



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

February 21, 2013

Mr. Michael J. Pacilio  
Senior Vice President  
Exelon Generation Company, LLC  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 AND BYRON STATION, UNITS  
1 AND 2 – CORRECTION LETTER RE: AMENDMENTS 171 AND 178 TO  
REVISE TECHNICAL SPECIFICATIONS 3.3.1 and 3.3.2 (TAC NOS. ME8881,  
ME8882, ME8883, AND ME8884)

Dear Mr. Pacilio:

On February 6, 2013, the U.S. Nuclear Regulatory Commission issued Amendments Nos. 171 to Facility Operating License (FOL) No. NPF-72 and FOL No. NPF-77 for the Braidwood Station, Units 1 and 2, and Nos. 178 to FOL No. NPF-37 and FOL No. NPF-66 for the Byron Station, Unit Nos. 1 and 2. (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13014A711).

It was determined that incorrect technical specifications (TS pages) were inadvertently issued with the amendments. Corrected TS pages are enclosed. The proposed corrections do not change any of the conclusions in the safety evaluation associated with the amendment and does not affect the associated notice to the public.

If you or your staff has any questions, please call me at 301-415-3867

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Mahoney", is written over the typed name.

Michael Mahoney, Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,  
STN 50-454 and STN 50-455

Enclosures:

1. Corrected Technical Specifications Pages

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.6 -----NOTE-----            Not required to be performed until 24 hours            after THERMAL POWER is <math>\geq</math> 75% RTP.            -----              Calibrate excore channels to agree with            incore measurements.</p>	<p>In accordance            with the            Surveillance            Frequency Control            Program</p>
<p>SR 3.3.1.7 -----NOTES-----            1. Not required to be performed for            source range instrumentation prior to            entering MODE 3 from MODE 2 until            4 hours after entry into MODE 3.              2. The SSPS input relays are excluded            from this Surveillance for the            Functions with installed bypass test            capability.            -----              Perform COT.</p>	<p>In accordance            with the            Surveillance            Frequency Control            Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</li> <li>2. The SSPS input relays are excluded from this Surveillance for the Functions with installed bypass test capability.</li> </ol> <p>-----</p> <p>Perform COT.</p>	<p>-----NOTE-----</p> <p>Only required when not performed within the Frequency specified in the Surveillance Frequency Control Program</p> <p>-----</p> <p>Prior to reactor startup</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-10 for power and intermediate instrumentation</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-6 for source range instrumentation</p> <p><u>AND</u></p> <p>(continued)</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.1.8 (continued)	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.9 -----NOTE----- Verification of setpoint is not required. ----- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.10 -----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.12 -----NOTE-----  The SSPS input relays are excluded from  this Surveillance for the Functions with  installed bypass test capability.  -----</p> <p>Perform COT.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>
<p>SR 3.3.1.13 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>
<p>SR 3.3.1.14 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	<p>-----NOTE-----  Only required  when not  performed  within previous  31 days  -----</p> <p>Prior to  reactor startup</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.15 -----NOTE-----  Neutron detectors are excluded from  response time testing.  -----    Verify RTS RESPONSE TIME is within limits.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.13	NA
	3(a), 4(a), 5(a)	2	C	SR 3.3.1.13	NA
2. Power Range Neutron Flux					
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.15	≤ 110.8% RTP
b. Low	1 <sup>(b)</sup> , 2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.15	≤ 27.0% RTP
3. Power Range Neutron Flux-High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11	≤ 6.2% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1 <sup>(b)</sup> , 2 <sup>(c)</sup>	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 30.0% RTP
5. Source Range Neutron Flux	2 <sup>(d)</sup>	2	H,I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.15	≤ 1.42 E5 cps
	3(a), 4(a), 5(a)	2	I,J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.15	≤ 1.42 E5 cps

(continued)

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

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

(c) Above the P-6 (Source Range Block Permissive) interlock.

(d) Below the P-6 (Source Range Block Permissive) interlock.

