

RS-05-039

March 30, 2005

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Clinton Power Station
Facility Operating License No. NPF-62
NRC Docket No. 50-461

Subject: Response to Request for Additional Information for License Amendment
Related to Revision of Instrument Channel Trip Setpoint Allowable Values

- References:
1. Letter from Keith R. Jury (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission, "Request for License Amendment Related to Revision of Instrument Channel Trip Setpoint Allowable Values," dated November 11, 2003
 2. Letter from Kahtan N. Jabbour (U. S. Nuclear Regulatory Commission) to Christopher M. Crane (AmerGen Energy Company, LLC), "Clinton Power Station, Unit 1 – Request for Additional Information Re: Instrument Channel Trip Setpoint Allowable Values (TAC No. MC1323)," dated March 11, 2005

In Reference 1, AmerGen Energy Company, LLC (AmerGen) submitted a request for a change to Appendix A, Technical Specifications (TS), of Facility Operating License No. NPF-62 for Clinton Power Station (CPS). Specifically, the proposed change requested revisions to instrument channel trip setpoint allowable values for thirteen TS defined functions. The current allowable values for these functions were determined to require revision during a detailed review of all CPS instrumentation setpoints and allowable values.

In Reference 2, the NRC requested additional information to complete the review of the license amendment. This request pertained to AmerGen's use of Instrument Society of America (ISA) recommended practice ISA-RP67.04-1994, Part II, "Methodologies for Determination of Setpoints for Nuclear Safety-Related Instrumentation," Method 3, to establish the allowable values.

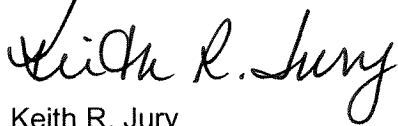
Attachment 1 of this letter provides the requested information. As described in Attachment 1, AmerGen proposes to add a Note to the affected TS pages. Attachment 2 provides revised markups for the affected TS pages. Attachment 3 provides retyped TS pages for both the changes proposed in Reference 1, and the additional changes proposed in this letter.

AmerGen has reviewed the information supporting a finding of no significant hazards consideration that was previously provided to the NRC in Attachment 1 of Reference 1. The supplemental information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Timothy A. Byam at (630) 657-2804.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of March 2005.

Respectfully,



Keith R. Jury
Director, Licensing and Regulatory Affairs
AmerGen Energy Company, LLC

Attachments:

1. Response to Request for Additional Information
2. Markup of Proposed Technical Specifications Pages
3. Retyped Technical Specifications Pages

ATTACHMENT 1
Response to Request for Additional Information

NRC Request 1

Discuss the setpoint methodology used at Clinton Unit 1 to establish AVs associated with LSSS setpoints.

Response

In Reference 1, AmerGen Energy Company, LLC (AmerGen) submitted a request for a change to Appendix A, Technical Specifications (TS), of Facility Operating License No. NPF-62 for Clinton Power Station (CPS). Specifically, the proposed change requested revisions to instrument channel trip setpoint allowable values for thirteen TS defined functions. The current allowable values for these functions were determined to require revision during a detailed review of all CPS instrumentation setpoints and allowable values.

The new allowable values proposed in Reference 1 were calculated in accordance with the guidance provided in NRC Regulatory Guide 1.105, "Setpoints for Safety-Related Instrumentation," Revision 1, as implemented by the CPS Setpoint Methodology and the Instrument Society of America (ISA) Standard S67.04, "Setpoints for Nuclear Safety Related Instrumentation," dated September 1994.

Details regarding the setpoint methodology used at CPS to establish allowable values associated with limiting safety system settings (LSSSs) were provided to the NRC in Reference 2. Specifically, in response to an NRC request, AmerGen submitted the CPS Setpoint Methodology (i.e., CI-01.00, "Instrument Setpoint Calculation Methodology") along with several representative calculations that were performed using the methodology.

NRC Request 2

Regardless of the methodology used, the NRC staff has the following questions regarding the use of the methodology at Clinton Unit 1:

- a. Discuss how the methodology and controls you have in place ensure that the analytical limit associated with an LSSS trip setpoint will not be exceeded (that the safety limit will not be exceeded). Include in your discussion information on the controls you employ to ensure the trip setpoint established after completing periodic surveillances satisfies your methodology. If the controls are located in a document other than the TSs, discuss how those controls satisfy the requirements of 10 CFR 50.36.
- b. Discuss how the TS surveillances ensure the operability of the instrument channel. Specifically, relate the surveillance test results to the TS AVs and describe how these are used to determine the operability of the instrument channels. If the requirements for determining operability of the LSSS instrument being tested are in a document other than the TSs (e.g., plant test procedures), discuss how this meets the requirements of 10 CFR 50.36.

ATTACHMENT 1
Response to Request for Additional Information

Response

Some of the instrument channel trip setpoint allowable values proposed in Reference 1 were established in accordance with ISA recommended practice ISA-RP67.04, Part II, Method 3. The following table lists the allowable values that were calculated using this methodology.

