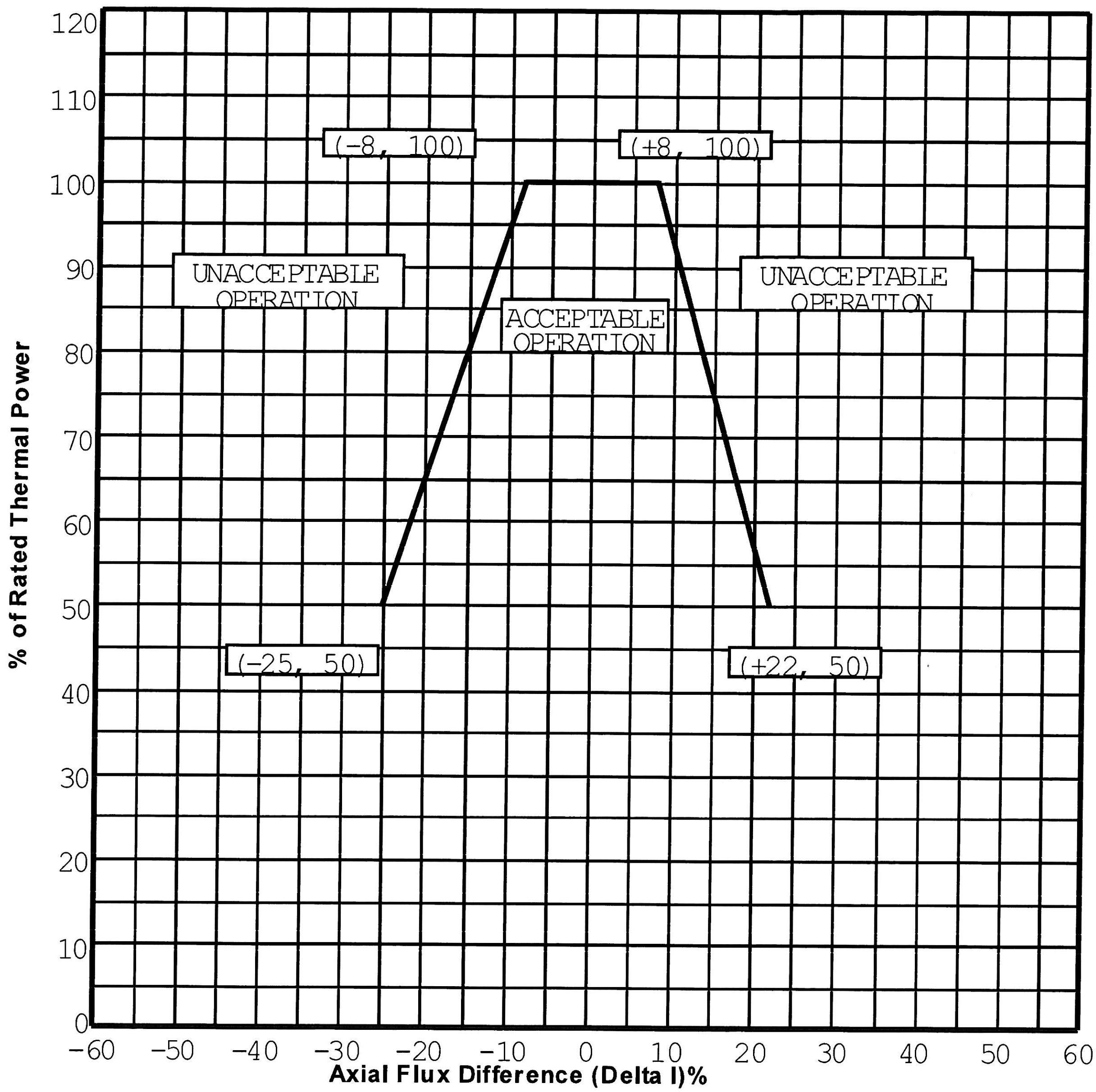

Figure 5.1-4 (Page 1 of 1)

AXIAL FLUX DIFFERENCE LIMITS AS A FUNCTION OF

PERCENT OF RATED THERMAL POWER FOR RAOC

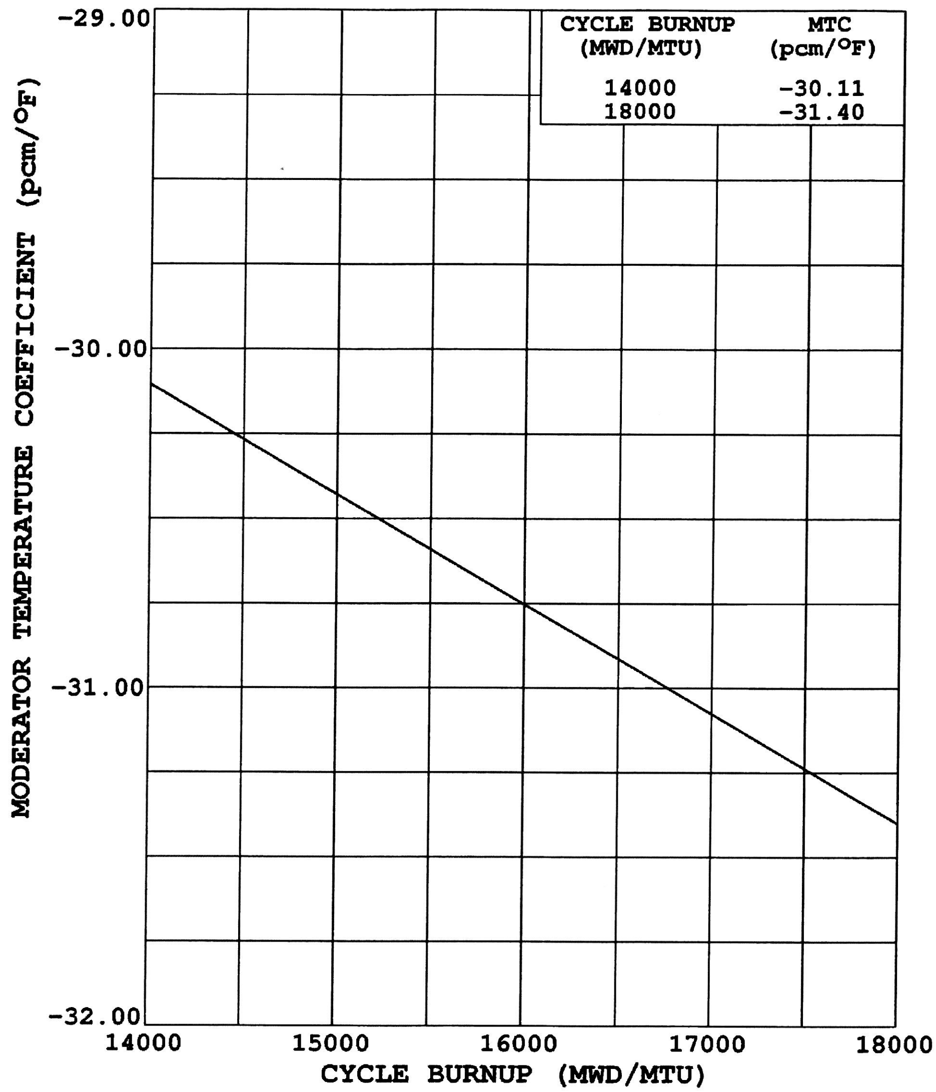

Figure 5.1-5 (Page 1 of 1)

HOT FULL POWER PREDICTED

MODERATOR TEMPERATURE COEFFICIENT

AS A FUNCTION OF CYCLE BURNUP

WHEN 300 PPM IS ACHIEVED

Table 5.1-1 (Page 1 of 2)
F_Q Surveillance W(Z) Function versus Burnup at 100% RTP

Exclusion Zone	Axial Point	Elevation (feet)	150 (MWD/MTU)	3000 (MWD/MTU)	8000 (MWD/MTU)	12000 (MWD/MTU)	16000 (MWD/MTU)
*	1	12.1	1.0000	1.0000	1.0000	1.0000	1.0000
*	2	11.9	1.0000	1.0000	1.0000	1.0000	1.0000
*	3	11.7	1.0000	1.0000	1.0000	1.0000	1.0000
*	4	11.5	1.0000	1.0000	1.0000	1.0000	1.0000
*	5	11.3	1.0000	1.0000	1.0000	1.0000	1.0000
*	6	11.1	1.0000	1.0000	1.0000	1.0000	1.0000
*	7	10.9	1.0000	1.0000	1.0000	1.0000	1.0000
	8	10.7	1.1713	1.2064	1.2174	1.2248	1.1814
	9	10.5	1.1661	1.2031	1.2152	1.2193	1.1774
	10	10.3	1.1594	1.1973	1.2108	1.2127	1.1744
	11	10.1	1.1518	1.1898	1.2046	1.2051	1.1739
	12	9.9	1.1522	1.1864	1.1976	1.1969	1.1794
	13	9.7	1.1539	1.1839	1.1899	1.1907	1.1844
	14	9.5	1.1541	1.1805	1.1823	1.1953	1.1875
	15	9.3	1.1509	1.1727	1.1760	1.1967	1.1912
	16	9.1	1.1497	1.1691	1.1692	1.2036	1.1987
	17	8.9	1.1500	1.1665	1.1654	1.2103	1.2017
	18	8.7	1.1591	1.1730	1.1698	1.2166	1.2025
	19	8.5	1.1660	1.1779	1.1775	1.2238	1.2040
	20	8.3	1.1713	1.1815	1.1829	1.2303	1.2133
	21	8.1	1.1750	1.1832	1.1864	1.2339	1.2223
	22	7.9	1.1774	1.1837	1.1883	1.2356	1.2293
	23	7.6	1.1773	1.1818	1.1878	1.2346	1.2338
	24	7.4	1.1760	1.1788	1.1861	1.2321	1.2367
	25	7.2	1.1726	1.1736	1.1818	1.2261	1.2359*
	26	7.0	1.1686	1.1676	1.1759	1.2180	1.2326
	27	6.8	1.1635	1.1607	1.1694	1.2091	1.2277
	28	6.6	1.1566	1.1521	1.1615	1.1986	1.2216
	29	6.4	1.1490	1.1427	1.1525	1.1865	1.2134
	30	6.2	1.1407	1.1325	1.1425	1.1728	1.2033
	31	6.0	1.1314	1.1215	1.1317	1.1582	1.1918
	32	5.8	1.1211	1.1093	1.1202	1.1429	1.1791

Note: Top and Bottom 10% Excluded

Table 5.1-1 (Page 2 of 2)
F_Q Surveillance W(Z) Function versus Burnup at 100% RTP

Exclusion Zone	Axial Point	Elevation (feet)	150 (MWD/MTU)	3000 (MWD/MTU)	8000 (MWD/MTU)	12000 (MWD/MTU)	16000 (MWD/MTU)
	33	5.6	1.1105	1.1033	1.1081	1.1267	1.1649
	34	5.4	1.1079	1.1009	1.0995	1.1157	1.1490
	35	5.2	1.1084	1.1010	1.0956	1.1135	1.1420
	36	5.0	1.1103	1.1015	1.0928	1.1096	1.1373
	37	4.8	1.1116	1.1015	1.0897	1.1056	1.1316
	38	4.6	1.1125	1.1016	1.0863	1.1012	1.1252
	39	4.4	1.1138	1.1030	1.0829	1.0966	1.1181
	40	4.2	1.1175	1.1049	1.0794	1.0916	1.1109
	41	4.0	1.1219	1.1065	1.0762	1.0880	1.1034
	42	3.8	1.1260	1.1079	1.0759	1.0868	1.0962
	43	3.6	1.1300	1.1101	1.0772	1.0852	1.0912
	44	3.4	1.1332	1.1132	1.0780	1.0834	1.0873
	45	3.2	1.1382	1.1164	1.0793	1.0820	1.0817
	46	3.0	1.1419	1.1190	1.0796	1.0802	1.0870
	47	2.8	1.1558	1.1351	1.0856	1.0835	1.1009
	48	2.6	1.1797	1.1597	1.0982	1.0951	1.1151
	49	2.4	1.2038	1.1830	1.1120	1.1081	1.1302
	50	2.2	1.2283	1.2073	1.1262	1.1215	1.1455
	51	2.0	1.2529	1.2317	1.1401	1.1342	1.1596
	52	1.8	1.2771	1.2557	1.1536	1.1463	1.1728
	53	1.6	1.2996	1.2782	1.1664	1.1581	1.1855
	54	1.4	1.3200	1.2987	1.1781	1.1690	1.1975
*	55	1.2	1.0000	1.0000	1.0000	1.0000	1.0000
*	56	1.0	1.0000	1.0000	1.0000	1.0000	1.0000
*	57	0.8	1.0000	1.0000	1.0000	1.0000	1.0000
*	58	0.6	1.0000	1.0000	1.0000	1.0000	1.0000
*	59	0.4	1.0000	1.0000	1.0000	1.0000	1.0000
*	60	0.2	1.0000	1.0000	1.0000	1.0000	1.0000
*	61	0.0	1.0000	1.0000	1.0000	1.0000	1.0000

Note: Top and Bottom 10% Excluded

Table 5.1-2 (Page 1 of 2)
F_Q Surveillance W(Z) Function at Initial Cycle Startup at 75% RTP

Exclusion Zone	Axial Point	Elevation (feet)	75% RTP
*	1	12.1	1.0000
*	2	11.9	1.0000
*	3	11.7	1.0000
*	4	11.5	1.0000
*	5	11.3	1.0000
*	6	11.1	1.0000
*	7	10.9	1.0000
	8	10.7	1.2564
	9	10.5	1.2338
	10	10.3	1.2122
	11	10.1	1.1896
	12	9.9	1.1764
	13	9.7	1.1630
	14	9.5	1.1504
	15	9.3	1.1341
	16	9.1	1.1212
	17	8.9	1.1136
	18	8.7	1.1147
	19	8.5	1.1150
	20	8.3	1.1149
	21	8.1	1.1139
	22	7.9	1.1129
	23	7.6	1.1109
	24	7.4	1.1065
	25	7.2	1.1036
	26	7.0	1.0996
	27	6.8	1.0948
	28	6.6	1.0888
	29	6.4	1.0833
	30	6.2	1.0769
	31	6.0	1.0705
	32	5.8	1.0611

Note: Top and Bottom 10% Excluded

Table 5.1-2 (Page 2 of 2)
F_Q Surveillance W(Z) Function at Initial Cycle Startup at 75% RTP

Exclusion Zone	Axial Point	Elevation (feet)	75% RTP
	33	5.6	1.0541
	34	5.4	1.0543
	35	5.2	1.0576
	36	5.0	1.0627
	37	4.8	1.0667
	38	4.6	1.0711
	39	4.4	1.0760
	40	4.2	1.0825
	41	4.0	1.0888
	42	3.8	1.0968
	43	3.6	1.1041
	44	3.4	1.1104
	45	3.2	1.1201
	46	3.0	1.1271
	47	2.8	1.1450
	48	2.6	1.1722
	49	2.4	1.2007
	50	2.2	1.2283
	51	2.0	1.2597
	52	1.8	1.2875
	53	1.6	1.3150
	54	1.4	1.3390
*	55	1.2	1.0000
*	56	1.0	1.0000
*	57	0.8	1.0000
*	58	0.6	1.0000
*	59	0.4	1.0000
*	60	0.2	1.0000
*	61	0.0	1.0000

Note: Top and Bottom 10% Excluded

Table 5.1-3 (Page 1 of 1)
$F_Q(Z)$ Penalty Factor versus Burnup

Cycle Burnup (MWD/MTU)	$F_Q(Z)$ Penalty Factor
< 751	1.0200
751 – 1051	1.0201
> 1051	1.0200

Note: The Penalty Factor, to be applied to $F_Q(Z)$ in accordance with Technical Specification Surveillance Requirement (SR) 3.2.1.2, is the maximum factor by which $F_Q(Z)$ is expected to increase over a 39 Effective Full Power Day (EFPD) interval (surveillance interval of 31 EFPD plus the maximum allowable extension not to exceed 25% of the surveillance interval per Technical Specification SR 3.0.2) starting from the burnup at which the $F_Q(Z)$ was determined.

5.0 ADMINISTRATIVE CONTROLS

5.2 Pressure and Temperature Limits Report

BVPS-2 Technical Specification to PTLR Cross-Reference			
Technical Specification	PTLR		
	Section	Figure	Table
3.4.3	5.2.1.1	5.2-1 5.2-2 5.2-3 5.2-4 5.2-5 5.2-6	N/A
3.4.6	N/A	N/A	5.2-3
3.4.7	N/A	N/A	5.2-3
3.4.10	N/A	N/A	5.2-3
3.4.12	5.2.1.2 5.2.1.3	5.2-8	5.2-3
3.5.2	N/A	N/A	5.2-3

BVPS-2 Licensing Requirement to PTLR Cross-Reference			
Licensing Requirement	PTLR		
	Section	Figure	Table
LR 3.1.2	N/A	N/A	5.2-3
LR 3.1.4	N/A	N/A	5.2-3
LR 3.4.6	N/A	N/A	5.2-3

5.2 Pressure and Temperature Limits Report

5.2 Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR)

The PTLR for Unit 2 has been prepared in accordance with the requirements of Technical Specification 5.6.4. Revisions to the PTLR shall be provided to the NRC after issuance.

