

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ^(a)
9. Pressurizer Water Level - High	1 ^(g)	3	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	≤ 93.8% of instrument span
10. Reactor Coolant Flow - Low	1 ^(g)	3 per loop	M	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 88.8% ^(m)
11. Not Used					
12. Undervoltage RCPs	1 ^(g)	2/bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 10105 Vac
13. Underfrequency RCPs	1 ^(g)	2/bus	M	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.16	≥ 57.1 Hz
14. Steam Generator (SG) Water Level Low-Low ^(l)					
a. Steam Generator Water Level Low-Low (Adverse Containment Environment)	1, 2	4 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 25.2% of Narrow Range Instrument Span
b. Steam Generator Water Level Low-Low (Normal Containment Environment)	1 ^(p) , 2 ^(p)	4 per SG	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.16	≥ 19.8% of Narrow Range Instrument Span

(continued)

- (a) The Allowable Value defines the limiting safety system setting. See the Bases for the Trip Setpoints.
 (g) Above the P-7 (Low Power Reactor Trips Block) interlock.
 (l) The applicable MODES for these channels in Table 3.3.2-1 are more restrictive.
 (m) % of loop minimum measured flow (MMF = 95,660 gpm)
 (p) Except when the Containment Pressure – Environmental Allowance Modifier channels in the same protection sets are tripped.

Table 3.3.2-1 (page 4 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ^(a)
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays (SSPS)	1, 2 ^(b) , 3 ^(b)	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6 SR 3.3.2.14	NA
b. Automatic Actuation Logic and Actuation Relays (MSFIS)	1, 2 ^(b) , 3 ^(b)	2 trains ^(c)	G	SR 3.3.2.2	NA
c. SG Water Level - High High (P-14)	1, 2 ^(b)	4 per SG	I	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 79.8% of Narrow Range Instrument Span
d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
e. Steam Generator Water Level Low-Low ^(d)					
(1) Steam Generator Water Level Low-Low (Adverse Containment Environment)	1, 2 ^(b) , 3 ^(b)	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 25.2% of Narrow Range Instrument Span
(continued)					

- (a) The Allowable Value defines the limiting safety system setting. See the Bases for the Trip Setpoints.
 (j) Except when all MFIVs are closed.
 (c) Each train requires a minimum of two programmable logic controllers to be OPERABLE.
 (d) Feedwater isolation only.

Table 3.3.2-1 (page 5 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ^(a)
5. Turbine Trip and Feedwater Isolation					
e. Steam Generator Water Level Low-Low^(q) (continued)					
(2) Steam Generator Water Level Low-Low (Normal Containment Environment)	1 ^(j) , 2 ^(k) , 3 ^(l)	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 19.8% of Narrow Range Instrument Span
(3) Vessel ΔT Equivalent including delay timers - Trip Time Delay					
(a) Vessel ΔT (Power-1)	1, 2 ^(j)	4	M	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ Vessel ΔT Equivalent to 13.9% RTP ^(k)
(b) Vessel ΔT (Power-2)	1, 2 ^(j)	4	M	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ Vessel ΔT Equivalent to 23.9% RTP ^(j)
(4) Containment Pressure - Environmental Allowance Modifier	1, 2 ^(j) , 3 ^(j)	4	N	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ 2.0 psig

(continued)

- (a) The Allowable Value defines the limiting safety system setting. See the Bases for the Trip Setpoints.
(j) Except when all MFIVs are closed.
(k) With a time delay ≤ 240 seconds.
(l) With a time delay ≤ 130 seconds.
(q) Feedwater isolation only.
(r) Except when the Containment Pressure – Environmental Allowance Modifier channels in the same protection sets are tripped.

Table 3.3.2-1 (page 6 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE ^(a)
6. Auxiliary Feedwater					
a. Manual Initiation	1, 2, 3	1/pump	P	SR 3.3.2.8	NA
b. Automatic Actuation Logic and Actuation Relays (SSPS)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA
c. Automatic Actuation Logic and Actuation Relays (BOP ESFAS)	1,2,3	2 trains	Q	SR 3.3.2.3	NA
d. SG Water Level Low-Low					
(1) Steam Generator Water Level Low-Low (Adverse Containment Environment)	1, 2, 3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 25.2% of Narrow Range Instrument Span
(2) Steam Generator Water Level Low-Low (Normal Containment Environment)	1 ^(r) , 2 ^(r) , 3 ^(r)	4 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 19.8% of Narrow Range Instrument Span
(continued)					

(a) The Allowable Value defines the limiting safety system setting. See the Bases for the Trip Setpoints.

(r) Except when the Containment Pressure – Environmental Allowance Modifier channels in the same protection sets are tripped.