TS Table	Function	Description
3.3.5.1-1	1.a	Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.5.1-1	2.a	LPCI B and LPCI C Subsystems – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.5.1-1	3.a	High Pressure Core Spray (HPCS) System – Reactor Vessel Water Level-Low Low, Level 2
3.3.5.1-1	3.c	HPCS System – Reactor Vessel Water Level-High, Level 8
3.3.5.1-1	4.a	Automatic Depressurization System (ADS) Trip System 1 (Logic A and E) – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.5.1-1	5.a	ADS Trip System 2 (Logic B and F) – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.5.2-1	1	Reactor Core Isolation Cooling (RCIC) System – Reactor Vessel Water Level-Low Low, Level 2
3.3.6.1-1	1.a	Main Steam Line Isolation – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.6.1-1	1.b	Main Steam Line Isolation – Main Steam Line Pressure-Low
3.3.6.1-1	2.a	Primary Containment and Drywell Isolation – Reactor Vessel Water Level-Low Low, Level 2
3.3.6.1-1	2.e	Primary Containment and Drywell Isolation – Reactor Vessel Water Level-Low Low, Level 2 (HPCS NSPS Div 3 and 4)
3.3.6.1-1	2.j	Primary Containment and Drywell Isolation – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.6.1-1	3.h	RCIC System Isolation – Reactor Vessel Water Level-Low Low, Level 2
3.3.6.1-1	4.f	Reactor Water Cleanup System Isolation – Reactor Vessel Water Level-Low Low, Level 2
3.3.6.1-1	5.d	Residual Heat Removal (RHR) System Isolation – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.6.2-1	1	Secondary Containment Isolation – Reactor Vessel Water Level-Low Low, Level 2
3.3.6.3-1	3	RHR Containment Spray System – Reactor Vessel Water Level-Low Low Low, Level 1
3.3.6.4-1	2	Suppression Pool Makeup System – Reactor Vessel Water Level-Low Low Low, Level 1

ATTACHMENT 1
Response to Request for Additional Information

AmerGen encourages the NRC to work closely with the Nuclear Energy Institute while formulating any generic recommendations on this subject. Until a final resolution is reached, AmerGen will modify the TS associated with the functions listed above to add a Note regarding as-left trip setpoints for the specified instruments. This Note states:

"This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint."

The addition of this Note was previously discussed with the NRC on January 10, 2005, in a teleconference related to a request for license amendment for Quad Cities Nuclear Power Station, Units 1 and 2, and subsequently documented in Reference 3. Adjustment of the trip setpoint to within the established setting tolerance ensures that the analytical limit, and therefore the safety limit, will not be exceeded. The addition of this Note for CPS was also discussed during the January 10, 2005, teleconference and provides an alternative approach that provides adequate confidence that the plant will operate in accordance with the safety analyses and shows that operability is ensured in the TS.

References

1. Letter from Keith R. Jury (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission, "Request for License Amendment Related to Revision of Instrument Channel Trip Setpoint Allowable Values," dated November 11, 2003
2. Letter from Keith R. Jury (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission, "Response to Request for Supporting Information for License Amendment Related to Revision of Instrument Channel Trip Setpoint Allowable Values," dated April 16, 2004
3. Letter from Patrick R. Simpson (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "Additional Information Supporting Main Steam Line Flow - High Instrumentation Amendment Request," dated January 21, 2005

ATTACHMENT 2
Markup of Proposed Technical Specifications Pages

CLINTON POWER STATION

FACILITY OPERATING LICENSE NO. NPF-62

REVISED TECHNICAL SPECIFICATIONS PAGES

3.3-39
3.3-40
3.3-41
3.3-42
3.3-43
3.3-47
3.3-55
3.3-56
3.3-57
3.3-58
3.3-59
3.3-60
3.3-64
3.3-68
3.3-72

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level-Low Low, Level 1	1, 2, 3, 4 ^(a) , 5 ^(a)	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -147.7 inches -148.1 (e)
b. Drywell Pressure-High	1, 2, 3	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump A Start-Time Delay Logic Card	1, 2, 3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1, 2, 3	4	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 452 psig and ≤ 478 psig
	4 ^(a) , 5 ^(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 452 psig and ≤ 478 psig
e. LPCS Pump Discharge Flow-Low (Bypass)	1, 2, 3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 750 gpm
f. LPCI Pump A Discharge Flow-Low (Bypass)	1, 2, 3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
g. Manual Initiation	1, 2, 3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

- (a) When associated subsystem(s) are required to be OPERABLE.
- (b) Also required to initiate the associated diesel generator.

(e) INSERT

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3, 4 ^(a) , 5 ^(a)	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -147.7 inches -148.1 (e)
b. Drywell Pressure-High	1,2,3	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump B Start-Time Delay Logic Card	1,2,3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3 4 ^(a) , 5 ^(a)	4 4	C B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 452 psig and ≤ 478 psig 454 ≥ 452 psig and ≤ 478 psig 494
e. LPCI Pump B and LPCI Pump C Discharge Flow-Low (Bypass)	1,2,3, 4 ^(a) , 5 ^(a)	1 per pump	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
f. Manual Initiation	1,2,3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator.