The Technical Specifications (TS) and Licensing Requirements (LR) addressed, or made reference to, in this report are listed below:

1. LCO 3.4.3 Reactor Coolant System Pressure and Temperature (P/T) Limits,
2. LCO 3.4.6 RCS Loops - MODE 4,
3. LCO 3.4.7 RCS Loops - MODE 5, Loops Filled,
4. LCO 3.4.10 Pressurizer Safety Valves,
5. LCO 3.4.12 Overpressure Protection System (OPPS),
6. LCO 3.5.2 ECCS - Operating,
7. LR 3.1.2 Boration Flow Paths - Operating,
8. LR 3.1.4 Charging Pump - Operating, and
9. LR 3.4.6 Pressurizer Safety Valve Lift Involving Loop Seal or Water Discharge

5.2.1 Operating Limits

The PTLR limits for Beaver Valley Power Station (BVPS) Unit 2 were developed using a methodology specified in the Technical Specifications. The methodology listed in Reference 1 was used with two exceptions:

a) Use of ASME Code Case N-640, “Alternative Reference Fracture Toughness for Development of P-T Limits for Section XI, Division 1,” and

b) Use of methodology of the 1996 version of ASME Section XI, Appendix G, “Fracture Toughness Criteria for Protection Against Failure.”

5.2.1.1 RCS Pressure and Temperature (P/T) Limits (LCO 3.4.3)

The RCS temperature rate-of-change limits defined in Reference 14 are:

a. A maximum heatup of 60°F in any one hour period.

b. A maximum cooldown of 100°F in any one hour period, and

5.2 Pressure and Temperature Limits Report

c. A maximum temperature change of less than or equal to 5°F in any one hour period during inservice hydrostatic testing operations above system design pressure.

The RCS P/T limits for heatup, leak testing, and criticality are specified by Figure 5.2-1 and Table 5.2-1. The RCS P/T limits for cooldown are shown in Figures 5.2-2 through 5.2-6 and Table 5.2-2. These limits are defined in Reference 14. Consistent with the methodology described in Reference 1, including the exceptions as noted in Section 5.2.1, the RCS P/T limits for heatup and cooldown shown in Figures 5.2-1 through 5.2-6 are provided without margins for instrument error. The criticality limit curve specifies pressure-temperature limits for core operation to provide additional margin during actual power production as specified in 10 CFR 50, Appendix G. The heatup and cooldown curves also include the effect of the reactor vessel flange.

The P/T limits for core operation (except for low power physics testing) are that the reactor vessel must be at a temperature equal to or higher than the minimum temperature required for the inservice hydrostatic test, and at least 40°F higher than the minimum permissible temperature in the corresponding P/T curve for heatup and cooldown.

The pressure-temperature limit curve shown in Figure 5.2-7 was developed for the limiting ferritic steel component within an isolated reactor coolant loop. The limiting component is the steam generator channel head to tubesheet region. This figure provides the ASME III, Appendix G limiting curve which is used to define operational bounds, such that when operating with an isolated loop the analyzed pressure-temperature limits are known. The temperature range provided bounds the expected operating range for an isolated loop and Code Case N-640.

- NOTE -

Pressure limits are considered to be met for pressures that are below 0 psig (i.e., up to and including full vacuum conditions) since the resulting P/T combination is located in the region to the right and below the operating limits provided in Figures 5.2-1, 5.2-2, 5.2-3, 5.2-4, 5.2-5, 5.2-6, and 5.2-7.

Reference 13 provides an updated surveillance capsule credibility evaluation, updated Position 2.1 chemistry factor values, and an updated fluence evaluation. Therefore, the applicability of the P/T limit curves (Reference 14) was assessed based on the revised information. Taking into account the updated surveillance data credibility evaluation, the Position 2.1 chemistry factor values, and the fluence analysis summarized in Reference 13, the limiting material for the current BVPS-2 P/T limits continues to be the intermediate shell plate B9004-1 at 30 EFPY.

5.2 Pressure and Temperature Limits Report

Since the adjusted reference temperature (ART) calculation is not based on surveillance data for this limiting material, only a fluence comparison is needed in order to assess the applicability of the existing curves. Using the fluence analysis provided in Table 5-1 of Reference 13, the maximum neutron fluence value at 30 EFPY is 3.03×10^{19} n/cm^2 (E > 1.0 MeV). This value was calculated by interpolating the fluence at the 0° azimuthal position for BVPS-2 from the end of Cycle 15 to the fluence value at the future projection out to 32 EFPY. The fluence of 3.39×10^{19} n/cm^2 (E > 1.0 MeV) used to develop the 30 EFPY P/T limit curves generated as a result of the Capsule X analysis (Reference 12), is more conservative than the updated fluence of 3.03×10^{19} n/cm^2 (E > 1.0 MeV).

5.2.1.2 Overpressure Protection System (OPPS) Setpoints (LCO 3.4.12)

The power operated relief valves (PORVs) shall each have a nominal maximum lift setting that varies with RCS temperature and which does not exceed the limits in Figure 5.2-8 (Reference 9). The OPPS enable temperature is in accordance with Table 5.2-3. The PORV lift setting provided is for the case with reactor coolant pump (RCP) restrictions. These restrictions are shown in Table 5.2-4, which is taken from Reference 9. Due to the setpoint limitations as a result of the reactor vessel flange requirements, there is no operational benefit achieved by restricting the number of RCPs running to less than two below an indicated RCS temperature of 137°F. Therefore, the PORV setpoints shown in Table 5.2-3 will protect the Appendix G limits for the combinations shown.

The PORV setpoint is based on P/T limits which were established in accordance with 10 CFR 50, Appendix G without allowance for instrumentation error and in accordance with the methodology described in Reference 1, including the exceptions noted in Section 5.2.1. The PORV lift setting shown in Figure 5.2-8 accounts for appropriate instrument error.

5.2.1.3 OPPS Enable Temperature (LCO 3.4.12)

Two different temperatures are used to determine the OPPS enable temperature, they are the arming temperature and the calculated enable temperature. The arming temperature (when the OPPS rendered operable) is established per ASME Section XI, Appendix G. At this temperature, a steam bubble would be present in the pressurizer, thus reducing the potential of a water hammer discharge that could challenge the piping limits. Based on this method, the arming temperature with uncertainty is 237°F.

5.2 Pressure and Temperature Limits Report

The calculated enable temperature is based on either a RCS temperature of less than 200°F or materials concerns (reactor vessel metal temperature less than RT_{NDT} + 50°F), whichever is greater. The calculated enable temperature does not address the piping limit attributed to a water hammer discharge. The calculated enable temperature is 240°F.

As the calculated enable temperature is higher and, therefore, more conservative than the arming temperature, the OPPS enable temperature, as shown in Table 5.2-3, is set to equal the calculated enable temperature.

The calculation method governing the heatup and cooldown of the RCS requires the arming of the OPPS at and below the OPPS enable temperature specified in Table 5.2-3, and disarming of the OPPS above this temperature. The OPPS is required to be enabled, i.e., OPERABLE, when any RCS cold leg temperature is less than or equal to this temperature.

The OPPS enable temperature, PORV setpoints, and RCP operating restrictions contained in Tables 5.2-3 and 5.2-4 and Figure 5.2-8 are as described in Reference 15, and are based upon analysis of Capsule X. The pressure-temperature limits provided in Reference 14 for Capsule X and setpoints evaluation per Reference 15 support the continued use of these existing OPPS/PORV setpoints and RCP operating restrictions for the period up to 30 EFPY. As a result, Tables 5.2-3 and 5.2-4 and Figure 5.2-8 remain valid for Capsule X up to 30 EFPY.

From a plant operations viewpoint the terms “armed” and “enabled” are synonymous when it comes to activating the OPPS. As stated in the applicable operating procedure, the OPPS is activated (armed/enabled) manually before entering the applicability of LCO 3.4.12. This is accomplished by placing two switches (one in each train) into their “ARM” position. Once OPPS is activated (armed/enabled) reactor coolant system pressure transmitters will signal a rise in system pressure above the variable OPPS setpoint. This will initiate an alarm in the control room and open the OPPS PORVs.

5.2.1.4 Reactor Vessel Boltup Temperature (LCO 3.4.3)

The minimum boltup temperature for the Reactor Vessel Flange shall be ≥ 60°F. Boltup is a condition in which the reactor vessel head is installed with tension applied to any stud, and with the RCS vented to atmosphere.

5.2 Pressure and Temperature Limits Report

5.2.2 Reactor Vessel Material Surveillance Program

The reactor vessel material irradiation surveillance specimens shall be removed and analyzed to determine changes in material properties. The capsule withdrawal schedule is provided in Table 5.3-6 of the UFSAR. Also, the results of these analyses shall be used to update Figures 5.2-1 through 5.2-6, and Tables 5.2-1 and 5.2-2 in this report. The time of specimen withdrawal may be modified to coincide with those refueling outages nearest the withdrawal schedule.

The pressure vessel material surveillance program (References 4 and 13) is in compliance with Appendix H to 10 CFR 50, "Reactor Vessel Radiation Surveillance Program." The material test requirements and the acceptance standards utilize the reference nil-ductility temperature, RT_{NDT}, which is determined in accordance with ASME, Section III, NB-2331. The empirical relationship between RT_{NDT} and the fracture toughness of the reactor vessel steel is developed in accordance with Appendix G, "Protection Against Non-Ductile Failure," to Section XI of the ASME Boiler and Pressure Vessel Code. The surveillance capsule removal schedule meets the requirements of ASTM E 185-82.

Reference 10 is an NRC commitment made by FENOC to use only the calculated vessel fluence values when performing future capsule surveillance evaluations for BVPS Unit 2. This commitment is a condition of License Amendment 138 and will remain in effect until the NRC staff approves an alternate methodology to perform these evaluations. Best-estimate values generated using the FERRET Code may be provided for information only.

5.2.3 Supplemental Data Tables

The following tables provide supplemental information on reactor vessel material properties and are provided to be consistent with Generic Letter 96-03. Some of the material property values shown were used as inputs to the P/T limits.

Table 5.2-5, taken from Table 2-4 of Reference 13, shows the calculation of the surveillance material chemistry factors using surveillance capsule data.

Table 5.2-6, taken from Table 2-1 of Reference 14, provides the reactor vessel beltline material property table.

Table 5.2-7, taken from Table 4-2 of Reference 13, provides the reactor vessel extended beltline material property table.

Table 5.2-8, taken from Tables 4-7 and 4-8 of Reference 14, provides a summary of the Adjusted Reference Temperature (ARTs) for 30 EFPY.

5.2 Pressure and Temperature Limits Report

Table 5.2-9, taken from Tables 4-7 and 4-8 of Reference 14, shows the calculation of ARTs for 30 EFPY.

Table 5.2-10, taken from Table 6-3 of Reference 13, provides RT_{PTS} values for the Beltline Region Materials at 54 EFPY.

Table 5.2-11, taken from Table 6-4 of Reference 13, provides RT_{PTS} values for the Extended Beltline Region Materials at 54 EFPY.

Note that Tables 5.2-5, 5.2-8 and 5.2-9 reflect Capsule X analysis and fluence data.

5.2.4 References

1. WCAP-14040-A, Revision 4, “Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves,” J. D. Andrachek, et al., May 2004.

2. (Deleted)

3. (Deleted)

4. WCAP-9615, Revision 1, “Duquesne Light Company, Beaver Valley Unit No. 2 Reactor Vessel Radiation Surveillance Program,” P. A. Peter, June 1995.

5. WCAP-15676, “Evaluation of Pressurized Thermal Shock for Beaver Valley Unit 2,” J. H. Ledger, August 2001.

6. 10 CFR Part 50, Appendix G, “Fracture Toughness Requirements,” Federal Register, Volume 60, No. 243, December 19, 1995.

7. 10 CFR 50.61, “Fracture Toughness Requirements for Protection Against Pressurized Thermal Shock Events,” May 15, 1991. (PTS Rule)

8. Regulatory Guide 1.99, Rev. 2, “Radiation Embrittlement of Reactor Vessel Materials,” U.S. Nuclear Regulatory Commission, May 1988.

9. FENOC Calculation No. 10080-SP-2RCS-006, Revision 4, Addendum 1, “BV-2 LTOPS Setpoint Evaluation Capsule W for 22 EFPY.”

10. FirstEnergy Nuclear Operating Company letter L-01-157, "Supplement to License Amendment Requests Nos. 295 and 167," dated December 21, 2001.

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11. (Deleted)

12. WCAP-16527, Revision 0, "Analysis of Capsule X from FirstEnergy Nuclear Operating Company Beaver Valley Unit 2 Reactor Vessel Radiation Surveillance Program," B. N. Burgos, J. Conermann, S. L. Anderson, March 2006.

13. WCAP-16527, Supplement 1, Revision 1, "Analysis of Capsule X from FirstEnergy Nuclear Operating Company Beaver Valley Unit 2 Reactor Vessel Radiation Surveillance Program," A. E. Freed, September 2011.

14. WCAP-16528, Revision 1, "Beaver Valley Unit 2 Heatup and Cooldown Limit Curves for Normal Operation," June 2008.

15. Westinghouse Letter FENOC-07-92, dated June 8, 2007, LTOPS Setpoint Evaluation for Beaver Valley Unit 2 Capsule X at 22 and 30 EFPY.

16. Westinghouse Letter MCOE-LTR-13-19, Revision 0, dated March 6, 2013, “Acceptable Initial RT_{NDT} Values for the Beaver Valley Unit 2 Reactor Vessel Inlet Nozzle Materials.”

<u>MATERIAL PROPERTY BASIS</u>

LIMITING MATERIAL:	INTERMEDIATE SHELL PLATE B9004-1
LIMITING ART VALUES AT 30 EFPY:	1/4T, 143°F
	3/4T, 132°F

CURVES APPLICABLE FOR HEATUP RATES UP TO 60°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

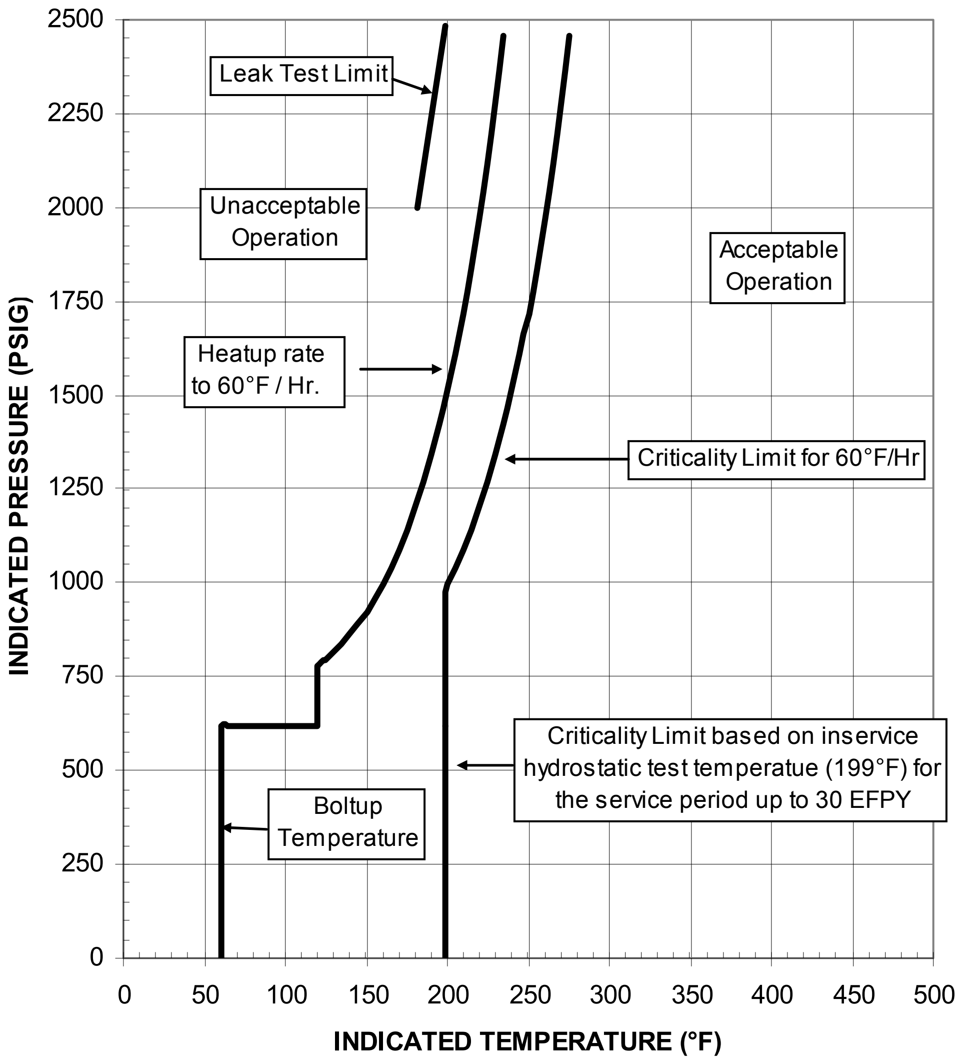

Figure 5.2-1 (Page 1 of 1)
Reactor Coolant System Heatup
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

<u>MATERIAL PROPERTY BASIS</u>
LIMITING MATERIAL: INTERMEDIATE SHELL PLATE B9004-1
LIMITING ART VALUES AT 30 EFPY: 1/4T, 143°F
3/4T, 132°F
CURVE APPLICABLE FOR COOLDOWN RATES UP TO 0°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