Table 3.3.1-1 (page 2 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Overtemperature $\Delta T$	1,2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	Refer to Note 1
7. Overpower $\Delta T$	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	Refer to Note 2
8. Pressurizer Pressure					
a. Low	1 <sup>(e)</sup>	4	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\geq 1875$ psig
b. High	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\leq 2393$ psig
9. Pressurizer Water Level-High	1 <sup>(e)</sup>	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	$\leq 93.5\%$ of instrument span
10. Reactor Coolant Flow-Low (per loop)	1 <sup>(e)</sup>	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\geq 89.3\%$ of loop minimum measured flow
11. Reactor Coolant Pump (RCP) Breaker Position (per train)	1 <sup>(e)</sup>	4	R	SR 3.3.1.13	NA

(continued)

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



RTS Instrumentation  
3.3.1

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
12. Undervoltage RCPs (per train)	1 <sup>(e)</sup>	4	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 4920 V
13. Underfrequency RCPs (per train)	1 <sup>(e)</sup>	4	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 56.08 Hz
14. Steam Generator (SG) Water Level-Low Low (per SG)					
a. Unit 1	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 16.1% of narrow range instrument span
b. Unit 2	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 34.8% of narrow range instrument span
15. Turbine Trip					
a. Emergency Trip Header Pressure (per train)	1 <sup>(f)</sup>	3	L	SR 3.3.1.10 SR 3.3.1.14	≥ 910 psig
b. Turbine Throttle Valve Closure (per train)	1 <sup>(f)</sup>	4	L	SR 3.3.1.10 SR 3.3.1.14	≥ 1% open
16. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	M	SR 3.3.1.13	NA

(continued)

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

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

Table 3.3.1-1 (page 4 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
17. Reactor Trip System Interlocks					
a. Source Range Block Permissive, P-6	2 <sup>(a)</sup>	2	O	SR 3.3.1.11 SR 3.3.1.12	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7					
(1) P-10 Input	1	3	P	SR 3.3.1.11 SR 3.3.1.12	NA
(2) P-13 Input	1	2	P	SR 3.3.1.10 SR 3.3.1.12	NA
c. Power Range Neutron Flux, P-8	1	3	P	SR 3.3.1.11 SR 3.3.1.12	≤ 32.1% RTP
d. Power Range Neutron Flux, P-10	1,2	3	O	SR 3.3.1.11 SR 3.3.1.12	≥ 7.9% RTP and ≤ 12.1% RTP
e. Turbine Impulse Pressure, P-13	1	2	P	SR 3.3.1.10 SR 3.3.1.12	≤ 12.1% turbine power
18. Reactor Trip Breakers (RTBs) <sup>(g)</sup>	1,2	2 trains	N	SR 3.3.1.4	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	2 trains	C	SR 3.3.1.4	NA
19. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	Q	SR 3.3.1.4	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	1 each per RTB	C	SR 3.3.1.4	NA
20. Automatic Trip Logic	1,2	2 trains	M	SR 3.3.1.5	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	2 trains	C	SR 3.3.1.5	NA

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

(d) Below the P-6 (Source Range Block Permissive) interlock.

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

Table 3.3.1-1 (page 5 of 6)  
Reactor Trip System Instrumentation

Note 1: Overtemperature  $\Delta T$

The Overtemperature  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 1.04% of  $\Delta T$  span.

$$\Delta T \frac{(1+T_1 s)}{(1+T_2 s)} \left[ \frac{1}{1+T_3 s} \right] \leq \Delta T_0 \left\{ K_1 - K_2 \frac{(1+T_4 s)}{(1+T_5 s)} \left[ T \frac{1}{(1+T_6 s)} - T' \right] + K_3 (P - P') - f_1(\Delta I) \right\}$$

Where:  $\Delta T$  is measured Reactor Coolant System (RCS)  $\Delta T$ , °F.

$\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.

$s$  is the Laplace transform operator,  $\text{sec}^{-1}$ .

$T$  is the measured RCS average temperature, °F.

$T'$  is the nominal  $T_{\text{avg}}$  at RTP, °F.

$P$  is the measured pressurizer pressure, psig.

$P'$  is the nominal RCS operating pressure, psig.

$K_1 = *$	$K_2 = *$	$K_3 = *$
$T_1 = *$	$T_2 = *$	$T_3 \leq *$
$T_4 = *$	$T_5 = *$	$T_6 \leq *$

$f_1(\Delta I) = *$	$\{ * + (q_t - q_b) \}$	when $q_t - q_b < * \text{ RTP}$
	0% of RTP	when $* \text{ RTP} \leq q_t - q_b \leq * \text{ RTP}$
	$\{ (q_t - q_b) - * \}$	when $q_t - q_b > * \text{ RTP}$

Where  $q_t$  and  $q_b$  are percent RTP in the upper and lower halves of the core, respectively, and  $q_t + q_b$  is the total THERMAL POWER in percent RTP.