(e) INSERT

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1, 2, 3, 4 ^(a) , 5 ^(a)	4 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -47.7 inches -48.1 (e)
b. Drywell Pressure - High	1, 2, 3	4 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig 54.6
c. Reactor Vessel Water Level-High, Level 8	1, 2, 3, 4 ^(a) , 5 ^(a)	2	C	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 54.2 inches 3.0
d. RCIC Storage Tank Level-Low	1, 2, 3, 4 ^(c) , 5 ^(c)	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 2.5 inches
e. Suppression Pool Water Level-High	1, 2, 3	2	D	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 12 inches 11
f. HPCS Pump Discharge Pressure-High (Bypass)	1, 2, 3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 120 psig
g. HPCS System Flow Rate-Low (Bypass)	1, 2, 3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 500 gpm
h. Manual Initiation	1, 2, 3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

- (a) When associated subsystem(s) are required to be OPERABLE.
- (b) Also required to initiate the associated diesel generator.
- (c) When HPCS is OPERABLE for compliance with LCO 3.5.2, "ECCS-Shutdown," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.2.

(e) INSERT

Table 3.3.5.1-1 (page 4 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System 1 (Logic A and E)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -147.7 inches <i>(e)</i>
b. Drywell Pressure-High	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1, 2 ^(d) , 3 ^(d)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1, 2 ^(d) , 3 ^(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches and ≤ 176.3 psig
e. LPCS Pump Discharge Pressure-High	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 125 psig
f. LPCI Pump A Discharge Pressure-High	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. ADS Drywell Pressure Bypass Timer	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
h. Manual Initiation	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.5	NA

(continued)

(d) With reactor steam dome pressure > 150 psig.

(e) INSERT

Table 3.3.5.1-1 (page 5 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System 2 (Logic B and F)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 147.7 inches <i>(e)</i>
b. Drywell Pressure-High	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1, 2 ^(d) , 3 ^(d)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1, 2 ^(d) , 3 ^(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCI Pumps B & C Discharge Pressure-High	1, 2 ^(d) , 3 ^(d)	2 per pump	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 115 psig
f. ADS Drywell Pressure Bypass Timer	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes <i>and ≤ 135p.</i>
g. Manual Initiation	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.5	NA

(d) With reactor steam dome pressure > 150 psig.

(e) INSERT

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

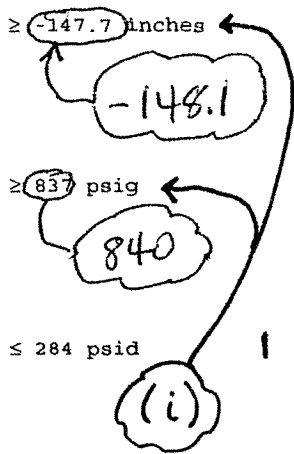
FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION		SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
		A.1			
1. Reactor Vessel Water Level-Low Low, Level 2	4	B		SR 3.3.5.2.1	≥ -47.7 inches
				SR 3.3.5.2.2	
				SR 3.3.5.2.3	
				SR 3.3.5.2.4	
				SR 3.3.5.2.5	
2. Reactor Vessel Water Level-High, Level 8	2	C		SR 3.3.5.2.1	≤ 52.6 inches
				SR 3.3.5.2.2	
				SR 3.3.5.2.3	
				SR 3.3.5.2.4	
				SR 3.3.5.2.5	
3. RCIC Storage Tank Level-Low	2	D		SR 3.3.5.2.1	≥ 2.5 inches
				SR 3.3.5.2.2	
				SR 3.3.5.2.3	
				SR 3.3.5.2.4	
				SR 3.3.5.2.5	
4. Suppression Pool Water Level-High	2	D		SR 3.3.5.2.1	≤ -3 inches
				SR 3.3.5.2.2	
				SR 3.3.5.2.3	
				SR 3.3.5.2.4	
				SR 3.3.5.2.5	
5. Manual Initiation	1	C		SR 3.3.5.2.5	NA

(a) INSEKT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ -147.7 inches
b. Main Steam Line Pressure-Low	1	4	H	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≥ 837 psig
c. Main Steam Line Flow-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6 SR 3.3.6.1.7	≤ 284 psid
d. Condenser Vacuum-Low	1,2 ^(a) , 3 ^(a)	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 7.6 inches Hg vacuum
e. Main Steam Tunnel Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Main Steam Line Turbine Building Temperature-High	1,2,3	4	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	Modules 1-4 ≤ 142°F, Module 5 ≤ 150°F
g. Manual Initiation	1,2,3	4	J	SR 3.3.6.1.6	NA



(continued)

(a) With any turbine stop valve not closed.

(i) INSERT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 2 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches -48.1
	(c)	4	O	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches
b. Drywell Pressure-High	1,2,3	4 ^(b)	K	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
c. Deleted					
d. Drywell Pressure-High (ECCS Divisions 1 and 2)	1,2,3	4 ^(b)	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig -48.1
e. Reactor Vessel Water Level-Low Low, Level 2 (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches
f. Drywell Pressure-High (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig

(continued)

(b) Also required to initiate the associated drywell isolation function.