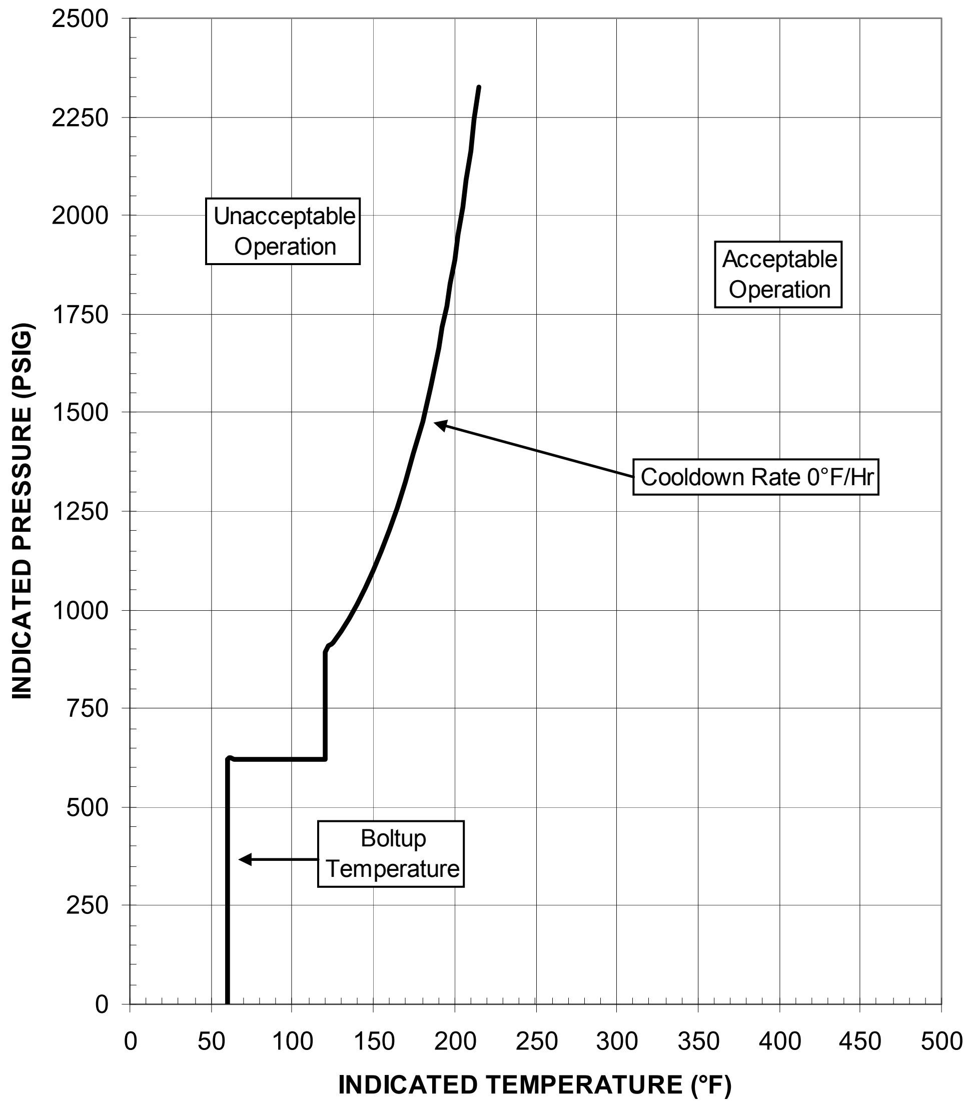

Figure 5.2-2 (Page 1 of 1)
Reactor Coolant System Cooldown (steady state - 0°F/Hr.)
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

<u>MATERIAL PROPERTY BASIS</u>
LIMITING MATERIAL: INTERMEDIATE SHELL PLATE B9004-1
LIMITING ART VALUES AT 30 EFPY: 1/4T, 143°F
3/4T, 132°F
CURVE APPLICABLE FOR COOLDOWN RATES UP TO 20°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

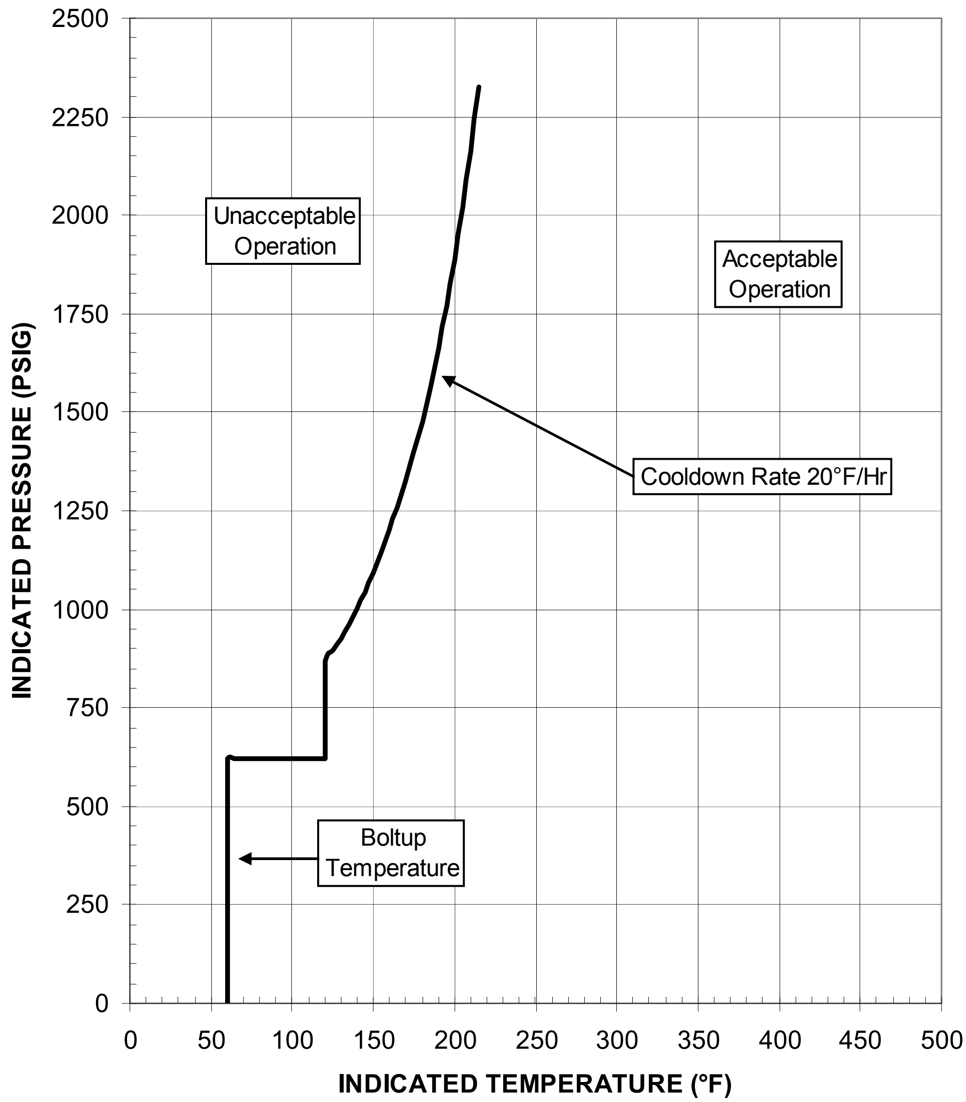

Figure 5.2-3 (Page 1 of 1)
Reactor Coolant System Cooldown (up to 20°F/Hr.)
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

<u>MATERIAL PROPERTY BASIS</u>

LIMITING MATERIAL: INTERMEDIATE SHELL PLATE B9004-1

LIMITING ART VALUES AT 30 EFPY: 1/4T, 143°F
3/4T, 132°F

CURVE APPLICABLE FOR COOLDOWN RATES UP TO 40°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

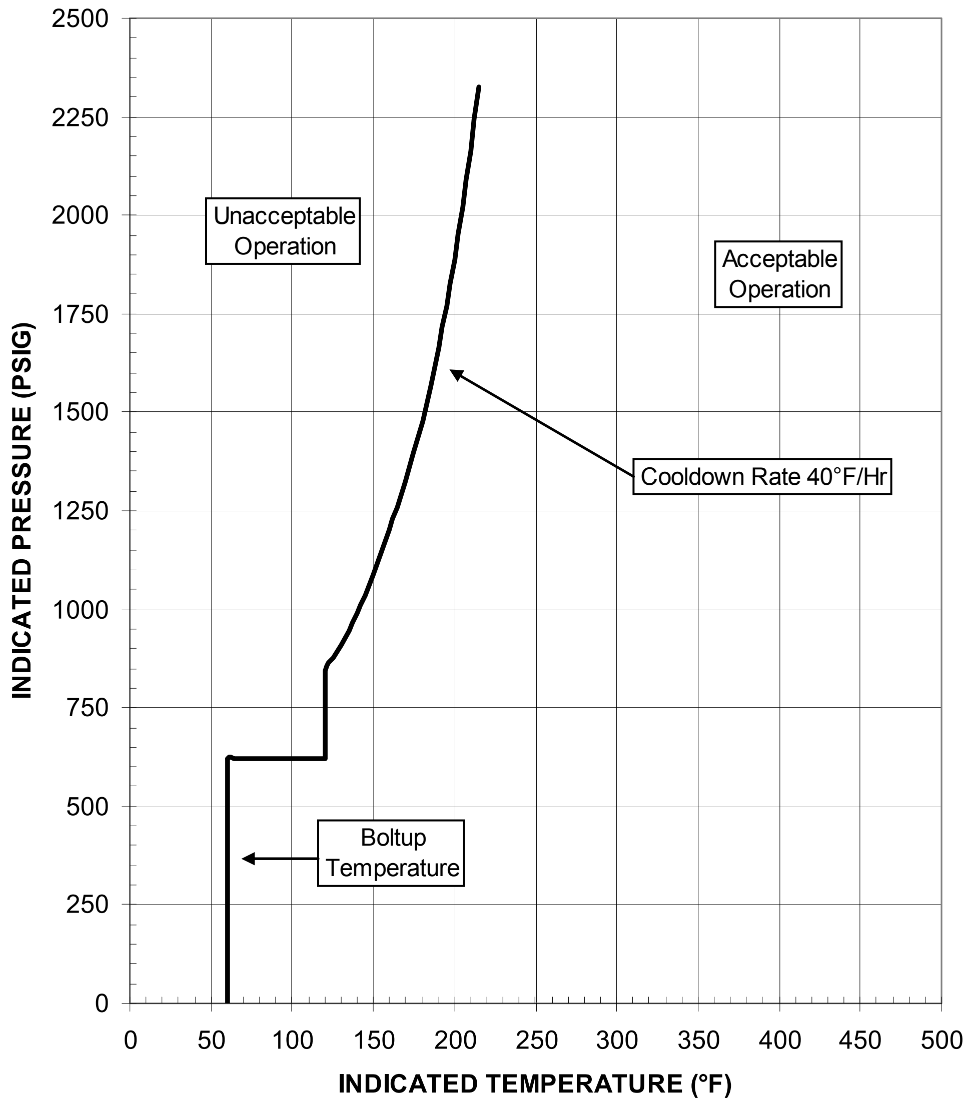

Figure 5.2-4 (Page 1 of 1)
Reactor Coolant System Cooldown (up to 40°F/Hr.)
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

<u>MATERIAL PROPERTY BASIS</u>
LIMITING MATERIAL: INTERMEDIATE SHELL PLATE B9004-1
LIMITING ART VALUES AT 30 EFPY: 1/4T, 143°F
3/4T, 132°F
CURVE APPLICABLE FOR COOLDOWN RATES UP TO 60°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

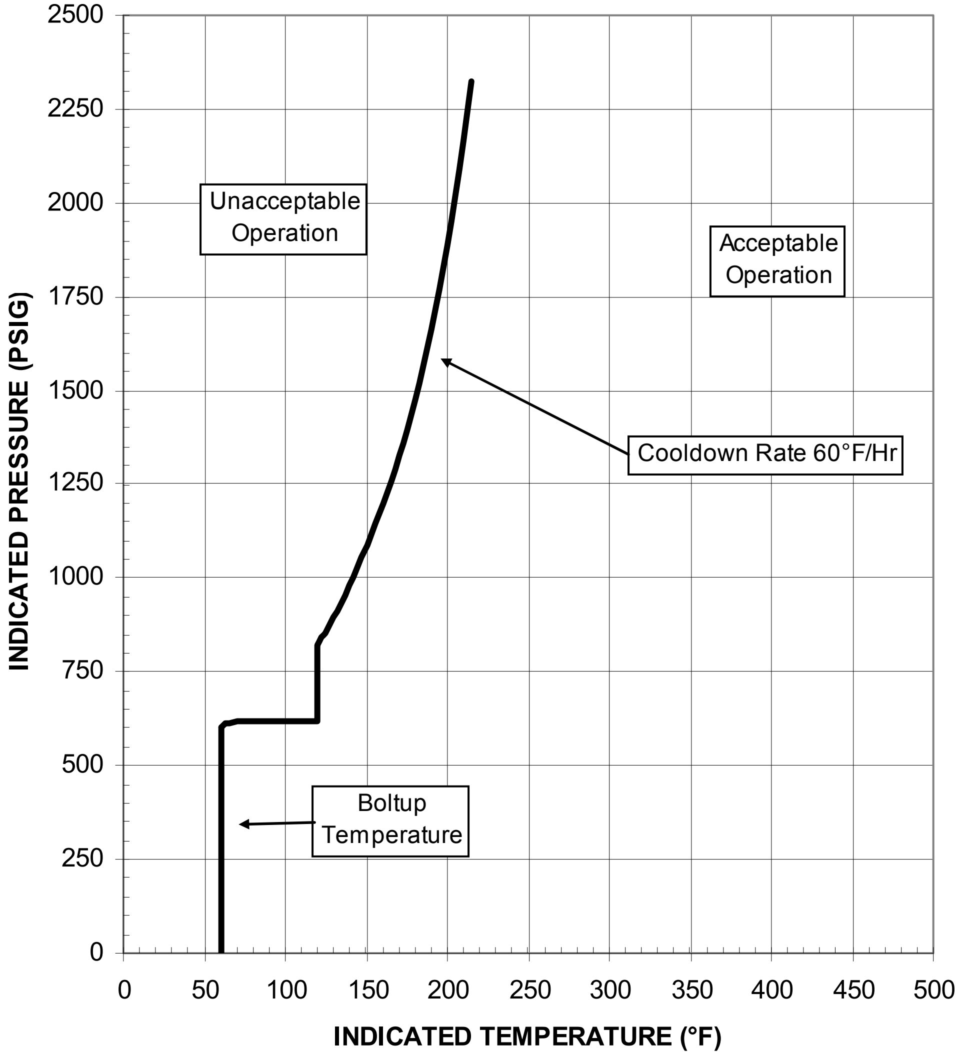

Figure 5.2-5 (Page 1 of 1)
Reactor Coolant System Cooldown (up to 60°F/Hr.)
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

<u>MATERIAL PROPERTY BASIS</u>
LIMITING MATERIAL: INTERMEDIATE SHELL PLATE B9004-1
LIMITING ART VALUES AT 30 EFPY: 1/4T, 143°F
3/4T, 132°F
CURVE APPLICABLE FOR COOLDOWN RATES UP TO 100°F/HR FOR THE SERVICE PERIOD UP TO 30 EFPY.

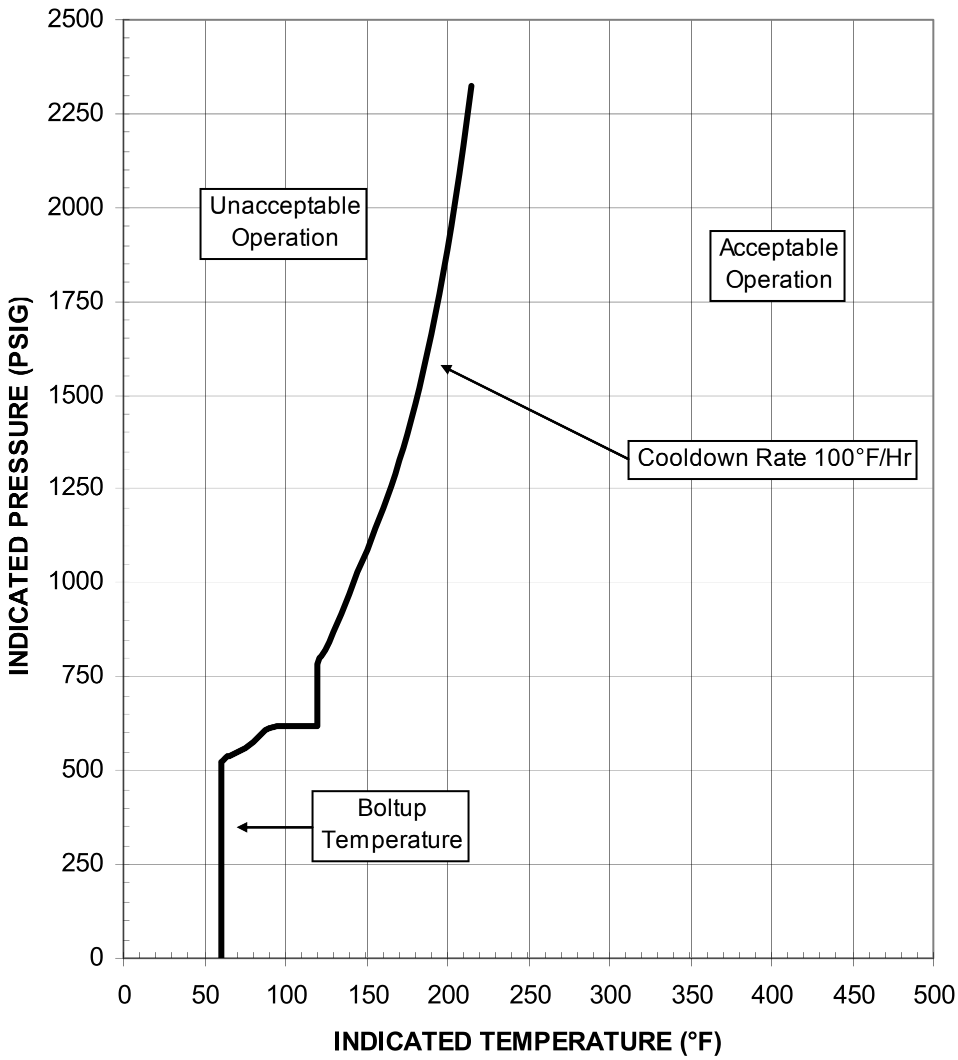

Figure 5.2-6 (Page 1 of 1)
Reactor Coolant System Cooldown (up to 100°F/Hr.)
Limitations Applicable for the First 30 EFPY (LCO 3.4.3)

