SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify closure time of each MSIV is ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

RAI 3.7.2-03

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time is ≤ 5 seconds. The MSIV closure time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. Based on ASME Code Section XI (Ref. 5), the MSIVs are not closure time tested at power.

The Frequency is in accordance with the Inservice Testing Program. This test is conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

RAI 3.7.2-06

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The frequency of MSIV testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

RAI 3.7.2-03

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

REFERENCES

1. UFSAR, Section 10.3.
2. UFSAR, Section 15.1.5.
3. UFSAR, Section 6.2.
4. 10 CFR 100.11.
5. ASME, Boiler and Pressure Vessel Code, Section XI.

BRWD ITS

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify closure time of each MSIV is ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

RAI 3.7.2-03

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies that MSIV closure time is ≤ 5 seconds. The MSIV closure time is assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. Based on ASME Code Section XI (Ref. 5), the MSIVs are not closure time tested at power.

The Frequency is in accordance with the Inservice Testing Program. This test is conducted in MODE 3 with the unit at operating temperature and pressure. This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

RAI 3.7.2-06

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The frequency of MSIV testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

RAI 3.7.2-03

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

REFERENCES

1. UFSAR, Section 10.3.
2. UFSAR, Section 15.1.5.
3. UFSAR, Section 6.2.
4. 10 CFR 100.11.
5. ASME, Boiler and Pressure Vessel Code, Section XI.

BYRON CTS MARKUPS

INSERT 3.7-9C (A_{11})

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- ...	...

INSERT 3.7-9D (M_3)

RAI 3.7.2-03

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

BRWD CTS MARKUPS

INSERT 3.7-9C (A_{11})

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- ...	...

INSERT 3.7-9D (M_3)

RAI 3.7.2-03

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ---------- Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

CTS DOCS

A_9 CTS SR 4.7.1.3.1 and SR 4.7.1.3.2 are conditional depending on whether the CST or Essential Service Water (SX) System is the supply source for the AF pumps. CTS 3.7.1.3 Action b directs the demonstration of the SX System as operable for a backup supply to AF. ITS SR 3.0.1 indicates that SRs do not have to be performed on inoperable equipment and ITS 3.7.6 Condition A includes the requirement to demonstrate by administrative means the operability of the backup system, which in this case would be the SX System. Therefore, deletion of the references to CST or SX System as the source for AF is an administrative change associated with ITS format. During this reformatting, no technical changes (either actual or interpretational) were made to the TS, unless identified and justified.

A_{10} CTS 3.7.1.5 Mode 1 Actions address an inoperable but open MSIV. Byron and Braidwood are not licensed for three loop operation. Therefore indefinite operation would not permitted with a closed MSIV. Therefore, the deletion of the words "but open" is administrative in nature. There is no technical change (either actual or interpretational) made.

The CTS Mode 1 Actions include a requirement to be in Hot Standby (Mode 3) within the next 6 hours and in Hot Shutdown (Mode 4) within the following 6 hours if an inoperable MSIV is not restored to OPERABLE status. Once the unit is in Mode 2 (within 6 hours), the CTS Action for Modes 2 and 3 would apply. CTS 3.7.1.5 includes the same Actions for Modes 2 and 3. ITS Conditions A and B are associated with Mode 1, while Conditions C and D are associated with Modes 2 and 3. In ITS, if Condition B was entered (Be in Mode 2), as soon as Mode 2 was reached Condition D would be applicable and would require shut down to Mode 4 (per the Required Actions of Condition E). Therefore the requirements of CTS Actions are covered by ITS 3.7.2 Actions and this change is administrative in nature. No technical changes were made to the TS, unless identified and justified.

RAI 3.7.2-03

A_{11} CTS 3.7.1.5 Modes 2 and 3 Actions state that the provisions of CTS Specification 3.0.4 are not applicable. In addition CTS SR 4.7.1.5 states that the provisions of Specification 4.0.4 are not applicable. The CTS requirements allow entry into the Mode of Applicability to perform the surveillance to verify operability. The CTS has been revised to delete the reference to Specification 3.0.4. and 4.0.4. This has been replaced with the Note for ITS SR 3.7.2.1 and SR 3.7.2.2 which requires the SRs only in Modes 1 and 2. ITS relies upon the guidance of SR 3.0.4 and wording of the SRs to allow the performance of these SRs in Mode 3. This is merely a reformatting of existing requirements. During this reformatting, no technical changes (either actual or interpretational) were made to the TS, unless identified and justified.