\* As specified in the COLR.

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

Note 2: Overpower  $\Delta T$

The Overpower  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 3.60% of  $\Delta T$  span.

$$\Delta T \frac{(1+T_1 s)}{(1+T_2 s)} \left( \frac{1}{1+T_3 s} \right) \leq \Delta T_0 \left\{ K_4 - K_5 \frac{T_7 s}{1+T_7 s} \left( \frac{1}{1+T_6 s} \right) T - K_6 \left[ T \frac{1}{1+T_6 s} - T'' \right] - f_2 (\Delta I) \right\}$$

Where:  $\Delta T$  is measured RCS  $\Delta T$ , °F.

$\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.

$s$  is the Laplace transform operator,  $\text{sec}^{-1}$ .

$T$  is the measured RCS average temperature, °F.

$T''$  is the nominal  $T_{\text{avg}}$  at RTP,  $\leq$  \*.

$$K_4 = *$$

$$K_5 = * \text{ for increasing } T_{\text{avg}} \\ * \text{ for decreasing } T_{\text{avg}}$$

$$K_6 = * \text{ when } T > T'' \\ * \text{ when } T \leq T''$$

$$T_1 = * \\ T_6 \leq *$$

$$T_2 = * \\ T_7 = *$$

$$T_3 \leq *$$

$$f_2(\Delta I) = *$$

\* As specified in the COLR.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.3	<p>-----NOTE-----  Verification of relay setpoints not required.  -----  Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.4	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.5	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.6	<p>-----NOTE-----  The SSPS input relays are excluded from this Surveillance for the Functions with installed bypass test capability.  -----  Perform COT.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.7	<p>-----NOTE-----  Verification of relay setpoints not required.  -----  Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.8	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.9	<p>-----NOTE-----  Verification of setpoint not required.  -----  Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.10	<p>-----NOTE-----  This Surveillance shall include verification that the time constants are adjusted to the prescribed values.  -----  Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.2.11 Verify ESFAS RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.12 Verify ESFAS RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program

ESFAS Instrumentation  
3.3.2

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure-High 1	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 4.6 psig
d. Pressurizer Pressure-Low	1,2,3 <sup>(a)</sup>	4	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 1817 psig
e. Steam Line Pressure-Low	1,2,3 <sup>(a)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 614 psig <sup>(b)</sup>
2. Containment Spray					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure High-3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 21.2 psig

(continued)

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.



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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
(3) Containment Pressure High-3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 21.2 psig

(continued)

# ESFAS Instrumentation 3.3.2

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation					
a. Manual Initiation	1,2 <sup>(c)</sup> ,3 <sup>(c)</sup>	2	F	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2 <sup>(g)</sup> ,3 <sup>(g)</sup>	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure-High 2	1,2 <sup>(g)</sup> ,3 <sup>(g)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 9.4 psig
d. Steam Line Pressure					
(1) Low	1,2 <sup>(g)</sup> ,3 <sup>(a)(f)(g)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 614 psig <sup>(b)</sup>
(2) Negative Rate-High	3 <sup>(d)(g)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 165.3 psi <sup>(e)</sup>

(continued)

- (a) Above the P-11 (Pressurizer Pressure) interlock.
- (b) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.
- (c) Except when all Main Steam Isolation Valves (MSIVs) are closed.
- (d) Below the P-11 (Pressurizer Pressure) interlock with Function 4.d.1 blocked.
- (e) Time constant utilized in the rate/lag controller is  $\geq 50$  seconds.
- (f) Below the P-11 (Pressurizer Pressure) interlock with Function 4.d.2 not enabled.
- (g) Except when all Main Steam Isolation Valves (MSIVs) and MSIV bypass valves are closed.

ESFAS Instrumentation  
3.3.2

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. Steam Generator (SG) Water Level-High High (P-14)					
1) Unit 1	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	4 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6 SR 3.3.2.8 SR 3.3.2.10 SR 3.3.2.12	≤ 89.9% of narrow range instrument span
2) Unit 2	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	4 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6 SR 3.3.2.8 SR 3.3.2.10 SR 3.3.2.12	≤ 81.5% of narrow range instrument span
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

(h) Except when all Feedwater Isolation Valves are closed or isolated by a closed manual valve.