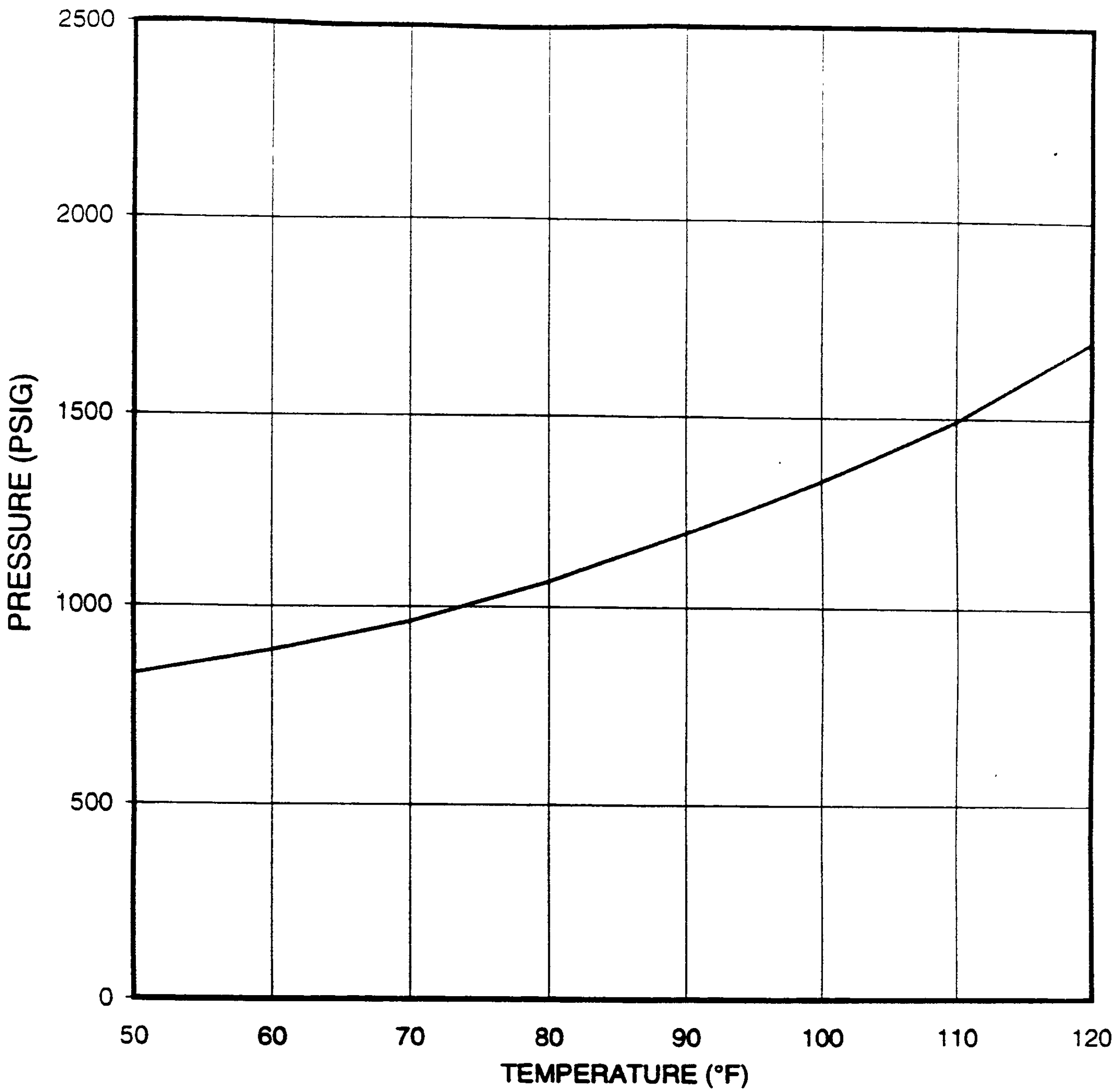

Figure 5.2-7 (Page 1 of 1)
Isolated Loop Pressure – Temperature Limit Curve (LCO 3.4.3)

See Table 5.2-4 for RCP restrictions.

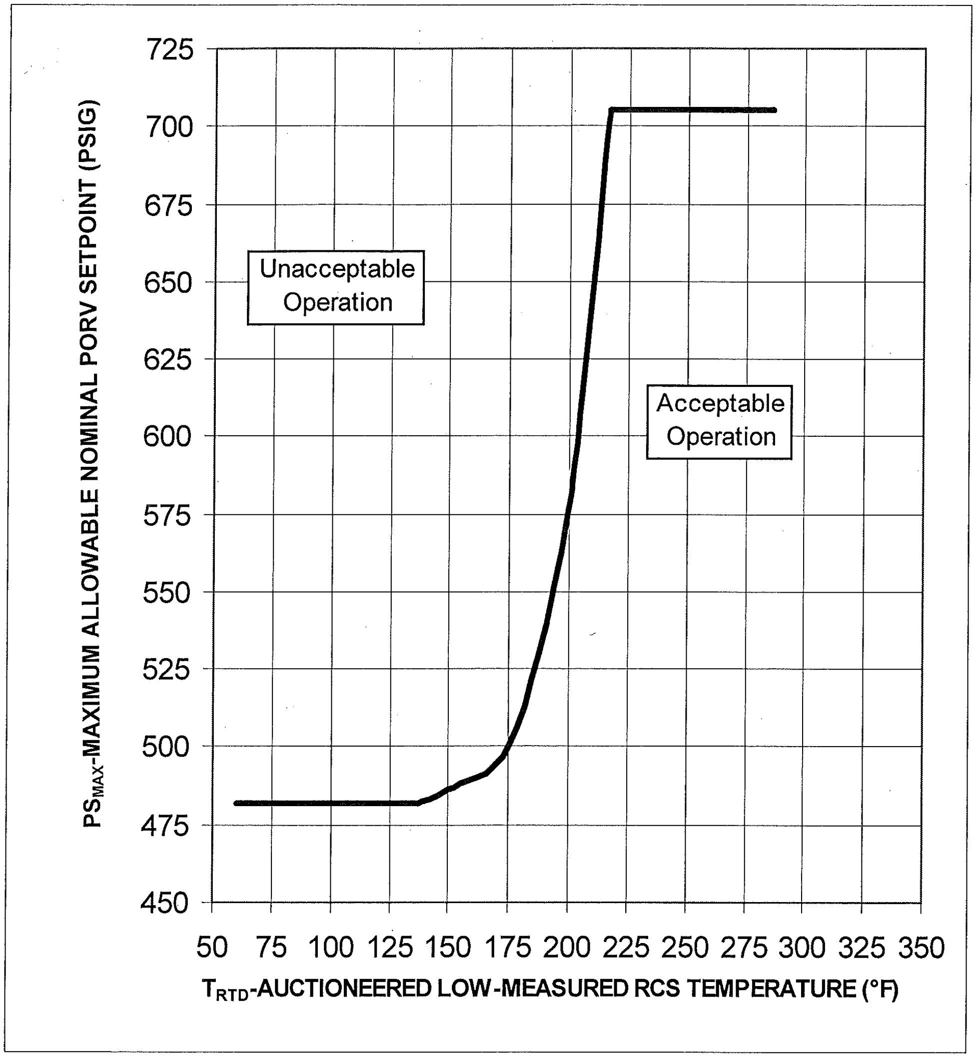

Figure 5.2-8 (Page 1 of 1)
Maximum Allowable Nominal PORV Setpoint for the
Overpressure Protection System (LCO 3.4.12)

Table 5.2-1 (Page 1 of 1)
Heatup Curve Data Points for 30 EFPY (LCO 3.4.3)

60°F/HR HEATUP		60°F/HR CRITICALITY		LEAK TEST LIMIT	
Temp. (°F)	Press. (psig)	Temp. (°F)	Press. (psig)	Temp. (°F)	Press. (psig)
60	0	199	0	181	2000
60	621	199	621	199	2485
65	621	199	621		
70	621	199	621		
75	621	199	621		
80	621	199	621		
85	621	199	621		
90	621	199	621		
95	621	199	621		
100	621	199	621		
105	621	199	777		
110	621	199	793		
115	621	199	813		
120	621	199	835		
120	621	199	861		
120	777	199	889		
125	793	199	921		
130	813	199	957		
135	835	200	996		
140	861	205	1040		
145	889	210	1089		
150	921	215	1143		
155	957	220	1203		
160	996	225	1269		
165	1040	230	1342		
170	1089	235	1423		
175	1143	240	1512		
180	1203	245	1611		
185	1269	250	1719		
190	1342	255	1840		
195	1423	260	1972		
200	1512	265	2118		
205	1611	270	2280		
210	1719	275	2458		
215	1840				
220	1972				
225	2118				
230	2280				
235	2458				

Table 5.2-2 (Page 1 of 1)
Cooldown Curve Data Points for 30 EFPY (LCO 3.4.3)

	0°F/HR	20°F/HR	40°F/HR	60°F/HR	100°F/HR
Temp. (°F)	Press. (psig)	Press. (psig)	Press. (psig)	Press. (psig)	Press. (psig)
60	0	0	0	0	0
60	621	621	621	602	525
65	621	621	621	612	536
70	621	621	621	621	548
75	621	621	621	621	562
80	621	621	621	621	578
85	621	621	621	621	595
90	621	621	621	621	614
95	621	621	621	621	621
100	621	621	621	621	621
105	621	621	621	621	621
110	621	621	621	621	621
115	621	621	621	621	621
120	621	621	621	621	621
120	621	621	621	621	621
120	892	867	844	822	783
125	918	896	875	855	823
130	947	927	909	893	867
135	980	962	947	934	917
140	1016	1001	989	980	971
145	1055	1044	1036	1031	1031
150	1099	1092	1087	1087	1087
155	1147	1144	1144	1144	1144
160	1201	1201	1201	1201	1201
165	1260	1260	1260	1260	1260
170	1325	1325	1325	1325	1325
175	1397	1397	1397	1397	1397
180	1477	1477	1477	1477	1477
185	1565	1565	1565	1565	1565
190	1662	1662	1662	1662	1662
195	1770	1770	1770	1770	1770
200	1888	1888	1888	1888	1888
205	2020	2020	2020	2020	2020
210	2165	2165	2165	2165	2165
215	2325	2325	2325	2325	2325

Table 5.2-3 (Page 1 of 1)

Overpressure Protection System (OPPS) Setpoints (LCO 3.4.12)

FUNCTION	SETPOINT
OPPS Enable Temperature	240°F
PORV Setpoint	Figure 5.2-8

Table 5.2-4 (Page 1 of 1)

Reactor Coolant Pump Restrictions

T_{RCS}	Running RCPs
< 137°F	0 – 2
≥ 137°F	3

Table 5.2-5 (Page 1 of 1)
Calculation of Chemistry Factors Using Surveillance Capsule Data

Material	Capsule	Capsule f[(a)]	FF[(b)]	ΔRT_{NDT}[(c)]	FF*ΔRT_{NDT}	FF^2
Intermediate Shell Plate B9004-2[(d)] (Longitudinal)	U	0.615	0.864	24.0	20.73	0.746
	V	2.64	1.260	56.0	70.54	1.587
	W	3.61	1.334	71.0	94.68	1.778
	X	5.63	1.425	98.0	139.65	2.031
Intermediate Shell Plate B9004-2[(d)] (Transverse)	U	0.615	0.864	17.7	15.29	0.746
	V	2.64	1.260	46.1	58.07	1.587
	W	3.61	1.334	63.4	84.55	1.778
	X	5.63	1.425	104.1	148.34	2.031
				SUM:	631.87	12.284
	CF = $\Sigma(FF * \Delta RT_{NDT}) \div \Sigma(FF^2)$ = (631.87) ÷ (12.284) = **51.4°F**					
Beaver Valley Unit 2 Surveillance Weld Metal[(e)] (Heat #83642)	U	0.615	0.864	4.1	3.54	0.746
	V	2.64	1.260	25.7	32.37	1.587
	W	3.61	1.334	6.0	8.00	1.778
	X	5.63	1.425	22.9	32.63	2.031
				SUM:	76.55	6.142
	CF = $\Sigma(FF * \Delta RT_{NDT}) \div \Sigma(FF^2)$ = (76.55) ÷ (6.142) = **12.5°F**					

Notes:

(a) f = calculated surveillance capsule neutron fluence (x 10^{19} n/cm^2, E > 1.0 MeV). The surveillance capsule fluence results are contained in Table 8-1 of Reference 13.

(b) FF = fluence factor = $f^{(0.28 - 0.1 * \log f)}$.

(c) ΔRT_{NDT} values are the measured 30 ft-lb shift values. The BVPS-2 ΔRT_{NDT} values for the surveillance weld data were not adjusted since the ratio was 0.91; therefore, a conservative value of 1.00 was used.

(d) The surveillance plate data is deemed non-credible, per Appendix A of Reference 13.

(e) The surveillance weld data is deemed credible, per Appendix A of Reference 13.

Table 5.2-6 (Page 1 of 1)
Reactor Vessel Beltline Material Properties

Material	Cu (wt%)	Ni (wt%)	Initial RT_{NDT} (F)[a]
Closure Head Flange B9002-1	0.06[b]	0.74	-10
Vessel Flange B9001-1	0.06[b]	0.73	0
Intermediate Shell Plate B9004-1	0.065	0.55	60
Intermediate Shell Plate B9004-2	0.06	0.57	40
Lower Shell Plate B9005-1	0.08	0.58	28
Lower Shell Plate B9005-2	0.07	0.57	33
Intermediate to Lower Shell Weld 101-171 (Heat 83642)	0.046	0.086	-30
Intermediate Longitudinal Weld 101-124 A & B (Heat 83642)	0.046	0.086	-30
Lower Longitudinal Weld 101-142 A & B (Heat 83642)	0.046	0.086	-30
Plate Surveillance Material B9004-2	0.06	0.57	40
Surveillance Weld (Heat 83642)	0.065	0.065	-30[c]

Notes:

(a) The initial RT_{NDT} values for all of the beltline materials are based on measured data.

(b) According to the BVPS-2 reactor vessel CMTRs and MISC-PENG-ER-021, the material for the closure head flange (B9002-1) and vessel flange (B9001-1) forgings are ASTM A508 Class 2. The ASTM A508 material specification does not require analysis of copper content. The importance of copper content in the irradiation embrittlement of ferritic pressure vessel steel was not recognized or regulated by the NRC or nuclear steam supply system (NSSS) vendors when the BVPS-2 reactor vessel was constructed. Even though the material specification did not require analysis of copper content for ASTM A508 Class 2 material, check analyses on chemistry measurements (including copper) were reported in MISC-PENGER-021. The copper values reported for both the closure head flange (B9002-1) and the vessel flange (B9001-1) was 0.06%.

(c) The initial RT_{NDT} value is determined in accordance with the requirements of Subparagraph NB-2331 of Section III of the ASME B&PV Code, as specified by Paragraph II - D of 10 CFR Part 50, Appendix G. These fracture toughness requirements are also summarized in Branch Technical Position MTEB Section II.5-2 (“Fracture Toughness”) of the NRC Regulatory Standard Review Plan. Following these requirements, along with the Charpy data reported in Table 3-3 of WCAP-9615 and the T_{NDT} value of -30°F defined on page 3-14 of WCAP-9615, the initial RT_{NDT} value is concluded to be equal to T_{NDT} (i.e., -30.0°F).

Table 5.2-7 (Page 1 of 1)
Reactor Vessel Extended Beltline Material Properties [a]

Material Description	Material ID	Heat Number	Wt % Cu	Wt% Ni	Initial RT_{NDT} (°F)[b]
Upper Shell	B9003-1	A9406-1	0.13	0.60	50
	B9003-2	B4431-2	0.12	0.60	60
	B9003-3	A9406-2	0.13	0.60	50
Upper Shell Longitudinal Welds	101-122A 101-122B 101-122C	51912 (3490)	0.156	0.059	-50
		51912 (3536)	0.156	0.059	-70
		EAIB	0.02	0.98	10 (Gen)
		IAGA	0.03	0.98	-30
		BOHB	0.05	1.00	10 (Gen)
		BAOED	0.02	1.00	-50
Upper Shell to Intermediate Shell Girth Weld	103-121	4P5174 (1122)	0.09	1.00	-50
		51922 (3489)	0.05	1.00	-56 (Gen)
		AAGC	0.03	0.98	-70
		KOIB	0.03	0.97	-60
Inlet Nozzles	B9011-1	2V2436-01-002	0.11	0.85	60[c]
	B9011-2	2V2437-02-001	0.13	0.88	60[c] (Gen)
	B9011-3	2V2445-02-003	0.13	0.84	70[c]
Inlet Nozzle Welds	105-121A 105-121B 105-121C	4P5174 (1122)	0.09	1.00	-50
		LOHB	0.03	1.03	-60
		HABJC	0.02	1.02	-70
		BABBD	0.02	1.04	-70
		FABGC	0.03	1.02	-80
		EOBC	0.02	0.96	-60
		FAAFC	0.07	1.04	-60
		CCJC	0.02	0.99	-60
		FAGB	0.02	1.06	-30
		BAOED	0.02	1.00	-50
Outlet Nozzles	B9012-1	AV8080-2E9558	0.13	0.72	-10
	B9012-2	AV8120-2E9560	0.13	0.74	-10
	B9012-3	AV8097-2E9559	0.13	0.70	-10
Outlet Nozzle Welds	107-121A 107-121B 107-121C	BABBD	0.02	1.04	-70
		FAAFC	0.07	1.04	-60
		HAAEC	0.03	1.03	-80
		HABJC	0.02	1.02	-70
		HAGB	0.02	1.04	-40
		GACJC	0.03	1.00	-80
		JAHB	0.03	0.97	-40

Notes:

(a) Materials information taken from Reference 13
(b) Based on Reference 13, the generic Initial RT_{NDT} values were determined in accordance with NUREG-0800 and the 10 CFR 50.61.
(c) As described in Reference 16, the reactor vessel initial RT_{NDT} values for the inlet nozzles are conservatively assigned values. The actual initial RT_{NDT} values for the reactor vessel inlet nozzles are located in BVPS-2 UFSAR Table 5.3-1.