Rev B

M_{14} CTS LCO 3.9.11 APPLICABILITY states, "Whenever irradiated fuel assemblies are in the storage pool." ITS LCO 3.7.15 APPLICABILITY revises the CTS by stating, "Whenever fuel assemblies are stored in the spent fuel pool." The CTS APPLICABILITY was only when irradiated fuel was stored in the pool. The ITS is more restrictive since the elimination of the word "irradiated" now requires that the APPLICABILITY is for anytime new or irradiated fuel is in the pool. This change is consistent with NUREG-1431.

Rev N

M_{15} (Byron Only) CTS LCO 3.7.5 Action e.1.a requires restoration of the level switch to OPERABLE status within 72 hours or verification that the UHS basin level is greater than or equal to 90% within the next hour after the time one UHS cooling tower basin switch is determined to be inoperable. ITS 3.7.9 Required Action C.1 requires this action to be completed within 72 hours (versus 7 days in the CTS) after the determination that one SX makeup pump is inoperable, whether due to an inoperable basin level switch or other cause. The reduction in Completion Times for the inoperable tower basin switch is a more restrictive change to the requirements that currently apply to the facility.

Rev R

M_{16} (Byron Only) CTS LCO 3.7.5 Action e permits continued operation for an indefinite period with one cooling tower basin level switch inoperable. ITS 3.7.9 Required Action C.2 requires verification of an operable associated makeup source for the UHS cooling tower basin within 72 hours and C.3 limits the time the plant may continue to operate with one basin level switch inoperable. RA C.3 limits plant operations to 7 days if both units are in Mode 1, 2, 3, or 4 and 14 days if one unit is in Mode 5, 6, or defueled with an inoperable SX makeup pump. This limit on the amount of time that a unit may operate with one UHS cooling tower basin level switch inoperable is an additional restriction on plant operations.

Rev N

M_{17} (Byron Only) CTS LCO 3.7.5 Action e.2.a indicates that the provisions of Specification 3.0.4 are not applicable when both UHS cooling tower basin level switches are inoperable. ITS 3.7.9 Action D, which would be applicable if two UHS cooling tower basin level switches are inoperable, does not provide a similar allowance. This is an additional restriction on plant operations.

LCO MARKUPS

INSERT 3.7-6A (P_6)

RAI 3.7.2-03

SURVEILLANCE		FREQUENCY
SR 3.7.2.2	----------NOTE---------- Only required to be performed in MODES 1 and 2. ----------	
	Verify each MSIV actuates to the isolation position on an actual or simulated actuation signal.	18 months

BASES MARKUPS

BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1 (continued)

The Frequency is in accordance with the [Inservice Testing Program ~~or [18] months~~]. ~~The [18] month Frequency for valve closure time is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the [18] month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.~~

This test is conducted in MODE 3 with the unit at operating temperature and pressure, ~~as discussed in Reference 5 exercising requirements.~~ This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

RAI 3.7.2-06 Rev R

Insert B 3.7-12A

REFERENCES

1. UFSAR, Section [10.3].
2. ~~3~~. UFSAR, Section [6.2].
3. ~~2~~. UFSAR, Section [15.1.5].
4. 10 CFR 100.11.
5. ASME, Boiler and Pressure Vessel Code, Section XI.

INSERT B 3.7-12A (P_7)

SR 3.7.2.2

This SR verifies that each MSIV can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The frequency of MSIV testing is every 18 months. The 18 month Frequency for testing is based on the refueling cycle. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

This SR is modified by a Note that allows entry into and operation in MODE 3 prior to performing the SR. This allows a delay of testing until MODE 3, to establish conditions consistent with those under which the acceptance criterion was generated.

BAI 3.7.2-03

Commonwealth Edison Company
Braidwood Generating Station
Route #1, Box 84
Braceville, IL 60407-9619
Tel 815-458-2801

ComEd

November 6, 1998

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D. C. 20555 - 0001

Subject: Revision Q to the Improved Technical Specifications (ITS) Submittal

Byron Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-37 and NPF-66
NRC Docket Numbers: 50-454 and 50-455

Braidwood Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-72 and NPF-77
NRC Docket Numbers: 50-456 and 50-457

Reference: G. Stanley and K. Graesser (Commonwealth Edison) letter to NRC Document Control Desk, "Conversion to the Improved Standard Technical Specifications," dated December 13, 1996

The purpose of this letter is to provide Revision Q to the referenced ITS submittal. ITS Revision Q (Enclosure 1) contains minor miscellaneous cleanup items for ITS Sections 3.3, 3.6, 3.7, 3.8, 3.9, and 5.0.