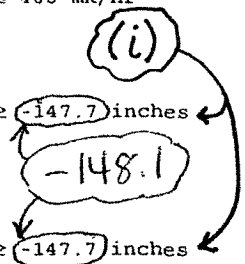
(c) During operations with a potential for draining the reactor vessel.

(i) INSERT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 3 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation (continued)					
g. Containment Building Fuel Transfer Pool Ventilation Plenum Radiation-High	(c), (d)	4	N	SR 3.3.6.1.1	≤ 500 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
h. Containment Building Exhaust Radiation-High	1, 2, 3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
i. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	(c), (d)	4	N	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
j. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2, 3	4 ^(b)	I	SR 3.3.6.1.1	≥ -147.7 inches
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
	(c)	4	O	SR 3.3.6.1.1	≥ -147.7 inches
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
k. Containment Pressure-High	(e)	2	I	SR 3.3.6.1.1	≤ 3.0 psid
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
l. Manual Initiation	1, 2, 3	2 ^(b)	J	SR 3.3.6.1.6	NA
	(c), (d)	2	N	SR 3.3.6.1.6	NA



(continued)

- (b) Also required to initiate the associated drywell isolation function.
- (c) During operations with a potential for draining the reactor vessel.
- (d) During movement of recently irradiated fuel assemblies in the primary or secondary containment.
- (e) MODES 1, 2, and 3 with the associated PCIVs not closed.

(i) INSERT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 4 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. Auxiliary Building RCIC Steam Line Flow-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 118.5 inches water
b. RCIC Steam Line Flow-High, Time Delay	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 13 seconds
c. RCIC Steam Supply Line Pressure-Low	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 52 psig
d. RCIC Turbine Exhaust Diaphragm Pressure-High	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
e. RCIC Equipment Room Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 207°F
f. Main Steam Line Tunnel Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
g. Main Steam Line Tunnel Temperature Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 28 minutes
h. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches
i. Drywell RCIC Steam Line Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 188 inches water

(i)

-48.1

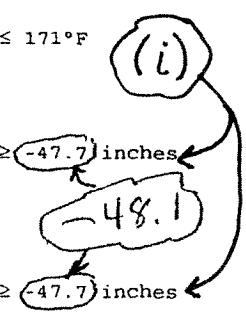
(continued)

(i) INSERT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation (continued)					
j. Drywell Pressure - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
k. Manual Initiation	1,2,3	1	J	SR 3.3.6.1.6	NA
4. Reactor Water Cleanup (RCUC) System Isolation					
a. Differential Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 66.1 gpm
b. Differential Flow-Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 47 seconds
c. RCUC Heat Exchanger Equipment Room Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 205°F
d. RCUC Pump Rooms Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 202°F
e. Main Steam Line Tunnel Ambient Temperature- High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches
	(c)	4	O	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -47.7 inches
g. Standby Liquid Control System Initiation	1,2	2	L	SR 3.3.6.1.6	NA
h. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA
	(c), (d)	2	N	SR 3.3.6.1.6	NA



(continued)

(c) During operations with a potential for draining the reactor vessel.
(d) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(i) INSERT

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 6 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RHR System Isolation					
a. RHR Heat Exchanger Ambient Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 160°F
b. Reactor Vessel Water Level - Low, Level 3	1,2,3 ^(f)	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
c. Reactor Vessel Water Level - Low, Level 3	3 ^(g) , 4, 5	4 ^(h)	M	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
d. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -147.7 inches
e. Reactor Vessel Pressure-High	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 110 psig
f. Drywell Pressure-High	1,2,3	8	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
g. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA

-148.1
-147.7
(i)

- (f) With reactor steam dome pressure greater than or equal to the RHR cut in permissive pressure.
 (g) With reactor steam dome pressure less than the RHR cut in permissive pressure.
 (h) Only one trip system required in MODES 4 and 5 with RHR Shutdown Cooling System integrity maintained.

(i) INSERT

Secondary Containment Isolation Instrumentation
3.3.6.2

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level-Low Low, Level 2	1,2,3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ -47.7 inches <i>(Handwritten: -48.1)</i>
2. Drywell Pressure-High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.88 psig <i>(Handwritten: (d))</i>
3. Containment Building Fuel Transfer Pool Ventilation Plenum Exhaust Radiation-High	(a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 500 mR/hr
4. Containment Building Exhaust Radiation-High	1,2,3, (a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
5. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1,2,3, (a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
6. Fuel Building Exhaust Radiation-High	1,2,3, (c)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 17 mR/hr
7. Manual Initiation	1,2,3, (a), (b)	1	SR 3.3.6.2.5	NA

(a) During operations with a potential for draining the reactor vessel.

(b) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(c) During movement of recently irradiated fuel assemblies in the fuel building.