Table 5.2-8 (Page 1 of 1)

Summary of Adjusted Reference Temperature (ARTs) for 30 EFPY[a]

Material Description	Method Used To Calculate the CF[b]	30 EFPY ART	
		1/4T ART (°F)	3/4T ART (°F)
Intermediate Shell Plate B9004-1	Position 1.1	143	132
Intermediate Shell Plate B9004-2	Position 1.1	119	109
	Position 2.1	119	106
Lower Shell Plate B9005-1	Position 1.1	123	110
Lower Shell Plate B9005-2	Position 1.1	120	109
Vessel Beltline Welds[c]	Position 1.1	53	35
	Position 2.1	0	-6

Notes:

(a) Table reflects Capsule X analysis per Reference 14.

(b) Regulatory Guide 1.99, Revision 2.

(c) All Beltline Welds are from Heat #83642, Linde 0091, Flux Lot #3536.

Table 5.2-9 (Page 1 of 1)

Calculation of Adjusted Reference Temperatures (ARTs) for 30 EFPY[a]

PARAMETER	VALUES	
Operating Time	30 EFPY	
Material – Intermediate Shell Plate	B9004-1	B9004-1
Location	1/4T	3/4T
Chemistry Factor, CF (°F)	40.5	40.5
Fluence, (f), (10^{19} n/cm^2)[b]	2.113	0.8215
Fluence Factor, FF	1.203	0.9448
ΔRT_{NDT} = CF x FF(°F)	48.74	38.27
Intitial RT_{NDT}, I(°F)	60	60
Margin, M(°F)	34	34
ART, per Regulatory Guide 1.99, Revision 2	143	132

Notes:

(a) Table reflects Capsule X analysis per Reference 14.

(b) Fluence (f), is based upon f_{surf} (10^{19} n/cm^2, E > 1.0 MeV) = 3.39 at 30 EFPY. The Beaver Valley Unit 2 reactor vessel wall thickness is 7.875 inches at the beltline region.

Table 5.2-10 (Page 1 of 1)
RT_{PTS} Calculation for Beltline Region Materials at Life Extension (54 EFPY)[a]

Material Description	Material ID	Heat Number	Surface Neutron Fluence ($x10^{19}$ n/cm^2)	Fluence Factor, FF[b]	Chemistry Factor (°F)	Initial RT_{NDT}[c] (°F)	ΔRT_{PTS}[d] (°F)	σ_U (°F)	σ_Δ (°F)	Margin[e] (°F)	RT_{PTS}[f] (°F)
Intermediate Shell Plate	B9004-1	---	5.18	1.4092	40.5	60	57.1	0	17	34	151.1
Intermediate Shell Plate	B9004-2	---	5.18	1.4092	37	40	52.1	0	17	34	126.1
→ Using non-credible surveillance data[g]			5.18	1.4092	51.4	40	72.4	0	17	34	146.4
Lower Shell Plate	B9005-1	---	5.21	1.4104	51	28	71.9	0	17	34	133.9
Lower Shell Plate	B9005-2	---	5.21	1.4104	44	33	62.1	0	17	34	129.1
Intermediate to Lower Shell Girth Weld	101-171	83642	5.18	1.4092	34.4	-30	48.5	0	24.2	48.5	67.0
→ Using credible surveillance data[g]			5.18	1.4092	12.5	-30	17.6	0	8.8	17.6	5.2
Intermediate Shell Longitudinal Welds	101-124 A&B	83642	1.76	1.1554	34.4	-30	39.7	0	19.9	39.7	49.5
→ Using credible surveillance data[g]			1.76	1.1554	12.5	-30	14.4	0	7.2	14.4	-1.1
Lower Shell Longitudinal Welds	101-142 A&B	83642	1.77	1.1569	34.4	-30	39.8	0	19.9	39.8	49.6
→ Using credible surveillance data[g]			1.77	1.1569	12.5	-30	14.5	0	7.2	14.5	-1.1

<u>Notes:</u>
(a) Data obtained from Table 6-3 of Reference 13.
(b) FF = fluence factor = $f^{(0.28 - 0.1 \log (f))}$.
(c) Initial RT_{NDT} values are measured values.
(d) ΔRT_{PTS} = CF * FF.
(e) $M = 2 * (\sigma_U^2 + \sigma_\Delta^2)^{1/2}$.
(f) RT_{PTS} = Initial RT_{NDT} + ΔRT_{PTS} + Margin.
(g) The BVPS-2 surveillance weld metal is the same weld heat as the BVPS-2 beltline welds (heat 83642). The BVPS-2 surveillance weld data is credible; therefore, the reduced σ_Δ term of 14°F was utilized for BVPS-2 weld heat 83642. The BVPS-2 surveillance plate material is representative of the BVPS-2 intermediate shell plate B9004-2. The surveillance plate material is non-credible; therefore, the higher σ_Δ term of 17°F was utilized for BVPS-2 plate B9004-2. The credibility evaluation conclusions are contained in Appendix A of Reference 13.

Table 5.2-11 (Page 1 of 3)
RT_{PTS} Calculation for Extended Beltline Region Materials at Life Extension (54 EFPY)[(a)]

Material Description	Material ID	Heat Number (Lot Number)	Surface Neutron Fluence ($x10^{19}$ n/cm^2)	Fluence Factor, FF[(b)]	Chemistry Factor (°F)	Initial RT_{NDT}[(c)] (°F)	ΔRT_{PTS}[(e)] (°F)	σ_U (°F)	σ_Δ (°F)	Margin[(f)] (°F)	RT_{PTS}[(g)] (°F)
Upper Shell Plates	B9003-1	A9406-1	0.515	0.8147	91.0	50	74.1	0	17	34	158.1
	B9003-2	B4431-2	0.515	0.8147	83.0	60	67.6	0	17	34	161.6
	B9003-3	A9406-2	0.515	0.8147	91.0	50	74.1	0	17	34	158.1
Upper Shell Longitudinal Welds	101-122A 101-122B 101-122C	51912 (3490)	0.515	0.8147	73.71	-50	60.1	0	28	56	66.1
		51912 (3536)	0.515	0.8147	73.71	-70	60.1	0	28	56	46.1
		EAIB	0.515	0.8147	27.0	10[(d)]	22.0	17	11.0	40.5	72.5
		IAGA	0.515	0.8147	41.0	-30	33.4	0	16.7	33.4	36.8
		BOHB	0.515	0.8147	68.0	10[(d)]	55.4	17	27.7	65.0	130.4
		BAOED	0.515	0.8147	27.0	-50	22.0	0	11.0	22.0	-6.0
Upper to Intermediate Shell Girth Weld	103-121	4P5174	0.515	0.8147	122.0	-50	99.4	0	28	56.0	105.4
		51922	0.515	0.8147	68.0	-56[(d)]	55.4	17	27.7	65.0	64.4
		AAGC	0.515	0.8147	41.0	-70	33.4	0	16.7	33.4	-3.2
		KOIB	0.515	0.8147	41.0	-60	33.4	0	16.7	33.4	6.8
Inlet Nozzles	B9011-1	2V2436-01-002	0.0298	0.2188	77.0	60[(h)]	16.8	0	8.4	16.8	93.7
	B9011-2	2V2437-02-001	0.0298	0.2188	96.0	60[(d)(h)]	21.0	17	10.5	40.0	121.0
	B9011-3	2V2445-02-003	0.0298	0.2188	96.0	70[(h)]	21.0	0	10.5	21.0	112.0

Table 5.2-11 (Page 2 of 3)
RT_{PTS} Calculation for Extended Beltline Region Materials at Life Extension (54 EFPY)(a)

Material Description	Material ID	Heat Number (Lot Number)	Surface Neutron Fluence ($x10^{19}$ n/cm^2)	Fluence Factor, FF(b)	Chemistry Factor (°F)	Initial RT_{NDT}(c) (°F)	ΔRT_{PTS}(e) (°F)	σ_U (°F)	σ_Δ (°F)	Margin(f) (°F)	RT_{PTS}(g) (°F)
Inlet Nozzle Welds	105-121A 105-121B 105-121C	4P5174	0.0298	0.2188	122.0	-50	26.7	0	13.3	26.7	3.4
		LOHB	0.0298	0.2188	41.0	-60	9.0	0	4.5	9.0	-42.1
		HABJC	0.0298	0.2188	27.0	-70	5.9	0	3.0	5.9	-58.2
		BABBD	0.0298	0.2188	27.0	-70	5.9	0	3.0	5.9	-58.2
		FABGC	0.0298	0.2188	41.0	-80	9.0	0	4.5	9.0	-62.1
		EOBC	0.0298	0.2188	27.0	-60	5.9	0	3.0	5.9	-48.2
		FAAFC	0.0298	0.2188	95.0	-60	20.8	0	10.4	20.8	-18.4
		CCJC	0.0298	0.2188	27.0	-60	5.9	0	3.0	5.9	-48.2
		FAGB	0.0298	0.2188	27.0	-30	5.9	0	3.0	5.9	-18.2
		BAOED	0.0298	0.2188	27.0	-50	5.9	0	3.0	5.9	-38.2
Outlet Nozzles	B9012-1	AV8080-2E9558	0.0151	0.1440	94.0	-10	13.5	0	6.8	13.5	17.1
	B9012-2	AV8120-2E9560	0.0151	0.1440	94.5	-10	13.6	0	6.8	13.6	17.2
	B9012-3	AV8097-2E9559	0.0151	0.1440	93.5	-10	13.5	0	6.7	13.5	16.9
Outlet Nozzle Welds	107-121A 107-121B 107-121C	BABBD	0.0151	0.1440	27.0	-70	3.9	0	1.9	3.9	-62.2
		FAAFC	0.0151	0.1440	95.0	-60	13.7	0	6.8	13.7	-32.6
		HAAEC	0.0151	0.1440	41.0	-80	5.9	0	3.0	5.9	-68.2
		HABJC	0.0151	0.1440	27.0	-70	3.9	0	1.9	3.9	-62.2
		HAGB	0.0151	0.1440	27.0	-40	3.9	0	1.9	3.9	-32.2
		GACJC	0.0151	0.1440	41.0	-80	5.9	0	3.0	5.9	-68.2
		JAHB	0.0151	0.1440	41.0	-40	5.9	0	3.0	5.9	-28.2

Table 5.2-11 (Page 3 of 3)
RT_{PTS} Calculation for Extended Beltline Region Materials at Life Extension (54 EFPY)[a]

Notes:

(a) Data obtained from Table 6-4 of Reference 13.

(b) FF = fluence factor = $f^{(0.28 - 0.1 \log (f))}$.

(c) Initial RT_{NDT} values are measured values, unless otherwise noted.

(d) Initial RT_{NDT} values are generic.

(e) ΔRT_{PTS} = CF * FF.

(f) $M = 2 * (\sigma_U^2 + \sigma_\Delta^2)^{1/2}$.

(g) RT_{PTS} = Initial RT_{NDT} + ΔRT_{PTS} + Margin.

(h) As described in Reference 16, the reactor vessel initial RT_{NDT} values for the inlet nozzles are conservatively assigned values. The actual initial RT_{NDT} values for the reactor vessel inlet nozzles are located in BVPS-2 UFSAR Table 5.3-1.

5.0 ADMINISTRATIVE CONTROLS

5.3 Procedure Review and Approval

Each procedure or revision thereto of Technical Specification 5.4.1 shall be reviewed and approved, as described below, prior to implementation.

Each procedure or revision thereto shall be reviewed by an Independent Qualified Reviewer (IQR), who is knowledgeable in the functional area affected. This IQR is not the individual who prepared the procedure or associated procedure revision. The IQR shall ensure that cross disciplinary reviews of new procedures and procedure revisions are completed prior to approval of the procedure.

The responsible IQR shall ensure each procedure or revision thereto includes a determination of whether a procedure requires a 10 CFR 50.59 evaluation. If a procedure or revision thereto requires a 10 CFR 50.59 evaluation, the Responsible Discipline Manager or his designee shall ensure that the procedure, with the associated 10 CFR 50.59 evaluation, is forwarded to the Plant Operations Review Committee for review. Pursuant to 10 CFR 50.59, NRC approval of items involving unreviewed safety questions shall be obtained prior to approval of the procedure or revision thereto for implementation. Final procedure approval shall be by the Responsible Discipline Manager or his designee, as specified in administrative procedures.

IQRs shall meet the applicable qualifications as delineated in plant procedures.

Temporary changes to procedures will be approved as described in the FENOC QAPM, Regulatory Guide 1.33 conformance description.

5.0 ADMINISTRATIVE CONTROLS

5.4 Record Retention

The following records shall be retained for at least five (5) years:

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

2. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.

3. All reportable events of the type described in 10 CFR 50.73.

4. Records of surveillance activities, inspections and calibrations required by the Technical Specifications.

5. Records of reactor tests and experiments.

6. Records of changes made to operating procedures.

7. Records of radioactive shipments.

8. Records of sealed source leak tests and results.

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

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

1. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the Final Safety Analysis Report.

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

3. Records of facility radiation and contamination surveys.

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

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

6. Records of transient or operational cycles for those facility components designed for a limited number of transients or cycles.

7. Records of training and qualification for current numbers of the plant staff.

8. Records of in-service inspections performed pursuant to the Technical Specifications.

5.4 Record Retention

9. Records of Quality Assurance activities required by the QA Manual.

10. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.

11. Records of meetings of the onsite review committee and the independent review board.

12. Records of the service lives of all hydraulic and mechanical snubbers including the date at which the service life commences and associated installation and maintenance records.

13. Records of analyses required by the Radiological Environmental Monitoring Program.

14. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program.

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B 3.0 LICENSING REQUIREMENT (LR) APPLICABILITY

BASES

LRs	LR 3.0.1 through LR 3.0.3 establish the general requirements applicable to all LRs and apply at all times, unless otherwise stated.

LR 3.0.1

LR 3.0.1 establishes the Applicability statement within each individual LR as the requirement for when the LR is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each LR).

LR 3.0.2

LR 3.0.2 establishes that upon discovery of a failure to meet an LR, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LR are not met. This Specification establishes that:

a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and

b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.

There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LR must be met. This time limit is the Completion Time to restore an inoperable/Nonfunctional system or component to OPERABLE/FUNCTIONAL status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, entry into LR 3.0.3 may be required, or a shutdown may be required to place the unit in a MODE or condition in which the LR is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.

Completing the Required Actions is not required when an LR is met or is no longer applicable, unless otherwise stated in the individual LR.

BASES

LR 3.0.2 (continued)

The nature of some Required Actions in some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LR's ACTIONS specify the Required Actions where this is the case.

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable/Nonfunctional, alternatives should be used instead. Doing so limits the time both subsystems/trains of a required function are inoperable/Nonfunctional and limits the time conditions exist which may result in LR 3.0.3 being entered. Individual LRs may specify a time limit for performing an LRS when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another LR becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new LR becomes applicable, and the ACTIONS Condition(s) are entered.

LR 3.0.3

LR 3.0.3 establishes the actions that must be implemented when an LR is not met and:

a. The ACTIONS require that LR 3.0.3 be entered;

b. An associated Required Action and Completion Time is not met and no other Condition applies; or

c. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit.

BASES

LR 3.0.3 (continued)

This LR delineates the actions required when directed by the associated ACTIONS, or when operation cannot be maintained within the prescribed limits as defined by the LR and its ACTIONS. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being inoperable/Nonfunctional.

Upon entering LR 3.0.3, Action must be initiated to immediately communicate the situation to the Shift Manager and document the condition in accordance with the FENOC Corrective Action Program. Entry into LR 3.0.3 may result in the Unit being outside of its design/licensing bases and therefore potentially reportable per 10 CFR 50.72 and/or 50.73. The safety significance of the condition is required to be evaluated per NOP-OP-1009 “Operability Determinations and Functionality Assessments” (consistent with the guidance of NRC Regulatory Issue Summary 2005-20 (Revision 1), and as required by Appendix B of 10 CFR 50) and appropriate corrective actions are required to be initiated, within the time frame determined by the Shift Manager that shall not exceed 48 hours from the time of entry into LR 3.0.3. The time frame for completion of the corrective actions shall be commensurate with the safety significance of the condition, consistent with the guidance of NOP-OP-1009.

The actions required by LR 3.0.3 may be terminated and LR 3.0.3 exited if any of the following occurs:

a. The LR is now met,

b. The LR is no longer applicable,

c. A Condition exists for which the Required Actions have now been performed, or

d. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time LR 3.0.3 is exited.

BASES

LR 3.0.4

LR 3.0.4 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable/Nonfunctional to comply with ACTIONS. The sole purpose of this LR is to provide an exception to LR 3.0.2 (e.g., to not comply with the applicable ACTIONS) to allow the performance of required testing to demonstrate either:

a. The OPERABILITY/FUNCTIONALITY of the equipment being returned to service; or

b. The OPERABILITY/FUNCTIONALITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY/FUNCTIONALITY. If the OPERABILITY/ FUNCTIONALITY of the affected equipment can not be demonstrated, the administrative controls will also ensure the equipment/plant is restored to the required condition in a timely manner. This LR does not provide time to perform any other preventive or corrective maintenance. Minor corrections such as adjustments of limit switches to correct position indication anomalies are considered within the scope of this LR.

An example of demonstrating the OPERABILITY/FUNCTIONALITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with ACTIONS and must be reopened to perform the surveillance requirements.

An example of demonstrating the OPERABILITY/FUNCTIONALITY of other equipment is taking an inoperable/Nonfunctional channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of a surveillance requirement on another channel in the other trip system. A similar example of demonstrating the OPERABILITY/FUNCTIONALITY of other equipment is taking an inoperable/Nonfunctional channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of a surveillance requirement on another channel in the same trip system.