These Revisions are being provided in the same ten-section format as the initial ITS submittal:

1. Byron ITS
2. Braidwood (Brwd) ITS
3. Byron CTS Markups
4. Brwd CTS Markups
5. CTS Discussion of Changes (DOCs)
6. LCO Markups
7. LCO Justification for Differences (JFDs)
8. Bases Markups
9. Bases JFDs
10. No Significant Hazards Consideration (NSHC)

Please address any comments or questions regarding this matter to our Nuclear Licensing Department.

Sincerely,

Timothy J. Tulon
Site Vice President
Braidwood Nuclear Generating Station

Enclosure 1: ITS Revision Q

cc: NRC Regional Administrator - Region III
Senior Resident Inspector - Braidwood
Senior Resident Inspector - Byron
Office of Nuclear Facility Safety – IDNS

nrc/98071tjt.doc

REVISED RAI RESPONSE

NRC RAI Number	NRC Issued Date	RAI Status
3.6.3-08	11/5/97	Closed

NRC Description of Issue

JFD B3
Bases JFD B3
Bases JFD P13
STS 3.6.3 Action E
STS SR 3.6.3.1 and associated Bases discussions
ITS 3.6.3 Action D
ITS SR 3.6.3.1 and associated Bases discussions

STS 3.6.3 RA E.1, E.2 and E.3 have been revised in ITS 3.6.3 ACTION D to delete the option of isolating a penetration flow path with a purge valve not within the leakage limits and associated RAs. The only option is the current licensing basis of restoring the valve to OPERABLE status in 24 hours or begin an orderly plant shutdown. Also, the STS SR 3.6.3.1 exception for opening one purge valves while in Condition E is deleted. Justification B.3, Bases B.3 and Bases P.13 state this exception is already accommodated in Condition A Required Actions. This is not understood because if a purge valve is leaking, then Condition A cannot be entered. The justification must be further explained. Comment: Provide additional discussion and justification for this CTS change.

ComEd Response to Issue

Revised Response: ComEd's response at the 4/1/98 meeting was to evaluate adopting the NUREG for ITS 3.6.3 Required Action E and SR 3.6.3.1. ComEd is retaining the changes associated with ITS Revision A based on current licensing basis.

Original Response: "Condition A" has been changed to "Condition D" in Section 3.6 LCO JFD B3 and Bases JFD B3. The JFDs have been revised to state, "This exception is adequately addressed by Condition D Required Actions, without the necessity for the complexity introduced by this exception." The exception in SR 3.6.3.1 is unnecessary since SRs do not have to be performed on inoperable equipment or components, i.e., when Condition D is entered.

ENCLOSURE 1

ITS REVISION Q
ITS SECTIONS 3.3/3.6/3.7/3.8/3.9/5.0

ITS SECTION 3.3

BYRON ITS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.9	----------NOTE---------- Verification of setpoint is not required. ----------	
	Perform TADOT.	92 days
SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----------	
	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.12	Perform COT.	18 months
SR 3.3.1.13	----------NOTE---------- Verification of setpoint is not required. ----------	
	Perform TADOT.	18 months

(continued)

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(d)	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)(g)	1,2	2 trains	N	SR 3.3.1.4	NA
		3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.4	NA
19.	Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	Q	SR 3.3.1.4	NA
		3(a), 4(a), 5(a)	1 each per RTB	C	SR 3.3.1.4	NA
20.	Automatic Trip Logic	1,2	2 trains	M	SR 3.3.1.5	NA
		3(a), 4(a), 5(a)	2 trains	C	SR 3.3.1.5	NA

Rev Q

(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.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.4	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.6	Perform COT.	92 days
SR 3.3.2.7	Perform SLAVE RELAY TEST.	92 days
SR 3.3.2.8	----------NOTE---------- Verification of relay setpoints not required. ---------- Perform TADOT.	92 days
SR 3.3.2.9	----------NOTE---------- Verification of setpoint not required. ---------- Perform TADOT.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.2.11	Verify ESFAS RESPONSE TIMES are within limit.	18 months
SR 3.3.2.12	Verify ESFAS RESPONSE TIMES are within limit.	18 months on a STAGGERED TEST BASIS

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.9

SR 3.3.1.9 is the performance of a TADOT every 92 days, as justified in Reference 7.