(d) INSERT

RHR Containment Spray System Instrumentation
3.3.6.3

Table 3.3.6.3-1 (page 1 of 1)
RHR Containment Spray System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM		SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
		REQUIRED ACTION A.1			
1. Drywell Pressure-High	2	B		SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 1.88 psig
2. Containment Pressure-High	2	B		SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 22.4 psia
3. Reactor Vessel Water Level-Low Low Low, Level 1	2	B		SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≥ -147.7 inches
4. Timers, System A and System B	1	C		SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.5	≥ 10.10 minutes and ≤ 10.23 minutes
5. Timer, System B Only	1	C		SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 90.6 seconds
6. Manual Initiation	1	C		SR 3.3.6.3.5	NA

-148.1
-147.7 inches
(a)

(a) INSERT

Table 3.3.6.4-1 (page 1 of 1)
Suppression Pool Makeup System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure-High	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.3 SR 3.3.6.4.6 SR 3.3.6.4.7	≤ 1.88 psig
2. Reactor Vessel Water Level-Low Low Low, Level 1	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.3 SR 3.3.6.4.6 SR 3.3.6.4.7	≥ -147.7 inches
3. Suppression Pool Water Level-Low Low	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.4 SR 3.3.6.4.6 SR 3.3.6.4.7	≥ 29 inches
4. Timer	1	C	SR 3.3.6.4.2 SR 3.3.6.4.5 SR 3.3.6.4.7	≤ 30 minutes
5. Manual Initiation	2	C	SR 3.3.6.4.7	NA

-148.1
-147.7 inches
(a)

(a) INSERT

INSERT

This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

ATTACHMENT 3
Retyped Technical Specifications Pages

CLINTON POWER STATION

FACILITY OPERATING LICENSE NO. NPF-62

REVISED TECHNICAL SPECIFICATIONS PAGES

3.3-8
3.3-29
3.3-39
3.3-40
3.3-41
3.3-42
3.3-43
3.3-47
3.3-55
3.3-56
3.3-57
3.3-58
3.3-59
3.3-60
3.3-64
3.3-68
3.3-72
3.3-74

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Vessel Steam Dome Pressure - High	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 1080 psig
4. Reactor Vessel Water Level-Low, Level 3	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≥ 8.3 inches
5. Reactor Vessel Water Level-High, Level 8	≥ 21.6 % RTP	4	F	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 52.6 inches
6. Main Steam Isolation Valve-Closure	1	4	G	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 13% closed
7. Drywell Pressure-High	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 1.88 psig
8. Scram Discharge Volume Water Level-High					
a. Transmitter	1,2	4	H	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 40-1/4 inches for 1C11- N601A,B and ≤ 39-3/16 inches for 1C11-N601C,D
	5 ^(a)	4	I	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.13 SR 3.3.1.1.15	≤ 40-1/4 inches for 1C11- N601A,B and ≤ 39-3/16 inches for 1C11-N601C,D

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Remove the associated recirculation pump from service.	6 hours
	<u>OR</u> C.2 Be in MODE 2.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.3.4.2.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.4.2.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3 Calibrate the trip units.	92 days
SR 3.3.4.2.4 Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level-Low Low, Level 2: ≥ -50.0 inches; and b. Reactor Steam Dome Pressure-High: ≤ 1143 psig.	18 months
SR 3.3.4.2.5 Perform LOGIC SYSTEM FUNCTIONAL TEST, including breaker actuation.	18 months

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Low Pressure Coolant Injection-A (LPCI) and Low Pressure Core Spray (LPCS) Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3, 4 ^(a) , 5 ^(a)	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -148.1 inches ^(e)
b. Drywell Pressure-High	1,2,3	2 ^(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. LPCI Pump A Start-Time Delay Logic Card	1,2,3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 4.5 seconds and ≤ 5.5 seconds
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3 4 ^(a) , 5 ^(a)	4 4	C B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5 SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 454 psig and ≤ 494 psig ≥ 454 psig and ≤ 494 psig
e. LPCS Pump Discharge Flow-Low (Bypass)	1,2,3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 750 gpm
f. LPCI Pump A Discharge Flow-Low (Bypass)	1,2,3, 4 ^(a) , 5 ^(a)	1	E	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 900 gpm
g. Manual Initiation	1,2,3, 4 ^(a) , 5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator.

(e) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI B and LPCI C Subsystems					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3, 4 ^(a) ,5 ^(a)	2 ^(b)	B	SR 3.3.5.1.1	≥ -148.1 inches ^(e)
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
b. Drywell Pressure-High	1,2,3	2 ^(b)	B	SR 3.3.5.1.1	≤ 1.88 psig
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
c. LPCI Pump B Start-Time Delay Logic Card	1,2,3, 4 ^(a) ,5 ^(a)	1	C	SR 3.3.5.1.2	≥ 4.5 seconds and ≤ 5.5 seconds
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
d. Reactor Vessel Pressure-Low (Injection Permissive)	1,2,3	4	C	SR 3.3.5.1.1	≥ 454 psig and ≤ 494 psig
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
	4 ^(a) ,5 ^(a)	4	B	SR 3.3.5.1.1	≥ 454 psig and ≤ 494 psig
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
e. LPCI Pump B and LPCI Pump C Discharge Flow-Low (Bypass)	1,2,3, 4 ^(a) ,5 ^(a)	1 per pump	E	SR 3.3.5.1.1	≥ 900 gpm
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
f. Manual Initiation	1,2,3, 4 ^(a) ,5 ^(a)	1	C	SR 3.3.5.1.5	NA

(continued)

(a) When associated subsystem(s) are required to be OPERABLE.