ESFAS Instrumentation  
3.3.2

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Auxiliary Feedwater					
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. SG Water Level-Low					
1) Unit 1	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 16.1% of narrow range instrument span
2) Unit 2	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 34.8% of narrow range instrument span
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Loss of Offsite Power (Undervoltage on Bus 141(241))	1,2,3	2	H	SR 3.3.2.3 SR 3.3.2.10 SR 3.3.2.11	≥ 2730 V
e. Undervoltage Reactor Coolant Pump (per train)	1,2	4	I	SR 3.3.2.7 SR 3.3.2.10 SR 3.3.2.12	≥ 4920 V
f. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure-Low	1,2,3	1 per train	J	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.10	≥ 17.4 psia
7. Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. Refueling Water Storage Tank (RWST) Level-Low Low	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 44.7% of instrument span
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

ESFAS Instrumentation  
3.3.2

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. ESFAS Interlocks					
a. Reactor Trip, P-4	1,2,3	2 per train	F	SR 3.3.2.9	NA
b. Pressurizer Pressure, P-11	1,2,3	2	L	SR 3.3.2.6 SR 3.3.2.10	≤ 1936 psig
c. T <sub>avg</sub> -Low Low, P-12	1,2,3	3	L	SR 3.3.2.6 SR 3.3.2.10	≥ 548.0°F

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.4 -----NOTE-----  This Surveillance must be performed on the RTBB prior to placing the bypass breaker in service.  -----  Perform TADOT.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.5 Perform ACTUATION LOGIC TEST.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.3.1.6 -----NOTE-----  Not required to be performed until 24 hours after THERMAL POWER is <math>\geq</math> 75% RTP.  -----  Calibrate excore channels to agree with incore measurements.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.7 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3.</li> <li>2. The SSPS input relays are excluded from this Surveillance for the Functions with installed bypass test capability.</li> </ol> <p>-----</p> <p>Perform COT.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.8 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions.</li> <li>2. The SSPS input relays are excluded from this Surveillance for the Functions with installed bypass test capability.</li> </ol> <p>-----</p> <p>Perform COT.</p>	<p>-----NOTE-----</p> <p>Only required when not performed within the Frequency specified in the Surveillance Frequency Control Program</p> <p>-----</p> <p>Prior to reactor startup</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-10 for power and intermediate instrumentation</p> <p><u>AND</u></p> <p>Four hours after reducing power below P-6 for source range instrumentation</p> <p><u>AND</u></p> <p>(continued)</p>



SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.1.8 (continued)	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.9 -----NOTE----- Verification of setpoint is not required. ----- Perform TADOT.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.10 -----NOTE----- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program
SR 3.3.1.11 -----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.12 -----NOTE-----  The SSPS input relays are excluded from  this Surveillance for the Functions with  installed bypass test capability.  -----</p> <p>Perform COT.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>
<p>SR 3.3.1.13 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>
<p>SR 3.3.1.14 -----NOTE-----  Verification of setpoint is not required.  -----</p> <p>Perform TADOT.</p>	<p>-----NOTE-----  Only required  when not  performed  within previous  31 days  -----</p> <p>Prior to  reactor startup</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.3.1.15 -----NOTE-----  Neutron detectors are excluded from  response time testing.  -----    Verify RTS RESPONSE TIME is within limits.</p>	<p>In accordance  with the  Surveillance  Frequency  Control Program</p>

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.13	NA
	3(a), 4(a), 5(a)	2	C	SR 3.3.1.13	NA
2. Power Range Neutron Flux					
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.15	≤ 110.8% RTP
b. Low	1 <sup>(b)</sup> , 2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.15	≤ 27.0% RTP
3. Power Range Neutron Flux-High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11	≤ 6.2% RTP with time constant ≥ 2 sec
4. Intermediate Range Neutron Flux	1 <sup>(b)</sup> , 2 <sup>(c)</sup>	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ 30.0% RTP
5. Source Range Neutron Flux	2 <sup>(d)</sup>	2	H,I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.15	≤ 1.42 E5 cps
	3(a), 4(a), 5(a)	2	I,J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.15	≤ 1.42 E5 cps

(continued)

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

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

(c) Above the P-6 (Source Range Block Permissive) interlock.