LR 3.0.5

The purpose of LR 3.0.5 is to provide guidance that clarifies the appropriate action when LRM requirements specified in the Technical Specifications such as those listed in the Tables containing Instrumentation Response Times or in the COLR are not met. The guidance of this LR is intended to prevent potential confusion or misapplication of the provisions in the LRM to the requirements governed by Technical Specifications.

BASES

LR 3.0.6

There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Test Exception LR 3.1.11 allows specified LR requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of the LR. Unless otherwise specified, all the other LR requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

The Applicability of a Test Exception LR represents a condition not necessarily in compliance with the normal requirements of an LR. Compliance with Test Exception LRs is optional. A special operation may be performed either under the provisions of the appropriate Test Exception LR or under the other applicable LR requirements. If it is desired to perform the special operation under the provisions of the Test Exception LR, the requirements of the Test Exception LR shall be followed.

B 3.0 LICENSING REQUIREMENT SURVEILLANCE (LRS) APPLICABILITY

BASES

LRSs

LRS 3.0.1 through LRS 3.0.3 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

LRS 3.0.1

LRS 3.0.1 establishes the requirement that surveillances must be met during the MODES or other conditions in the Applicability for which the requirements of the LR apply unless otherwise stated in an individual LRS. The purpose of this LRS is to ensure that surveillances are performed to verify the OPERABILITY/FUNCTIONALITY of systems and components and that parameters are within specified limits to ensure safe operation of the facility when the plant is in a MODE or other specified condition for which the associated LRs are applicable. Failure to meet a LRS within the specified Frequency, in accordance with LRS 3.0.2, constitutes a failure to meet a LR.

Surveillances may be performed by means of any series of sequential, overlapping, or total steps provided the entire Surveillance is performed within the specified Frequency. Additionally, the definition related to instrument testing (e.g., CHANNEL CALIBRATION) specify that these tests are performed by means of any series of sequential, overlapping, or total steps.

Systems and components are assumed to be OPERABLE/FUNCTIONAL when the associated LRSs have been met. Nothing in this LR, however, is to be construed as implying that systems or components are OPERABLE/FUNCTIONAL when:

a. The systems or components are known to be inoperable/Nonfunctional, although still meeting the LRSs; or

b. The requirements of the LRS(s) are known not to be met between required performance of LRSs.

LRSs do not have to be performed when the facility is in a MODE or other specified condition for which the requirements of the associated LR are not applicable unless otherwise specified. The LRSs associated with a Test Exception are only applicable when the Test Exception is used as an allowable exception to the requirements of an LR.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given LRS. In this case, the unplanned event may be credited as fulfilling the performance of the LRS. This allowance includes those LRSs whose performance is normally precluded in a given MODE or other specified condition.

BASES

LRS 3.0.1 (continued)

Surveillances, including surveillances invoked by Required Actions, do not have to be performed on inoperable/Nonfunctional equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with LRS 3.0.2, prior to returning equipment to OPERABLE/FUNCTIONAL status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE/FUNCTIONAL. This includes ensuring applicable LRSs are not failed and their most recent performance is in accordance with LRS 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE/FUNCTIONAL provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

An example of this process is Auxiliary Feedwater (AFW) pump turbine maintenance during refueling that requires testing at steam pressures of greater than 600 psig. If other appropriate testing is satisfactorily completed, the AFW System can be considered OPERABLE. This allows startup and other necessary testing to proceed until the plant reaches the steam pressure required to perform the testing.

LRS 3.0.2

LRS 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

LRS 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the LRS. The exceptions to LRS 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply.

BASES

LRS 3.0.2 (continued)

These exceptions are stated in the individual LRs or LRS. The requirements of regulations take precedence over the LRs. The LRs cannot in and of themselves extend a test interval specified in the regulations.

As stated in LRS 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per ..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable/Nonfunctional equipment in an alternative manner.

The provisions of LRS 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

LRS 3.0.3

LRS 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable/Nonfunctional or an affected variable outside the specified limits when a surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the surveillance has not been performed in accordance with LRS 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete surveillances that have been missed. This delay period permits the completion of a surveillance before complying with Required Actions or other remedial measures that might preclude completion of the surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the surveillance, the safety significance of the delay in completing the required surveillance, and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the requirements.

BASES

LRS 3.0.3 (continued)

When a surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to being placed into use, or in accordance with 10 CFR 50.4, etc.) is discovered to not have been performed when specified, LRS 3.0.3 allows the full delay period of up to the specified Frequency to perform the surveillance. However, since there is not a time interval specified, the missed surveillance should be performed at the first reasonable opportunity.

LRS 3.0.3 provides a time limit for, and allowances for the performance of, surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for LRSs is expected to be an infrequent occurrence. Use of the delay period established by LRS 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend surveillance intervals. While up to 24 hours or the limit of the specified surveillance interval is provided to perform the missed surveillance, it is expected that the missed surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the surveillance as well as any plant configuration changes required or shutting the plant down to perform the surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants.” This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed surveillances will be placed in the Corrective Action Program.

BASES

LRS 3.0.3 (continued)

If a surveillance is not completed within the allowed delay period, then the equipment is considered inoperable/Nonfunctional or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LR Action Condition begins immediately upon expiration of the delay period. If a surveillance is failed within the delay period, then the equipment is inoperable/Nonfunctional, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LR Action Condition begin immediately upon the failure of the surveillance.

Completion of the surveillance within the delay period allowed by this Specification, or within the Allowed Outage Time of the applicable ACTIONS, restores compliance with LRS 3.0.1.

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.1 - B 3.1.8 Boration Systems

BASES

BACKGROUND

The boron injection system ensures that negative reactivity control is available during each MODE of facility operation.

With the RCS average temperature above 350°F, a minimum of two boron injection flow paths are provided to ensure single functional capability in the event an assumed failure renders one of the flow paths Nonfunctional. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

With the RCS average temperature less than 200°F, Low Head Safety Injection pump may be used in lieu of the FUNCTIONAL charging pump with a minimum open RCS vent of 3.14 square inches. This will provide latitude for maintenance and ISI examinations on the charging system for repair or corrective action and will ensure that boration and makeup are available when the charging pumps are out-of-service. An open vent insures that RCS pressure will not exceed the shutoff head of the Low Head Safety Injection pumps.

2SIS-MOV8888A and B are the Low Head Safety Injection Pump discharge isolation valves to the RCS cold legs, the valves must be closed prior to reducing RCS pressure below the RWST head pressure to prevent draining into the RCS. Emergency backup power is not required since these valves are outside containment and can be manually operated if required, this will allow the associated diesel generator to be taken out of service for maintenance and testing.

The Technical Specification limitations for a maximum of one centrifugal charging pump to be OPERABLE and the Surveillance Requirement to verify all charging pumps except the required OPERABLE pump to be inoperable when less than or equal to the enable temperature set forth in the PTLR provides assurance that a mass addition pressure transient can be relieved by the operation of a single PORV. Substituting a Low Head Safety Injection pump for a charging pump in MODES 5 and 6 will not increase the probability of an overpressure event since the shutoff head of the Low Head Safety Injection pumps is below the setpoint of the overpressure protection system.

BASES

BACKGROUND (continued)

The boration capability of the boric acid storage system is sufficient to provide a SHUTDOWN MARGIN from all operating conditions of 1.77% $\Delta k/k$ after xenon decay and cooldown to 200°F. The maximum boration capability requirements occur at BOL from full power peak xenon conditions and requires 13,390 gallons of 7000 ppm borated water from the boric acid storage tanks.

With the RCS temperature below 350°F, one boron injection flow path is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the additional restrictions prohibiting CORE ALTERATIONS and positive reactivity change in the event the single injection system becomes Nonfunctional.

The boration capability required below 200°F is sufficient to provide a SHUTDOWN MARGIN of 1% $\Delta k/k$ after xenon decay and cooldown from 200°F to 140°F. This condition requires either 2315 gallons of 7000 ppm borated water from the boric acid storage tanks or 10,196 gallons of 2400 ppm borated water from the refueling water storage tank.

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.9 Rod Position Indication - Shutdown

BASES

BACKGROUND	The LR applies to the Unit 2 digital rod position indication. The rod position indication system provides indication of rod position in the control room which is used to verify that the rods are correctly positioned. In operating MODES (1 and 2), this indication is used to verify rod insertion and alignment limits which are initial conditions of Design Basis Accidents (DBAs) are met and to verify that the rods are fully inserted following a reactor trip. The requirements for Rod Position Indication in Modes 1 and 2 are specified in the Technical Specifications. In the shutdown MODES addressed by this LR, rod position indication only provides information to verify rod position, and is not relied on to verify the initial conditions of DBAs are met or to verify rod insertion after a reactor trip.

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.10 Boron Dilution

BASES

BACKGROUND	A minimum flow rate of at least 3000 GPM provides adequate mixing, prevents stratification and ensures that reactivity changes will be gradual during boron concentration reductions in the Reactor Coolant System. A flow rate of at least 3000 GPM will circulate an equivalent Reactor Coolant System volume of 9370 cubic feet in approximately 30 minutes. The reactivity change rate associated with boron reductions will, therefore, be within the capability for operator recognition and control.

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.11 Rod Position Indication System - Shutdown Test Exception

BASES

BACKGROUND	This test exception permits the Position Indication System to be Nonfunctional during rod drop time measurements. The exception is required since the data necessary to determine the rod drop time are derived from the induced voltage in the position indicator coils as the rod is dropped. This induced voltage is small compared to the normal voltage and, therefore, cannot be observed if the Position Indication Systems remain FUNCTIONAL.

B 3.3 INSTRUMENTATION

B 3.3.3 Meteorological Monitoring Instrumentation

BASES

BACKGROUND	The FUNCTIONALITY of the meteorological instrumentation ensures that sufficient meteorological data is available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23, "Onsite Meteorological Programs."

B 3.3 INSTRUMENTATION

B 3.3.4 Axial Flux Difference (AFD) Monitor Alarm

BASES

BACKGROUND	Surveillance of the AFD verifies that the AFD, as indicated by the Nuclear Instrumentation System (NIS) excore channels, is within its limits. During operation above 50% RATED THERMAL POWER, when the AFD monitor alarm is Nonfunctional, additional surveillance criteria is required by the Licensing Requirements Manual beyond the surveillance criteria required by the Technical Specifications to detect operation outside of the limits.

B 3.3 INSTRUMENTATION

B 3.3.5 Quadrant Power Tilt Ratio (QPTR) Monitor Alarm

BASES

BACKGROUND	Surveillance of the QPTR verifies that the QPTR, as indicated by the Nuclear Instrumentation System (NIS) excore channels, is within its limits. During operation above 50% RATED THERMAL POWER, when the QPTR monitor alarm is Nonfunctional, additional surveillance criteria is required by the Licensing Requirements Manual beyond the surveillance criteria required by the Technical Specifications to detect any relatively slow changes in QPTR. For those causes of core power tilt that occur quickly (e.g., a dropped rod), there are other indications of abnormality that prompt a verification of core power tilt.

B 3.3 INSTRUMENTATION

B 3.3.6 Seismic Monitoring Instrumentation

BASES

BACKGROUND	The FUNCTIONALITY of the seismic monitoring instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes." Applicable guidance for performance of CHANNEL CHECK, CHANNEL OPERATIONAL TEST and CHANNEL CALIBRATION is provided in ANSI/ANS-2.2-1978. The measurement ranges provided in Table 3.3.6-1 include the measurement tolerance provided within Regulatory Guide 1.12 by reference to ANSI N18.5.

B 3.3 INSTRUMENTATION

B 3.3.7 Movable Incore Detectors

BASES

BACKGROUND	The FUNCTIONALITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The FUNCTIONALITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve. Guidance for changing incore detector requirements can be found in the NRC SER for License Amendments 233 and 115, dated September 7, 2000. For the purpose of measuring $F_Q(Z)$ or $F^N_{\Delta H}$, a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in re-calibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the Quadrant Power Tilt Ratio when one Power Range Channel is inoperable.

B 3.3 INSTRUCTION

B 3.3.8 Leading Edge Flow Meter

BASES

BACKGROUND

The Leading Edge Flow Meter (LEFM) is the preferred method of obtaining the daily calorimetric heat balance measurements. A properly operating LEFM provides superior measurement accuracy, and more reliable assurance that the reactor is being operated at a power level that is within the assumptions of the design basis accident analyses.

The LEFM system provides measurements of feedwater mass flow and temperature yielding a total power measurement uncertainty of better than ±0.6% RTP at full power. This is more accurate than the venturi-based flow instrumentation. However, the accuracy of the LEFM is only valid while the instrument is performing as designed. The on-line verification and self-diagnostic features of the LEFM provides the ability to assure that the instrument is performing as designed.

The Applicability Statement applies when performing calorimetric power measurements during MODE 1 operations at steady-state conditions above 98.6% of RTP. The Operating License limits the maximum steady state power to 100% of RTP when calorimetric heat balance measurements are made daily using the LEFM.

If the LEFM is not FUNCTIONAL during the interval between required calorimetric heat balance measurements, plant operation may continue at ≤ 100% of RTP steady-state, using the existing Nuclear Instrumentation System (NIS) indication until the next required performance of the daily power calorimetric surveillance is due.

If the LEFM remains Nonfunctional at the time that the next required calorimetric heat balance measurement is due, plant operation may continue at ≤ 98.6% of RTP steady-state, by making calorimetric measurements using feedwater flow venturis and Resistance Temperature Detector (RTD) indications. The requirement to reduce power within one hour is based upon comparison to similar action statements in the technical specifications. The increase in likelihood that the NIS will need renormalizing after 25 hours compared to after 24 hours is considered negligible (or after 31 hours compared to after 30 hours if Technical Specification SR 3.0.2 is applied).

It is preferable that the daily heat balance calculations be made using the subroutine on the plant computer system (PCS). If the PCS is unavailable, a manual calculation that accounts for steam generator blowdown is acceptable, and may be performed in lieu of using the PCS.

BASES

BACKGROUND (continued)

This surveillance is performed every 24 hours when power is above 50%. The NIS excore power range channel indications are renormalized if they are not found to be within ±2% of the calorimetric measurement. This ±2% requirement for renormalization is distinct from the allowance for calorimetric uncertainty, and these allowances are handled as independent contributions to determine the maximum power assumed in design basis accident analyses.

The plant may then be run for the next 24-hour period using this normalized NIS indication. Although calorimetric power indication may be monitored continuously, it is not required to be consulted again until the required daily calorimetric comparisons of NIS indication are performed.

The surveillance requirement to perform planned maintenance and inspections every 18 months is based upon the manufacturer's recommendations, and is consistent with the surveillance intervals specified for similar electronic apparatus.

Additional guidance for determining steady-state THERMAL POWER is taken from NEI POSITION STATEMENT, "Guidance to Licensees on Complying with the Licensed Power Limit," dated June 12, 2008 [ML081750537], endorsed by the NRC in Regulatory Issue Summary 2007-21, Revision 1, "Adherence to Licensed Power Limits," dated February 9, 2009 [ML082690105], and is described in the BVPS Operating Manual.

B 3.3 INSTRUMENTATION

B 3.3.9 Turbine Overspeed Protection

BASES

BACKGROUND	This LR is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are FUNCTIONAL and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures. Surveillance test intervals for the turbine speed control valves are assumed in a turbine overspeed calculation discussed in the Beaver Valley Power Station Unit No. 2 Updated Final Safety Analysis Report. The LRS note allows for entry into the applicability of LR 3.3.9 without LRS 3.3.9.1, 3.3.9.2, 3.3.9.3, and 3.3.9.4 being performed for up to 72 hours after entry into MODE 3 during station startup under certain conditions. These conditions are after any steam flow path; i.e., one main steam isolation valve, one main steam bypass valve or any other steam flow path, to the turbine is not isolated during station startup. The 72 hour delay will permit entry into MODE 3 during station startup to establish steam conditions for valve testing. Testing the valve under steam conditions is more representative of plant conditions than testing when steam is isolated. The valves may be considered FUNCTIONAL prior to entry into MODE 3 during station startup provided the testing has been satisfactorily completed to the extent possible and the valves are not otherwise believed to be incapable of performing their function.

B 3.3 INSTRUMENTATION

B 3.3.11 Fuel Storage Pool Area Radiation Monitor

BASES

BACKGROUND	The Fuel Storage Pool Area Radiation Monitor functions to assure personnel safety around the fuel storage pool. The FUNCTIONALITY of this radiation monitor ensures that the radiation levels are continually measured when fuel is present in the pool or in the building and that the alarm is initiated when the radiation level exceeds the monitor setpoint. Unit 1 currently has an exemption to the requirements of 10 CFR 70.24, “Criticality Accident Requirements” for a criticality monitor. In order to meet the requirements for the exemption to 10 CFR 70.24, the Unit 1 Fuel Storage Pool Area Radiation Monitor is required FUNCTIONAL. As Unit 2 no longer has an exemption to 10 CFR 70.24, Unit 2 must meet the requirements of 10 CFR 50.68, “Criticality Accident Requirements.” The Unit 2 Fuel Storage Pool Area Radiation Monitor is required FUNCTIONAL to meet the criteria set forth in 10 CFR 50.68.

B 3.3 INSTRUMENTATION

B 3.3.12 Explosive Gas Monitoring Instrumentation

BASES

BACKGROUND	This instrumentation includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

B 3.3 INSTRUMENTATION

B 3.3.13 Containment Hydrogen Analyzers

BASES

BACKGROUND	This LR is provided to ensure that the containment hydrogen analyzers are FUNCTIONAL and capable of measuring the hydrogen concentration in the containment atmosphere during a beyond design basis accident (BDBA). 10 CFR 50.44 for combustible gas control in containment was revised, effective October 16, 2003. The revised 10 CFR 50.44 no longer defines a design-basis LOCA hydrogen release and eliminated the requirements for hydrogen control systems to mitigate such a release. With the elimination of the design-basis LOCA hydrogen release, the hydrogen analyzers are no longer required to mitigate a design-basis accident and were removed from the Technical Specifications by License Amendments 259 (Unit 1) and 142 (Unit 2). However, the hydrogen analyzers are required to diagnose the course of a BDBA and implement severe accident management strategies for hydrogen control. Maintaining requirements within the LRM for a hydrogen monitoring system capable of diagnosing BDBAs (as described in BVPS Letter to the NRC L-04-012, dated January 28, 2004) is an NRC commitment.