(b) Also required to initiate the associated diesel generator.

(e) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.5.1-1 (page 3 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE	REQUIRED	CONDITIONS	SURVEILLANCE	ALLOWABLE
	MODES OR OTHER SPECIFIED CONDITIONS		CHANNELS PER FUNCTION		
3. High Pressure Core Spray (HPCS) System					
a. Reactor Vessel Water Level-Low Low, Level 2	1, 2, 3,	4 ^(b)	B	SR 3.3.5.1.1	≥ -48.1 inches ^(e)
	4 ^(a) , 5 ^(a)			SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
b. Drywell Pressure - High	1, 2, 3	4 ^(b)	B	SR 3.3.5.1.1	≤ 1.88 psig
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
c. Reactor Vessel Water Level-High, Level 8	1, 2, 3,	2	C	SR 3.3.5.1.1	≤ 54.6 inches ^(e)
	4 ^(a) , 5 ^(a)			SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
d. RCIC Storage Tank Level-Low	1, 2, 3,	2	D	SR 3.3.5.1.1	≥ 3.0 inches
	4 ^(c) , 5 ^(c)			SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
e. Suppression Pool Water Level-High	1, 2, 3	2	D	SR 3.3.5.1.1	≤ 11 inches
				SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
f. HPCS Pump Discharge Pressure-High (Bypass)	1, 2, 3,	1	E	SR 3.3.5.1.1	≥ 120 psig
	4 ^(a) , 5 ^(a)			SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
g. HPCS System Flow Rate-Low (Bypass)	1, 2, 3,	1	E	SR 3.3.5.1.1	≥ 500 gpm
	4 ^(a) , 5 ^(a)			SR 3.3.5.1.2	
				SR 3.3.5.1.3	
				SR 3.3.5.1.4	
				SR 3.3.5.1.5	
h. Manual Initiation	1, 2, 3,	1	C	SR 3.3.5.1.5	NA
	4 ^(a) , 5 ^(a)				

(continued)

- (a) When associated subsystem(s) are required to be OPERABLE.
- (b) Also required to initiate the associated diesel generator.
- (c) When HPCS is OPERABLE for compliance with LCO 3.5.2, "ECCS-Shutdown," and aligned to the RCIC storage tank while tank water level is not within the limits of SR 3.5.2.2.
- (e) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.5.1-1 (page 4 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Automatic Depressurization System (ADS) Trip System 1 (Logic A and E)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -148.1 inches ^(e)
b. Drywell Pressure-High	1, 2 ^(d) , 3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1, 2 ^(d) , 3 ^(d)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1, 2 ^(d) , 3 ^(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCS Pump Discharge Pressure-High	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 125 psig and ≤ 176.3 psig
f. LPCI Pump A Discharge Pressure- High	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
g. ADS Drywell Pressure Bypass Timer	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
h. Manual Initiation	1, 2 ^(d) , 3 ^(d)	2	G	SR 3.3.5.1.5	NA

(continued)

(d) With reactor steam dome pressure > 150 psig.

(e) This function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.5.1-1 (page 5 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. ADS Trip System 2 (Logic B and F)					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2 ^(d) ,3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ -148.1 inches ^(e)
b. Drywell Pressure-High	1,2 ^(d) ,3 ^(d)	2	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 1.88 psig
c. ADS Initiation Timer	1,2 ^(d) ,3 ^(d)	1	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 117 seconds
d. Reactor Vessel Water Level-Low, Level 3 (Confirmatory)	1,2 ^(d) ,3 ^(d)	1	F	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 8.3 inches
e. LPCI Pumps B & C Discharge Pressure-High	1,2 ^(d) ,3 ^(d)	2 per pump	G	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.4 SR 3.3.5.1.5	≥ 115 psig and ≤ 135 psig
f. ADS Drywell Pressure Bypass Timer	1,2 ^(d) ,3 ^(d)	2	G	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.5	≤ 6.5 minutes
g. Manual Initiation	1,2 ^(d) ,3 ^(d)	2	G	SR 3.3.5.1.5	NA

(d) With reactor steam dome pressure > 150 psig.