(d) Below the P-6 (Source Range Block Permissive) interlock.

Table 3.3.1-1 (page 2 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Overtemperature $\Delta T$	1,2	4	E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	Refer to Note 1
7. Overpower $\Delta T$	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	Refer to Note 2
8. Pressurizer Pressure					
a. Low	1(e)	4	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\geq 1875$ psig
b. High	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\leq 2393$ psig
9. Pressurizer Water Level-High	1(e)	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10	$\leq 93.5\%$ of instrument span
10. Reactor Coolant Flow-Low (per loop)	1(e)	3	K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	$\geq 89.3\%$ of loop minimum measured flow
11. Reactor Coolant Pump (RCP) Breaker Position (per train)	1(e)	4	R	SR 3.3.1.13	NA

(continued)

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

Table 3.3.1-1 (page 3 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
12. Undervoltage RCPs (per train)	1 <sup>(e)</sup>	4	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 4920 V
13. Underfrequency RCPs (per train)	1 <sup>(e)</sup>	4	K	SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.15	≥ 56.08 Hz
14. Steam Generator (SG) Water Level-Low Low (per SG)					
a. Unit 1	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 16.1% of narrow range instrument span
b. Unit 2	1,2	4	E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ 34.8% of narrow range instrument span
15. Turbine Trip					
a. Emergency Trip Header Pressure (per train)	1 <sup>(f)</sup>	3	L	SR 3.3.1.10 SR 3.3.1.14	≥ 910 psig
b. Turbine Throttle Valve Closure (per train)	1 <sup>(f)</sup>	4	L	SR 3.3.1.10 SR 3.3.1.14	≥ 1% open
16. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	M	SR 3.3.1.13	NA

(continued)

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

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

Table 3.3.1-1 (page 4 of 6)  
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
17. Reactor Trip System Interlocks					
a. Source Range Block Permissive, P-6	2 <sup>(a)</sup>	2	O	SR 3.3.1.11 SR 3.3.1.12	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7					
(1) P-10 Input	1	3	P	SR 3.3.1.11 SR 3.3.1.12	NA
(2) P-13 Input	1	2	P	SR 3.3.1.10 SR 3.3.1.12	NA
c. Power Range Neutron Flux, P-8	1	3	P	SR 3.3.1.11 SR 3.3.1.12	≤ 32.1% RTP
d. Power Range Neutron Flux, P-10	1,2	3	O	SR 3.3.1.11 SR 3.3.1.12	≥ 7.9% RTP and ≤ 12.1% RTP
e. Turbine Impulse Pressure, P-13	1	2	P	SR 3.3.1.10 SR 3.3.1.12	≤ 12.1% turbine power
18. Reactor Trip Breakers (RTBs) <sup>(g)</sup>	1,2	2 trains	N	SR 3.3.1.4	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	2 trains	C	SR 3.3.1.4	NA
19. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	Q	SR 3.3.1.4	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	1 each per RTB	C	SR 3.3.1.4	NA
20. Automatic Trip Logic	1,2	2 trains	M	SR 3.3.1.5	NA
	3 <sup>(a)</sup> , 4 <sup>(a)</sup> , 5 <sup>(a)</sup>	2 trains	C	SR 3.3.1.5	NA

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

(d) Below the P-6 (Source Range Block Permissive) interlock.

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

Table 3.3.1-1 (page 5 of 6)  
Reactor Trip System Instrumentation

Note 1: Overtemperature  $\Delta T$

The Overtemperature  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 1.04% of  $\Delta T$  span.

$$\Delta T \frac{(1+T_1 s)}{(1+T_2 s)} \left[ \frac{1}{1+T_3 s} \right] \leq \Delta T_0 \left\{ K_1 - K_2 \frac{(1+T_4 s)}{(1+T_5 s)} \left[ T \frac{1}{(1+T_6 s)} - T' \right] + K_3 (P - P') - f_1(\Delta I) \right\}$$

Where:  $\Delta T$  is measured Reactor Coolant System (RCS)  $\Delta T$ , °F.

$\Delta T_0$  is the indicated  $\Delta T$  at RTP, °F.