B 3.3 INSTRUMENTATION

B 3.3.14 Control Room Isolation Radiation Monitors

BASES

BACKGROUND	The Control Room Isolation Radiation Monitors provide a backup function to isolate the control room. The primary means for automatic control room isolation is the containment phase B isolation signal. The OPERABILITY requirements for the containment phase B isolation signal are specified in the technical specifications. The FUNCTIONALITY of these radiation monitors ensure that the radiation level in the control room is continually measured (in MODES 1, 2, 3, and 4) and that the automatic function of the monitors is initiated when the radiation level exceeds the monitor setpoint.

B 3.3 INSTRUMENTATION

B 3.3.15 Containment Area Radiation Alarm

BASES

BACKGROUND	This LR only addresses the alarm function of the containment area radiation monitors. The indication provided by these monitors is addressed in the Post Accident Monitoring Instrumentation Technical Specification. The Containment Area Radiation Alarm provides a warning of high radiation in the containment. The FUNCTIONALITY of these radiation monitors ensures that the radiation level in the containment is continually measured (in MODES 1, 2, 3, and 4) and that the alarm is initiated when the radiation level exceeds the monitor setpoint.

B 3.3 INSTRUMENTATION

B 3.3.16 Accident Monitoring Instrumentation

BASES

BACKGROUND	The OPERABILITY/FUNCTIONALITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.1 Loop Isolation Valves - Shutdown

BASES

BACKGROUND

LR 3.4.1 ensures that power is removed from isolated loop isolation valve operators when closed to perform maintenance in MODES 5 or 6 to prevent an inadvertent loop startup.

LR 3.4.1 is applicable whenever an RCS loop has been isolated in MODES 5 and 6 with fuel in the reactor vessel. LR 3.4.1 is not applicable when there is no fuel in the reactor vessel.

An RCS loop is considered isolated in MODES 5 and 6 whenever the hot and cold leg isolation valves on one RCS loop are both in a fully closed position at the same time. One isolation valve may be stroked for testing in MODES 5 and 6 and the loop will not be considered isolated when either the hot leg or cold leg loop isolation valve remains open.

If power is inadvertently restored to one or more loop isolation valve operators, the potential exists for accidental isolation of a loop with a subsequent inadvertent startup of the isolated loop. The loop isolation valves have motor operators. Therefore, these valves will maintain their last position when power is removed from the valve operator. With power applied to the valve operators, only administrative controls prevent the valve from being operated. Although operating procedures make the occurrence of this event unlikely, the prudent action is to remove power from the loop isolation valve operators. The completion time of 1 hour to remove power from the loop isolation valve operators is sufficient considering the complexity of the task.

LRS 3.4.1.1 is performed at least once per 7 days to ensure that the RCS loop isolation valves have power removed from the loop isolation valve operators. The frequency of 7 days which ensures that the power is removed from loop isolation valve operators, is based on engineering judgment, and has proven to be acceptable. Operating experience has shown that the failure rate is so low that the 7 day frequency is justified.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.2 Chemistry

BASES

BACKGROUND	The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduces the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits. The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.3 Pressurizer

BASES

BACKGROUND	The limitations imposed on the pressurizer heatup and cooldown rates and auxiliary spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.4 DELETED

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.5 Reactor Coolant System Head Vents

BASES

BACKGROUND

Reactor Coolant System Vents are provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. The FUNCTIONALITY of at least one reactor coolant system vent path from the reactor vessel head or the pressurizer steam space via the PORV's ensures the capability exists to perform this function.

The valve redundancy of the Reactor Coolant System Head vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve, power supply or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the Reactor Coolant System vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980. These specifications, including timeframes for the action statements, were previously included in plant technical specifications based on a "model" provided in Generic Letter 83-37, "NUREG-0737 Technical Specifications." RCS vents are not modeled in the plant-specific probabilistic safety assessment and are not credited in the Chapter 15 accident analyses, but are a safety related means for providing letdown to achieve cold shutdown and for alternate shutdown capability.

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.6 Pressurizer Safety Valve Lift Involving Loop Seal or Water Discharge

BASES

BACKGROUND	The purpose of this LR is to provide assurance that the safety valves are properly maintained. The LR requires the unit be removed from the MODES where the safety valves are required OPERABLE after valve operation involving liquid discharge. This requirement is to ensure a safety valve that has discharged liquid is evaluated and repaired if necessary. Although valve operation with liquid discharge does not immediately imply a safety valve is inoperable, the LR requirement is a prudent precaution that provides additional assurance, beyond the inservice testing and inspection requirements, that the valves are evaluated for operability after a liquid discharge.

B 3.6 CONTAINMENT

B 3.6.1 Containment Isolation Valves

BASES

BACKGROUND

There are two types of 'administrative controls' applicable to the Containment Isolation Valves listed in Table 3.6.1-1 of this Licensing Requirements Manual (LRM). The administrative controls which apply when any locked or sealed closed Containment Isolation Valves are opened or when a penetration flow path isolated to comply with Technical Specification action requirements for an inoperable containment isolation valve is unisolated are defined in the Technical Specification Bases 3.6.3. The administrative controls for Containment Isolation Valves which have Note (1) shown in Table 3.6.1-1 of this LRM are the procedures that govern the operation of these valves.

Note (1) was originally used for the several BVPS Unit 1 MOVs in the original BVPS Unit 1 Technical Specifications and in Amendment No. 1 of the BV-1 Technical Specifications where it was justified to allow the specified valves to be opened on an intermittent basis under administrative controls. The NRC Safety Evaluation for BVPS Unit 1 Amendment No. 1 described the function of these valves as "required to be opened on an intermittent basis to perform essential operating functions" in Modes 1-4. The term 'administrative controls' was not explicitly defined or described in either BVPS Unit 1 original Technical Specifications nor Amendment 1 correspondence. It has been inferred since BVPS Unit 1 Amendment No. 1 that the 'administrative controls' were these valves' normal/emergency procedures and the plant's normal/emergency operating controls because the 'administrative controls' were not described/defined and the documented basis discussed their essential operating functions. When BVPS Unit 2 was initially licensed, the Unit 2 Technical Specifications were modeled after the Unit 1 Technical Specifications. Note (1) used for valves in Penetrations 28, 46, 55C, 57C, 87, 88, 92, 93, 97B, 105B in the original BVPS Unit 2 Technical Specifications followed this same justification as used for CIVs using Note (1) in the BVPS Unit 1 Technical Specifications. Subsequently the Unit 2 containment air lock valves had Note (1) added since their operation basis was described in the UFSAR (similar to the Unit 1 containment air lock valves). A review/revision of Table 3.6.1-1 was completed in 1997 to ensure that the use of Note (1) was correctly applied throughout the Table in accordance with the above basis. Some previous changes to the CIV Table had not always followed this understanding because the literal wording seemed to also fit other applications. [Note (1) only applies to those valves specified in the

BASES

BACKGROUND (continued)

original BV-2 Technical Specifications, with the addition of the containment air lock valves as described in the BV-2 UFSAR. Note (1) does not apply to CIVs which are operated pursuant to other defined administrative controls such as for normally locked or sealed closed CIVs.]

Amendment No. 66 to the BV-2 Technical Specifications added criteria to Technical Specification 3/4.6.1.1 and 3/4.6.3.1 allowing a locked or sealed closed CIV to be opened without declaring the CIV inoperable, in accordance with Generic Letter 91-08. Locked or sealed closed CIVs may only be opened, without entering the LCO, if the administrative controls defined in Technical Specification Bases 3.6.3 is followed, in accordance with Technical Specification 3.6.3. [The explicitly defined 'administrative controls' which allow opening of locked or sealed closed CIVs are not the same 'administrative controls' for opening CIVs per Note (1).]

Amendment No. 143 to the BV-2 Technical Specifications allowed penetration flow paths isolated to comply with action requirements for inoperable containment isolation valves to be unisolated on an intermittent basis under administrative controls. The administrative controls to be used when unisolating these penetrations are also those defined in the Technical Specification Bases 3.6.3.

CIVs with an automatic closure feature upon generation of a containment isolation signal or which meet General Design Criteria 57 may be opened without entering the Technical Specification only if the valve remains OPERABLE.

B 3.6 CONTAINMENT

B 3.6.2 Containment Sump

BASES

BACKGROUND	The purpose of this LR is to assure good housekeeping practice is applied when maintenance or inspections are performed within containment. The requirements of this LR provide assurance that debris such as rags, trash, and clothing (i.e., items with the potential to clog the containment sump following a Loss of Coolant Accident (LOCA)) are removed from the containment building. The presence of debris in the containment sump following a LOCA could interfere with the operation of the Emergency Core Cooling System pumps needed to mitigate the LOCA. The requirements of this LR include the performance of a visual inspection following containment entries for maintenance or inspection.

B 3.7 PLANT SYSTEMS

B 3.7.1 Steam Generator Pressure/Temperature Limitation

BASES

BACKGROUND

Licensing Requirement 3.7.1 is applicable to each steam generator individually. The Applicability specifies the threshold conditions during which a steam generator could be pressurized such that the maximum allowable fracture toughness stress limit could be exceeded.

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on a steam generator average impact values taken at 10°F and are sufficient to prevent brittle fracture.

The applicability is limited to whenever the temperature of the primary or secondary coolant of the associated steam generator is ≤ 70°F and the primary or secondary systems are capable of being pressurized. For the purpose of this LR, the primary system is considered no longer capable of being pressurized following depressurization to atmospheric conditions with a vent path established and all flowpaths to the generator have been isolated. The secondary side is considered no longer capable of being pressurized following depressurization to atmospheric conditions and a vent path via an open atmospheric steam dump valve/residual heat release valve and associated isolation valve, or removal of a steam generator manway or safety valve.

B 3.7 PLANT SYSTEMS

B 3.7.2 Flood Protection

BASES

BACKGROUND	The limitation on flood level ensures that facility operation will be terminated in the event of flood conditions. The limit of elevation 695 Mean Sea Level was selected on an arbitrary basis as an appropriate flood level at which to evaluate further plant operation and initiate flood protection measures for safety related equipment. The LR limit on Ohio River elevation of 700 Mean Sea Level (actual or projected) ensures that appropriate actions are initiated per LR 3.0.3 prior to reaching an Ohio River elevation of 705 Mean Sea Level. The Ohio River elevation of 705 Mean Sea Level is the standard project flood design level for plant operation. Ohio River elevation at the intake structure can be obtained from a level instrument at the intake structure, the Unit 1 plant computer, the elevation scale on the outside of the intake structure, or by using the Montgomery Lock and Dam tailwater level. The National Weather Service (NWS) website contains an Ohio River at Montgomery Lock and Dam trend of downstream pool level referred to as "tailwater." Tailwater level is the height of the river above a reference elevation (gage zero). The Montgomery Lock and Dam tailwater reference elevation is 652.5 feet. The elevation scale on the outside of the intake structure is approximately equal to the tailwater level plus the reference elevation (652.5 feet). The Montgomery Lock and Dam tailwater level may also be obtained by contacting the US Army Corps of Engineers or the Montgomery Lock and Dam. Telephone numbers may be obtained from the Emergency Notification Call List in the Emergency Preparedness implementing procedures.

B 3.7 PLANT SYSTEMS

B 3.7.3 Sealed Source Contamination

BASES

BACKGROUND	The limitations on sealed source contamination ensure that the total body or individual organ irradiation does not exceed allowable limits in the event of ingestion or inhalation of the source material. The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. Leakage of sources excluded from the requirements of this LR represent less than one maximum permissible body burden for total body irradiation if the source material is inhaled or ingested. Sealed sources are classified into three groups according to their use, with surveillance requirements commensurate with the probability of damage to a source in that group. Those sources which are frequently handled are required to be tested more often than those which are not. Sealed sources which are continuously enclosed within a shielded mechanism (i.e., sealed sources within radiation monitoring or boron measuring devices) are considered to be stored and need not be tested unless they are removed from the shielded mechanism.

B 3.7 PLANT SYSTEMS

B 3.7.4 Snubbers

BASES

BACKGROUND

All snubbers are required FUNCTIONAL to ensure that the structural integrity of the reactor coolant system and all other safety-related systems is maintained during and following a seismic or other similar event initiating dynamic loads. Snubbers excluded from this inspection program are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed, would have no adverse effect on any safety-related system.

Snubbers are to be demonstrated and maintained FUNCTIONAL through periodic visual examination, functional testing and service life monitoring. All three aspects are now to be performed in accordance with the requirements set forth in the ASME OM Code 2004 Edition up to and including the 2006 Addenda, Subsection ISTD, “Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Power Plants.”

In August 2014, the NRC approved the use of ASME OM Code Case OMN-13, Rev. 0 (2004 Edition), in Regulatory Guide 1.192, Rev. 1. OMN-13 allows for a maximum visual inspection interval of 10 years, if certain conditions are met.

During the 1980’s, snubber surveillance requirements were identified in three documents: Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code, a plant’s Technical Specifications and Part 4 of the ASME Operation and Maintenance (OM) Code. The three documents were similar in purpose and concept - demonstrate and ensure snubber functional integrity through periodic visual examination, sample testing and service life monitoring. However, they varied enough in details to cause much confusion among utilities as to the proper requirements and course of action often resulting in redundant efforts and sometimes missed requirements.

Seeing a need for better clarity and standardization, industry leaders initiated an effort to consolidate the surveillance requirements of the three documents into one comprehensive, single source document. The result of this effort was the publication in 1990 of the ASME OM Code, Subsection ISTD, “Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants.” In 1999, the NRC endorsed the use of ISTD requirements in lieu of the snubber surveillance requirements identified in Section XI or a plant’s Technical Specifications or licensee controlled documents [10 CFR 50.55a(b)(3)(v)].

BASES

BACKGROUND (continued)

When a snubber is found Nonfunctional, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the Nonfunctionality of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

LCO 3.0.8 specifies two Completion Times to restore a Nonfunctional snubber, depending on the type of system being supported. The requirements are specified in LCO 3.0.8 and its Bases. Table 3.7.4-1 provides information that ensures the Completion Times specified by LCO 3.0.8 are assigned to the appropriate snubber. Table 3.7.4-1 identifies which snubbers provide support to safety related piping and the appropriate Completion Time of 12 or 72 hours. The table contains the identification of the snubber, its system boundary, if LCO 3.0.8 applies, and the applicable Completion Time to restore the snubber to FUNCTIONAL. An entry of “No” in the LCO 3.0.8 Applicability column means that the supported system’s Completion Time applies.

LCO 3.0.8 is not applicable to snubbers whose function is to arrest a water hammer event. The LCO for the system is applicable for water hammer snubbers. Table B 3.7.4-1 identifies water hammer snubbers and provides the basis for the Completion Time assignment.

Tables 3.7.4-1 and B 3.7.4-1 are aids that eliminate the need to perform an immediate, event driven assessment when a snubber is Nonfunctional.

TABLE B 3.7.4-1 (Page 1 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	**Waterhammer**	**Type of Waterhammer**	**Completion Time Basis**
2BDG-PSSP868	No		A loop SG blowdown
2BDG-PSSP876	No		A loop SG blowdown
2BDG-PSSP927	No		B loop SG blowdown
2BDG-PSSP945	No		C loop SG blowdown
2BDG-PSSP947	No		A loop SG blowdown
2BRS-PSSP091Y	Yes	Waterhammer load is zero	Redundant train of degasifer piping
2CCP-PSSP301	No		Common CCP pumps discharge piping
2CCP-PSSP317A	No		Common CCP pumps discharge piping
2CCP-PSSP317B	No		Common CCP pumps discharge piping
2CHS-PSSP006	No		Single train charging piping
2CHS-PSSP015X	No		Single train charging piping
2CHS-PSSP016X	No		C loop fill piping
2CHS-PSSP017X	No		A loop fill piping
2CHS-PSSP024	No		Single Train to A RCP
2CHS-PSSP025	No		Single Train to A RCP
2CHS-PSSP025X	Yes	Relief Valve discharge	

TABLE B 3.7.4-1 (Page 2 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	**Waterhammer**	**Type of Waterhammer**	**Completion Time Basis**
2CHS-PSSP252Y	Yes	Waterhammer load is virtually zero	Common charging pump discharge header
2CHS-PSSP308A	Yes	Waterhammer load is zero	Common RCP leakoff piping
2CHS-PSSP308B	Yes	Waterhammer load is zero	Common RCP leakoff piping
2CHS-PSSP660X	No		B loop fill piping
2CHS-PSSP673X	No		Single train letdown piping
2CHS-PSSP685C	Yes	AOV closure	
2DGS-PSSP879	No		Redundant train of loop drain (C loop)
2EDG-PSSP029A	No		Single train to # 1 Diesel
2EDG-PSSP029B	No		Single train to # 1 Diesel
2EDG-PSSP030Y	No		Single train to # 1 Diesel
2EDG-PSSP033Y	No		Single train to # 2 Diesel
2EDG-PSSP042A	No		Single train to # 2 Diesel
2EDG-PSSP042B	No		Single train to # 2 Diesel
2FWE-PSSP009	No		Redundant trains of FEW (C loop)
2FWE-PSSP010	No		Redundant trains of FEW (C loop)
2FWE-PSSP354A	Yes	Relief Valve discharge	
2FWE-PSSP354B	Yes	Relief Valve discharge	
2FWS-PSSP001	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP002A	Yes	FWS Pump Trip / FCV closure	