(e) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.5.2-1 (page 1 of 1)
Reactor Core Isolation Cooling System Instrumentation

FUNCTION	REQUIRED CHANNELS PER FUNCTION	CONDITIONS		SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
		REFERENCED FROM	REQUIRED ACTION		
			A.1		
1. Reactor Vessel Water Level-Low Low, Level 2	4	B		SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4 SR 3.3.5.2.5	≥ -48.1 inches ^(a)
2. Reactor Vessel Water Level-High, Level 8	2	C		SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4 SR 3.3.5.2.5	≤ 52.6 inches
3. RCIC Storage Tank Level-Low	2	D		SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4 SR 3.3.5.2.5	≥ 3.0 inches
4. Suppression Pool Water Level-High	2	D		SR 3.3.5.2.1 SR 3.3.5.2.2 SR 3.3.5.2.3 SR 3.3.5.2.4 SR 3.3.5.2.5	≤ -5 inches
5. Manual Initiation	1	C		SR 3.3.5.2.5	NA

(a) This function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level-Low Low Low, Level 1	1,2,3	4	G	SR 3.3.6.1.1	≥ -148.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
				SR 3.3.6.1.7	
b. Main Steam Line Pressure-Low	1	4	H	SR 3.3.6.1.1	≥ 840 psig ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
				SR 3.3.6.1.7	
c. Main Steam Line Flow-High	1,2,3	4	G	SR 3.3.6.1.1	≤ 284 psid
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
				SR 3.3.6.1.7	
d. Condenser Vacuum-Low	1,2 ^(a) , 3 ^(a)	4	G	SR 3.3.6.1.1	≥ 7.6 inches Hg vacuum
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
e. Main Steam Tunnel Temperature-High	1,2,3	4	G	SR 3.3.6.1.1	≤ 171°F
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
f. Main Steam Line Turbine Building Temperature-High	1,2,3	4	G	SR 3.3.6.1.1	Modules 1-4 ≤ 142°F, Module 5 ≤ 150°F
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
g. Manual Initiation	1,2,3	4	J	SR 3.3.6.1.6	NA

(continued)

(a) With any turbine stop valve not closed.

(i) This function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 2 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation					
a. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4 ^(b)	K	SR 3.3.6.1.1	≥ -48.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
	(c)	4	O	SR 3.3.6.1.1	≥ -48.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
b. Drywell Pressure-High	1,2,3	4 ^(b)	K	SR 3.3.6.1.1	≤ 1.88 psig
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
c. Deleted					
d. Drywell Pressure-High (ECCS Divisions 1 and 2)	1,2,3	4 ^(b)	I	SR 3.3.6.1.1	≤ 1.88 psig
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
e. Reactor Vessel Water Level-Low Low, Level 2 (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1	≥ -48.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
f. Drywell Pressure-High (HPCS NSPS Div 3 and 4)	1,2,3	4	I	SR 3.3.6.1.1	≤ 1.88 psig
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	

(continued)

(b) Also required to initiate the associated drywell isolation function.

(c) During operations with a potential for draining the reactor vessel.

(i) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 3 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Primary Containment and Drywell Isolation (continued)					
g. Containment Building Fuel Transfer Pool Ventilation Plenum Radiation-High	(c), (d)	4	N	SR 3.3.6.1.1	≤ 500 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
h. Containment Building Exhaust Radiation-High	1, 2, 3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
	(c), (d)	4	N	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
i. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1, 2, 3	4 ^(b)	I	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
	(c), (d)	4	N	SR 3.3.6.1.1	≤ 400 mR/hr
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
j. Reactor Vessel Water Level-Low Low Low, Level 1	1, 2, 3	4 ^(b)	I	SR 3.3.6.1.1	≥ -148.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
	(c)	4	O	SR 3.3.6.1.1	≥ -148.1 inches ⁽ⁱ⁾
				SR 3.3.6.1.2	
				SR 3.3.6.1.3	
				SR 3.3.6.1.5	
k. Containment Pressure-High	(e)	2	I	SR 3.3.6.1.1	≤ 3.0 psid
				SR 3.3.6.1.2	
				SR 3.3.6.1.5	
				SR 3.3.6.1.6	
l. Manual Initiation	1, 2, 3	2 ^(b)	J	SR 3.3.6.1.6	NA
	(c), (d)	2	N	SR 3.3.6.1.6	NA

(continued)

(b) Also required to initiate the associated drywell isolation function.

(c) During operations with a potential for draining the reactor vessel.

(d) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(e) MODES 1, 2, and 3 with the associated PCIVs not closed.

(i) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 4 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. Auxiliary Building RCIC Steam Line Flow-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 118.5 inches water
b. RCIC Steam Line Flow-High, Time Delay	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 13 seconds
c. RCIC Steam Supply Line Pressure-Low	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 52 psig
d. RCIC Turbine Exhaust Diaphragm Pressure-High	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 20 psig
e. RCIC Equipment Room Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 207°F
f. Main Steam Line Tunnel Ambient Temperature-High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
g. Main Steam Line Tunnel Temperature Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 28 minutes
h. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -48.1 inches ⁽ⁱ⁾
i. Drywell RCIC Steam Line Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 188 inches water

(continued)

(i) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. RCIC System Isolation (continued)					
j. Drywell Pressure - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
k. Manual Initiation	1,2,3	1	J	SR 3.3.6.1.6	NA
4. Reactor Water Cleanup (RWCU) System Isolation					
a. Differential Flow - High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 66.1 gpm
b. Differential Flow-Timer	1,2,3	2	I	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 47 seconds
c. RWCU Heat Exchanger Equipment Room Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 205°F
d. RWCU Pump Rooms Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 202°F
e. Main Steam Line Tunnel Ambient Temperature- High	1,2,3	2	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 171°F
f. Reactor Vessel Water Level-Low Low, Level 2	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -48.1 inches ⁽ⁱ⁾
	(c)	4	O	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -48.1 inches ⁽ⁱ⁾
g. Standby Liquid Control System Initiation	1,2	2	L	SR 3.3.6.1.6	NA
h. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA
	(c), (d)	2	N	SR 3.3.6.1.6	NA

(continued)

(c) During operations with a potential for draining the reactor vessel.