$s$  is the Laplace transform operator,  $\text{sec}^{-1}$ .

$T$  is the measured RCS average temperature, °F.

$T'$  is the nominal  $T_{\text{avg}}$  at RTP, °F.

$P$  is the measured pressurizer pressure, psig.

$P'$  is the nominal RCS operating pressure, psig.

$K_1 = *$	$K_2 = *$	$K_3 = *$
$T_1 = *$	$T_2 = *$	$T_3 \leq *$
$T_4 = *$	$T_5 = *$	$T_6 \leq *$

$f_1(\Delta I) = *$	$\{ * + (q_t - q_b) \}$	when $q_t - q_b < * \text{ RTP}$
	0% of RTP	when $* \text{ RTP} \leq q_t - q_b \leq * \text{ RTP}$
	$\{ (q_t - q_b) - * \}$	when $q_t - q_b > * \text{ RTP}$

Where  $q_t$  and  $q_b$  are percent RTP in the upper and lower halves of the core, respectively, and  $q_t + q_b$  is the total THERMAL POWER in percent RTP.

\* As specified in the COLR.



The Overpower  $\Delta T$  Function Allowable Value shall not exceed the following Trip Setpoint by more than 3.60% of  $\Delta T$  span.

$$\Delta T \frac{(1+T_1 S)}{(1+T_2 S)} \left( \frac{1}{1+T_3 S} \right) \leq \Delta T_0 \left\{ K_4 - K_5 \frac{T_7 S}{1+T_7 S} \left( \frac{1}{1+T_6 S} \right) T - K_6 \left[ T \frac{1}{1+T_6 S} - T'' \right] - f_2 (\Delta I) \right\}$$

$T''$  is the nominal  $T_{avg}$  at RTP,  $\leq ^*$ .

$$K_6 = \begin{cases} * & \text{when } T > T'' \\ * & \text{when } T \leq T'' \end{cases}$$

$$T_3 \leq *$$

$$f_2(\Delta I) = *$$

\* As specified in the COLR.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.3	<p>-----NOTE-----  Verification of relay setpoints not required.  -----  Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.4	Perform ACTUATION LOGIC TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.5	Perform MASTER RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.6	<p>-----NOTE-----  The SSPS input relays are excluded from this Surveillance for the Functions with installed bypass test capability.  -----  Perform COT.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.7	<p>-----NOTE-----  Verification of relay setpoints not required.  -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.8	Perform SLAVE RELAY TEST.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.9	<p>-----NOTE-----  Verification of setpoint not required.  -----</p> <p>Perform TADOT.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.10	<p>-----NOTE-----  This Surveillance shall include verification that the time constants are adjusted to the prescribed values.  -----</p> <p>Perform CHANNEL CALIBRATION.</p>	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.11	Verify ESFAS RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program
SR 3.3.2.12	Verify ESFAS RESPONSE TIMES are within limit.	In accordance with the Surveillance Frequency Control Program

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure-High 1	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 4.6 psig
d. Pressurizer Pressure-Low	1,2,3 <sup>(a)</sup>	4	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 1817 psig
e. Steam Line Pressure-Low	1,2,3 <sup>(a)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 614 psig <sup>(b)</sup>
2. Containment Spray					
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure High-3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 21.2 psig

(continued)

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
(3) Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
b. Phase B Isolation					
(1) Manual Initiation	1,2,3,4	2	B	SR 3.3.2.9	NA
(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
(3) Containment Pressure High-3	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 21.2 psig

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
4. Steam Line Isolation					
a. Manual Initiation	1,2 <sup>(c)</sup> ,3 <sup>(c)</sup>	2	F	SR 3.3.2.9	NA
b. Automatic Actuation Logic and Actuation Relays	1,2 <sup>(g)</sup> ,3 <sup>(g)</sup>	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
c. Containment Pressure-High 2	1,2 <sup>(g)</sup> ,3 <sup>(g)</sup>	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 9.4 psig
d. Steam Line Pressure					
(1) Low	1,2 <sup>(g)</sup> ,3 <sup>(a)(f)(g)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 614 psig <sup>(b)</sup>
(2) Negative Rate-High	3 <sup>(d)(g)</sup>	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 165.3 psi <sup>(e)</sup>

(continued)

- (a) Above the P-11 (Pressurizer Pressure) interlock.
- (b) Time constants used in the lead/lag controller are  $t_1 \geq 50$  seconds and  $t_2 \leq 5$  seconds.
- (c) Except when all Main Steam Isolation Valves (MSIVs) are closed.
- (d) Below the P-11 (Pressurizer Pressure) interlock with Function 4.d.1 blocked.
- (e) Time constant utilized in the rate/lag controller is  $\geq 50$  seconds.
- (f) Below the P-11 (Pressurizer Pressure) interlock with Function 4.d.2 not enabled.
- (g) Except when all Main Steam Isolation Valves (MSIVs) and MSIV bypass valves are closed.