TABLE B 3.7.4-1 (Page 3 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	**Waterhammer**	**Type of Waterhammer**	**Completion Time Basis**
2FWS-PSSP002B	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP003A	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP003B	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP005	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP006	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP012	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP016	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP036	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP039	Yes	FWS Pump Trip / FCV closure	
2FWS-PSSP060	Yes	FWS Pump Trip / FCV closure	
2MSS-PSSP001	Yes	Turbine trip	
2MSS-PSSP002A	Yes	Turbine trip	
2MSS-PSSP002B	Yes	Turbine trip	
2MSS-PSSP003A	Yes	Turbine trip	
2MSS-PSSP003B	Yes	Turbine trip	
2MSS-PSSP005	Yes	Turbine trip	
2MSS-PSSP006	Yes	Turbine trip	
2MSS-PSSP007	Yes	Turbine trip	
2MSS-PSSP008A	Yes	Turbine trip	
2MSS-PSSP008B	Yes	Turbine trip	

BASES

TABLE B 3.7.4-1 (Page 4 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2MSS-PSSP009	Yes	Turbine trip	
2MSS-PSSP011A	Yes	Turbine trip	
2MSS-PSSP011B	Yes	Turbine trip	
2MSS-PSSP012	Yes	Turbine trip	
2MSS-PSSP103	Yes	Safety Valve blowdown	
2MSS-PSSP107	Yes	Safety Valve blowdown	
2MSS-PSSP108A	Yes	Safety Valve blowdown	
2MSS-PSSP108B	Yes	Safety Valve blowdown	
2MSS-PSSP110	Yes	Safety Valve blowdown	
2MSS-PSSP111A	Yes	Safety Valve blowdown	
2MSS-PSSP111B	Yes	Safety Valve blowdown	
2MSS-PSSP112A	Yes	Safety Valve blowdown	
2MSS-PSSP112B	Yes	Safety Valve blowdown	
2MSS-PSSP124	Yes	Safety Valve blowdown	
2MSS-PSSP128A	Yes	Safety Valve blowdown	
2MSS-PSSP128B	Yes	Safety Valve blowdown	
2MSS-PSSP130	Yes	Safety Valve blowdown	
2MSS-PSSP131A	Yes	Safety Valve blowdown	
2MSS-PSSP131B	Yes	Safety Valve blowdown	

BASES

TABLE B 3.7.4-1 (Page 5 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2MSS-PSSP132A	Yes	Safety Valve blowdown	
2MSS-PSSP132B	Yes	Safety Valve blowdown	
2MSS-PSSP144	Yes	Safety Valve blowdown	
2MSS-PSSP147A	Yes	Safety Valve blowdown	
2MSS-PSSP147B	Yes	Safety Valve blowdown	
2MSS-PSSP149	Yes	Safety Valve blowdown	
2MSS-PSSP150A	Yes	Safety Valve blowdown	
2MSS-PSSP150B	Yes	Safety Valve blowdown	
2MSS-PSSP151A	Yes	Safety Valve blowdown	
2MSS-PSSP151B	Yes	Safety Valve blowdown	
2MSS-PSSP164	Yes	Safety Valve blowdown	
2MSS-PSSP165	Yes	Safety Valve blowdown	
2MSS-PSSP168	Yes	Safety Valve blowdown	
2MSS-PSSP456	Yes	Turbine trip	
2MSS-PSSP476	Yes	Turbine trip	
2QSS-PSSP101Y	Yes	Quench Spray Pump start	
2QSS-PSSP129Y	Yes	Quench Spray Pump start	
2QSS-PSSP131Y	Yes	Quench Spray Pump start	

BASES

TABLE B 3.7.4-1 (Page 6 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2QSS-PSSP138Y	Yes	Quench Spray Pump start	
2QSS-PSSP154X	No		Single train to RWST cooling pumps
2QSS-PSSP217X	No		Single train to RWST cooling pumps
2RCS-PSSP001X	No		Single train of Pressurizer spray
2RCS-PSSP006A	Yes	PSARV Discharge	
2RCS-PSSP007X	Yes	PSARV Discharge	
2RCS-PSSP009A	Yes	PSARV Discharge	
2RCS-PSSP009B	Yes	PSARV Discharge	
2RCS-PSSP010A	Yes	PSARV Discharge	
2RCS-PSSP010B	Yes	PSARV Discharge	
2RCS-PSSP011X	Yes	PSARV Discharge	
2RCS-PSSP012A	Yes	PSARV Discharge	
2RCS-PSSP012B	Yes	PSARV Discharge	
2RCS-PSSP014A	Yes	PSARV Discharge	
2RCS-PSSP014B	Yes	PSARV Discharge	
2RCS-PSSP015X	Yes	PSARV Discharge	
2RCS-PSSP016X	Yes	PSARV Discharge	
2RCS-PSSP017X	Yes	PSARV Discharge	
2RCS-PSSP018X	Yes	PSARV Discharge	

BASES

TABLE B 3.7.4-1 (Page 7 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2RCS-PSSP019X	Yes	PSARV Discharge	
2RCS-PSSP020X	Yes	PSARV Discharge	
2RCS-PSSP021X	Yes	PSARV Discharge	
2RCS-PSSP022	No		Redundant train of loop drain (A loop)
2RCS-PSSP022X	Yes	PSARV Discharge	
2RCS-PSSP022Y	Yes	PSARV Discharge	
2RCS-PSSP023X	Yes	PSARV Discharge	
2RCS-PSSP026	No		Redundant train of loop drain (B loop)
2RCS-PSSP026A	Yes	PSARV Discharge	
2RCS-PSSP026B	Yes	PSARV Discharge	
2RCS-PSSP028	No		Redundant train of loop drain (A loop)
2RCS-PSSP029X	Yes	PSARV Discharge	
2RCS-PSSP030	No		Redundant train of loop drain (B loop)
2RCS-PSSP030X	Yes	PSARV Discharge	
2RCS-PSSP031X	Yes	PSARV Discharge	
2RCS-PSSP035	No		Redundant train of loop drain (C loop)
2RCS-PSSP035X	Yes	PSARV Discharge	
2RCS-PSSP653	No		Redundant train of loop drain (B loop)
2RCS-PSSP882	Yes	PSARV Discharge	

BASES

TABLE B 3.7.4-1 (Page 8 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2RCS-PSSP883A	Yes	PSARV Discharge	
2RCS-PSSP883B	Yes	PSARV Discharge	
2RCS-PSSP884A	Yes	PSARV Discharge	
2RCS-PSSP884B	Yes	PSARV Discharge	
2RCS-PSSP885	Yes	PSARV Discharge	
2RCS-PSSP887A	Yes	PSARV Discharge	
2RCS-PSSP887B	Yes	PSARV Discharge	
2RCS-PSSP890	Yes	PSARV Discharge	
2RCS-PSSP891A	Yes	PSARV Discharge	
2RCS-PSSP891B	Yes	PSARV Discharge	
2RCS-PSSP892A	Yes	PSARV Discharge	
2RCS-PSSP892B	Yes	PSARV Discharge	
2RCS-PSSP893	Yes	PSARV Discharge	
2RCS-PSSP894	Yes	PSARV Discharge	
2RCS-PSSP896	Yes	PSARV Discharge	
2RCS-PSSP897	Yes	PSARV Discharge	
2RCS-PSSP898	Yes	PSARV Discharge	
2RCS-PSSP906	Yes	Relief Valve discharge	
2RCS-SN21A10	Yes	MS / FW line break	

TABLE B 3.7.4-1 (Page 9 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2RCS-SN21A12	Yes	MS / FW line break	
2RCS-SN21B10	Yes	MS / FW line break	
2RCS-SN21B12	Yes	MS / FW line break	
2RCS-SN21C10	Yes	MS / FW line break	
2RCS-SN21C12	Yes	MS / FW line break	
2RHS-PSSP003	No		Redundant train of RHR (B train)
2RHS-PSSP005	Yes	Relief Valve discharge	
2RHS-PSSP007	No		Redundant train of RHR (A train)
2RHS-PSSP008A	No		Redundant train of RHR (A train)
2RHS-PSSP008B	No		Redundant train of RHR (A train)
2RHS-PSSP013X	Yes	Relief Valve discharge	
2RHS-PSSP521X	Yes	MS / FW line break	
2RHS-PSSP522X	Yes	MS / FW line break	
2RSS-PSSP124A	Yes	RSS Pump start	
2RSS-PSSP124B	Yes	RSS Pump start	
2RSS-PSSP129A	Yes	RSS Pump start	
2RSS-PSSP129B	Yes	RSS Pump start	

TABLE B 3.7.4-1 (Page 10 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	**Waterhammer**	**Type of Waterhammer**	**Completion Time Basis**
2RSS-PSSP134A	Yes	RSS Pump start	
2RSS-PSSP134B	Yes	RSS Pump start	
2RSS-PSSP139A	Yes	RSS Pump start	
2RSS-PSSP139B	Yes	RSS Pump start	
2RSS-PSSP465X	Yes	Low Head Pump start	
2RSS-PSSP572A	Yes	Waterhammer load is zero	A train RSS pump to penetration
2RSS-PSSP572B	Yes	Waterhammer load is zero	A train RSS pump to penetration
2RSS-PSSP577	No		D train RSS pump return line
2RSS-PSSP579A	Yes	Waterhammer load is zero	B train RSS pump to penetration
2RSS-PSSP579B	Yes	Waterhammer load is zero	B train RSS pump to penetration
2SIS-PSSP006A	No		Common LH SI piping
2SIS-PSSP006B	No		Common LH SI piping
2SIS-PSSP014A	No		Redundant train of SI
2SIS-PSSP014B	No		Redundant train of SI
2SIS-PSSP208X	No		Redundant train of SI
2SIS-PSSP209A	No		Redundant train of SI
2SIS-PSSP209B	No		Redundant train of SI
2SIS-PSSP301Y	No		Common LH SI piping

BASES

TABLE B 3.7.4-1 (Page 11 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	**Waterhammer**	**Type of Waterhammer**	**Completion Time Basis**
2SIS-PSSP358Y	Yes	Low Head Pump start	
2SIS-PSSP366Y	Yes	Low Head Pump start	
2SIS-PSSP449A	Yes	Low Head Pump start	
2SIS-PSSP449B	Yes	Low Head Pump start	
2SIS-PSSP450X	Yes	Low Head Pump start	
2SIS-PSSP451X	No		Common LH SI piping
2SIS-PSSP480	No		Common LH SI piping
2SIS-PSSP492	No		Common LH SI piping
2SIS-PSSP785	No		Redundant train of SI
2SWS-PSSP752	No		Common piping to RSS Hx's
2SWS-PSSP753	No		Common piping to RSS Hx's
2SWS-PSSP754Y	No		Common piping to RSS Hx's
2SWS-PSSP766A	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP768Y	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP769A	No	Fill of empty RSS Heat Exchangers	

TABLE B 3.7.4-1 (Page 12 of 12)
BASIS FOR SNUBBERS COMPLETION TIME

Functional Location	Waterhammer	Type of Waterhammer	Completion Time Basis
2SWS-PSSP770A	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP770B	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP771Y	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP772A	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP772B	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP773A	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP773B	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP774Y	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP830Y	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP832A	No	Fill of empty RSS Heat Exchangers	
2SWS-PSSP832B	No	Fill of empty RSS Heat Exchangers	

B 3.7 PLANT SYSTEMS

B 3.7.5 Standby Service Water System (SWE)

BASES

BACKGROUND

The FUNCTIONALITY of the SWE ensures that sufficient cooling capacity is available to bring the reactor to a cold shutdown condition in the event that a barge explosion at the station's intake structure or any other extremely remote event would render all of the normal Service Water System (SWS) supply pumps Nonfunctional. The scenario of a postulated gasoline barge impact with the intake structure and coincident explosion disabling the SWS is a low probability event. Nonetheless, the SWE provides defense in-depth in assuring shutdown cooling capability. The requirement to operate the SWE is not coincident with a postulated Design Basis Accident, but only for the postulated gasoline barge impact event.

Although the SWE is a non-safety system which is not required to meet single active failure criteria, the system is designed with redundant pumps and valves on a header to accommodate a single active failure on start-up. This design criteria provides a defense in-depth in order to ensure the system can adequately mitigate the consequences of the postulated event. An SWE pump can be manually started on the emergency bus during loss of offsite power after the diesel loading sequence is complete. With no loss of power signal present, the SWE is automatically started upon receipt of low service water header pressure signal. This feature is provided to prevent inadvertent plant trip on loss of running service water pump and is not required for the design basis event. If there is a delay in starting the SWE, the auxiliary feedwater system is available to remove reactor core decay heat for a short term period.

The requirements for subsystem FUNCTIONALITY are similar to those of the SWS except that one subsystem is required to be FUNCTIONAL in the MODES noted. The LR reflects the low risk of the postulated event compared to more stringent requirements associated with safety related systems. The ACTION statement takes into account the low probability of both trains of SWS being disabled as a result of the postulated scenario coincident with one of the SWE subsystems being FUNCTIONAL.

The STAGGERED TEST BASIS for LRS 3.7.5.2 ensures that each SWE pump is periodically full flow tested.

B 3.7 PLANT SYSTEMS

B 3.7.6 Explosive Gas Mixture

BASES

BACKGROUND	This LR is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Isolation of the affected tank for purposes of purging and/or discharge permits the flammable gas concentrations of the tank to be reduced below the lower explosive limit in a hydrogen rich system. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

B 3.7 PLANT SYSTEMS

B 3.7.7 Supplemental Leak Collection and Release System (SLCRS)

BASES

BACKGROUND

The FUNCTIONALITY of the SLCRS provides for the filtering of postulated radioactive effluents resulting from leakage of loss of coolant accident (LOCA) activity from systems outside of the Reactor Containment building, such as Engineered Safeguards Features (ESF) equipment, prior to their release to the environment. This system also collects potential leakage of LOCA activity from the Reactor Containment building penetrations into the contiguous areas ventilated by the SLCRS except for the Emergency Air Lock.

No credit for SLCRS operation was taken in the DBA LOCA analysis for collection and filtration of Reactor Containment building leakage and ESF leakage effluents even though an unquantifiable amount of contiguous area penetration leakage and ESF leakage effluents would in fact be collected and filtered. Therefore, defeating the capability to have SLCRS filter the contiguous areas (normally unfiltered) does not result in either train of SLCRS being NONFUNCTIONAL. With no SLCRS exhaust flow from either the unfiltered or filtered flow paths, heat removal from these contiguous areas would either be provided by the local area safety related air conditioning units or would not be required.

The SLCRS does, however, perform a heat removal support function for various safety related equipment (e.g. High Head Safety Injection/Charging pumps and Component Cooling Water pumps).

In the event that the SLCRS ventilation branch path from the HHSI/Charging Pump cubicles and Component Cooling Water pumps area is isolated, the Auxiliary Building Emergency Ventilation Fans must be available to provide the heat removal function.

SLCRS is also credited with heat removal of the Engineered Safety Feature (ESF) Pump Motors (e.g., Recirculation Spray and Motor Driven Auxiliary Feedwater) in the event of a DBA, if either of the Safeguards ACUs are unavailable.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 125V D.C. Battery Banks Maintenance Requirements

BASES

BACKGROUND	The provisions of this LR require periodical maintenance/inspections to be performed on the specified 125V DC battery banks. The LR includes requirements for more routine battery maintenance than required in the Technical Specifications. As such, this LR supplements the requirements of the Technical Specifications to assure the performance of routine battery maintenance.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 Emergency DG 2000 Hour Rating Limit

BASES

BACKGROUND	The provisions of this LR require a periodical verification that the Emergency Diesel Generator (EDG) 2000 hour rating limit continues to be met. The verification required by this LR supplements the other EDG requirements in the Technical Specification.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Main Fuel Oil Storage Tank Maintenance Requirements

BASES

BACKGROUND	The provisions of this LR require a periodic draining and cleaning of each Emergency Diesel Generator (EDG) main fuel oil storage tank. The purpose of this LR is to assure a reliable supply of clean emergency diesel generator (EDG) fuel oil is available. This LR supplements the EDG Technical Specification requirements and provides additional assurance the EDG fuel oil supply is maintained with an acceptable level of sediment that will not adversely affect EDG operation.

B 3.9 REFUELING OPERATIONS

B 3.9.1 Crane Travel - Spent Fuel Storage Pool Building

BASES

BACKGROUND	The restriction on movement of loads in excess of the normal weight of a fuel assembly and control rod assembly and associated handling tool over other fuel assemblies ensures that no more than the contents of those fuel assembly rods assumed in the fuel handling accident described in Chapter 15 of the BVPS Unit 2 UFSAR will be ruptured. This assumption is consistent with the activity release assumed in the accident analyses. The frequency of LRS 3.9.1.1 FUNCTIONALITY demonstration is based on the inspection frequency specified in ANSI B30.2-1976, paragraph 2-2.1.4.a for a crane other than a standby crane that has been idle for a period of one month or more, but less than one year.

B 3.9 REFUELING OPERATIONS

B 3.9.2 Manipulator Crane

BASES

BACKGROUND	The FUNCTIONALITY requirements for the manipulator cranes ensure that: 1) manipulator cranes will be used for movement of control rods and fuel assemblies; 2) each crane has sufficient load capacity to lift a control rod or fuel assembly; and 3) the core internals and pressure vessel are protected from excessive lifting force in the event they are inadvertently engaged during lifting operations.

B 3.9 REFUELING OPERATIONS

B 3.9.3 Decay Time

BASES

BACKGROUND	The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the radiological accident analyses. Also, in order to meet the thermal-hydraulic design calculation assumptions for the fuel storage pool, movement of irradiated fuel assemblies from the reactor vessel to the fuel pool requires a minimum subcritical decay time of 100 hours. This requirement is based on cooling water inlet temperature to the fuel storage pool heat exchanger as described in a BVPS letter to the NRC (L-01-113), dated October 29, 2001. After 100 hours, in order to maintain the fuel pool heat load within the assumptions of the analysis, irradiated fuel assembly movement from the vessel to the fuel pool is limited to a rate equivalent to six assemblies per hour.