(d) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(i) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Primary Containment and Drywell Isolation Instrumentation
3.3.6.1

Table 3.3.6.1-1 (page 6 of 6)
Primary Containment and Drywell Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION F.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. RHR System Isolation					
a. RHR Heat Exchanger Ambient Temperature-High	1,2,3	2 per room	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 160°F
b. Reactor Vessel Water Level - Low, Level 3	1,2,3 ^(f)	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
c. Reactor Vessel Water Level - Low, Level 3	3 ^(g) , 4, 5	4 ^(h)	M	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 8.3 inches
d. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ -148.1 inches ⁽ⁱ⁾
e. Reactor Vessel Pressure-High	1,2,3	4	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 110 psig
f. Drywell Pressure-High	1,2,3	8	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 1.88 psig
g. Manual Initiation	1,2,3	2	J	SR 3.3.6.1.6	NA

(f) With reactor steam dome pressure greater than or equal to the RHR cut in permissive pressure.

(g) With reactor steam dome pressure less than the RHR cut in permissive pressure.

(h) Only one trip system required in MODES 4 and 5 with RHR Shutdown Cooling System integrity maintained.

(i) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Secondary Containment Isolation Instrumentation
3.3.6.2

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level-Low Low, Level 2	1,2,3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≥ -48.1 inches ^(d)
2. Drywell Pressure-High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 1.88 psig
3. Containment Building Fuel Transfer Pool Ventilation Plenum Exhaust Radiation-High	(a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 500 mR/hr
4. Containment Building Exhaust Radiation-High	1,2,3, (a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
5. Containment Building Continuous Containment Purge (CCP) Exhaust Radiation-High	1,2,3, (a), (b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 400 mR/hr
6. Fuel Building Exhaust Radiation-High	1,2,3, (c)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.5	≤ 17 mR/hr
7. Manual Initiation	1,2,3, (a), (b)	1	SR 3.3.6.2.5	NA

(a) During operations with a potential for draining the reactor vessel.

(b) During movement of recently irradiated fuel assemblies in the primary or secondary containment.

(c) During movement of recently irradiated fuel assemblies in the fuel building.

(d) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.6.3-1 (page 1 of 1)
RHR Containment Spray System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure-High	2	B	SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 1.88 psig
2. Containment Pressure-High	2	B	SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 22.4 psia
3. Reactor Vessel Water Level-Low Low Low, Level 1	2	B	SR 3.3.6.3.1 SR 3.3.6.3.2 SR 3.3.6.3.3 SR 3.3.6.3.4 SR 3.3.6.3.5	≥ -148.1 inches ^(a)
4. Timers, System A and System B	1	C	SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.5	≥ 10.10 minutes and ≤ 10.23 minutes
5. Timer, System B Only	1	C	SR 3.3.6.3.2 SR 3.3.6.3.4 SR 3.3.6.3.5	≤ 90.6 seconds
6. Manual Initiation	1	C	SR 3.3.6.3.5	NA

(a) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

Table 3.3.6.4-1 (page 1 of 1)
Suppression Pool Makeup System Instrumentation

FUNCTION	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Drywell Pressure-High	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.3 SR 3.3.6.4.6 SR 3.3.6.4.7	≤ 1.88 psig
2. Reactor Vessel Water Level-Low Low Low, Level 1	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.3 SR 3.3.6.4.6 SR 3.3.6.4.7	≥ -148.1 inches ^(a)
3. Suppression Pool Water Level-Low Low	2	B	SR 3.3.6.4.1 SR 3.3.6.4.2 SR 3.3.6.4.4 SR 3.3.6.4.6 SR 3.3.6.4.7	≥ 29 inches
4. Timer	1	C	SR 3.3.6.4.2 SR 3.3.6.4.5 SR 3.3.6.4.7	≤ 30 minutes
5. Manual Initiation	2	C	SR 3.3.6.4.7	NA

(a) This Function is OPERABLE with an actual Trip Setpoint value found outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established setting tolerance band of the Nominal Trip Setpoint.

SURVEILLANCE REQUIREMENTS

-----NOTE-----
 When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains LLS or relief initiation capability, as applicable.

SURVEILLANCE		FREQUENCY
SR 3.3.6.5.1	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.5.2	Calibrate the analog trip module.	92 days
SR 3.3.6.5.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Relief Function Low: ≤ 1118 psig Medium: ≤ 1128 psig High: ≤ 1138 psig b. LLS Function Low open: ≤ 1044 psig close: ≤ 937 psig Medium open: ≤ 1084 psig close: ≤ 947 psig High open: ≤ 1124 psig close: ≤ 957 psig	18 months
SR 3.3.6.5.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months