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Turbine Trip and Feedwater Isolation					
a. Automatic Actuation Logic and Actuation Relays	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. Steam Generator (SG) Water Level-High High (P-14)					
1) Unit 1	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	4 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6 SR 3.3.2.8 SR 3.3.2.10 SR 3.3.2.12	≤ 89.9% of narrow range instrument span
2) Unit 2	1,2 <sup>(h)</sup> ,3 <sup>(h)</sup>	4 per SG	D	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6 SR 3.3.2.8 SR 3.3.2.10 SR 3.3.2.12	≤ 81.5% of narrow range instrument span
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

(h) Except when all Feedwater Isolation Valves are closed or isolated by a closed manual valve.



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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. Auxiliary Feedwater					
a. Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	G	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. SG Water Level-Low Low					
1) Unit 1	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 16.1% of narrow range instrument span
2) Unit 2	1,2,3	4 per SG	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 34.8% of narrow range instrument span
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
d. Loss of Offsite Power (Undervoltage on Bus 141(241))	1,2,3	2	H	SR 3.3.2.3 SR 3.3.2.10 SR 3.3.2.11	≥ 2730 V
e. Undervoltage Reactor Coolant Pump (per train)	1,2	4	I	SR 3.3.2.7 SR 3.3.2.10 SR 3.3.2.12	≥ 4920 V
f. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure-Low	1,2,3	1 per train	J	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.10	≥ 17.4 psia
7. Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.8	NA
b. Refueling Water Storage Tank (RWST) Level-Low Low	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≥ 44.7% of instrument span
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. ESFAS Interlocks					
a. Reactor Trip, P-4	1,2,3	2 per train	F	SR 3.3.2.9	NA
b. Pressurizer Pressure, P-11	1,2,3	2	L	SR 3.3.2.6 SR 3.3.2.10	≤ 1936 psig
c. T <sub>avg</sub> -LOW LOW, P-12	1,2,3	3	L	SR 3.3.2.6 SR 3.3.2.10	≥ 548.0°F

February 21, 2013

Mr. Michael J. Pacilio  
Senior Vice President  
Exelon Generation Company, LLC  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: BRAIDWOOD STATION, UNITS 1 AND 2 AND BYRON STATION, UNITS  
1 AND 2 – CORRECTION LETTER RE: AMENDMENTS 171 AND 178 TO REVISE  
TECHNICAL SPECIFICATIONS 3.3.1 and 3.3.2 (TAC NOS. ME8881, ME8882, ME8883,  
AND ME8884)

Dear Mr. Pacilio:

On February 6, 2013, the U.S. Nuclear Regulatory Commission issued Amendments Nos. 171 to Facility Operating License (FOL) No. NPF-72 and FOL No. NPF-77 for the Braidwood Station, Units 1 and 2, and Nos. 178 to FOL No. NPF-37 and FOL No. NPF-66 for the Byron Station, Unit Nos. 1 and 2. (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13014A711).

It was determined that incorrect technical specifications (TS pages) were inadvertently issued with the amendments. Corrected TS pages are enclosed. The proposed corrections do not change any of the conclusions in the safety evaluation associated with the amendment and does not affect the associated notice to the public.

If you or your staff has any questions, please call me at 301-415-3867

Sincerely,  
*/RA/*  
Michael Mahoney, Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,  
STN 50-454 and STN 50-455

Enclosures:

1. Corrected Technical Specifications Pages

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**ADAMS Accession No. ML13052A230**

OFFICE	LPL3-2/PM	LPL3-2/LA	LPL3-2/BC(Acting)
NAME	MMahoney	SRohrer	JWiebe
DATE	02/21/2013	02/21/2013	02/21/2013

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