The SR is modified by a Note that excludes verification of setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.

SR 3.3.1.10

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the calculated normal uncertainties consistent with the setpoint methodology.

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.

Rev Q Rev Q Rev Q

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.9

Rev E

SR 3.3.2.9 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and P-4 Reactor Trip Interlock. It is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions have no associated setpoints.

Rev E

SR 3.3.2.10

SR 3.3.2.10 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

Rev E

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

Rev E

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

Rev Q

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

BRWD ITS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.1.9	----------NOTE---------- Verification of setpoint is not required. ----------	
	Perform TADOT.	92 days
SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----------	
	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ----------	
	Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.12	Perform COT.	18 months
SR 3.3.1.13	----------NOTE---------- Verification of setpoint is not required. ----------	
	Perform TADOT.	18 months

(continued)

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[d]	2	D	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	Q	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)[g]	1,2	2 trains	N	SR 3.3.1.4	NA
		3[a], 4[a], 5[a]	2 trains	C	SR 3.3.1.4	NA
19.	Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	Q	SR 3.3.1.4	NA
		3[a], 4[a], 5[a]	1 each per RTB	C	SR 3.3.1.4	NA
20.	Automatic Trip Logic	1,2	2 trains	M	SR 3.3.1.5	NA
		3[a], 4[a], 5[a]	2 trains	C	SR 3.3.1.5	NA

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

(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.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.4	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.6	Perform COT.	92 days
SR 3.3.2.7	Perform SLAVE RELAY TEST.	92 days
SR 3.3.2.8	----------NOTE---------- Verification of relay setpoints not required. ---------- Perform TADOT.	92 days
SR 3.3.2.9	----------NOTE---------- Verification of setpoint not required. ---------- Perform TADOT.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.3.2.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.2.11	Verify ESFAS RESPONSE TIMES are within limit.	18 months
SR 3.3.2.12	Verify ESFAS RESPONSE TIMES are within limit.	18 months on a STAGGERED TEST BASIS

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.9

SR 3.3.1.9 is the performance of a TADOT every 92 days, as justified in Reference 7.

The SR is modified by a Note that excludes verification of setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.

SR 3.3.1.10

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

Rev 4

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the calculated normal uncertainties consistent with the setpoint methodology.

Rev 0

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

Rev 4

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.9

SR 3.3.2.9 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and P-4 Reactor Trip Interlock. It is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions have no associated setpoints.

SR 3.3.2.10

SR 3.3.2.10 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

BYRON CTS MARKUPS

For SR markups, only the final number is shown, ie,
1- => SR 3.3.1.1 and
7- => SR 3.3.1.7, etc...

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	N.A.	13- R(14) (10)	N.A.	1, 2, 3*, 4*, 5*
2. Power Range, Neutron Flux				L25		
a. High Setpoint	1- S	2- D(2,4), 3- M(3, 4), 6- Q(4, 6), 11- R(4, 5a) (A4)	1- Q	N.A.	N.A.	1, 2
b. Low Setpoint	1- S	11- R(4)	8- Q	N.A.	N.A.	1###, 2
~~3~~3a Power Range, Neutron Flux, High Positive Rate	N.A.	11- R(4)	7- Q	N.A.	N.A.	1, 2
~~4~~3b Power Range, Neutron Flux, High Negative Rate	N.A.	11- R(4)	7- Q	N.A.	N.A.	1, 2
~~5~~.4 Intermediate Range, Neutron Flux	1- S	11- R(4, 5a)	8- Q	N.A.	N.A.	1###, 2
~~6~~.5 Source Range, Neutron Flux	1- S SR 3.3.9.4	11- R(4, 5b) SR 3.3.9.10	7- 8- Q(9) SR 3.3.9.8	N.A.	N.A.	2##, 3, 4, 5
~~7~~.6 Overtemperature ΔT	1- S	10- R~~(13)~~ (A1)	7- Q	N.A.	N.A.	1, 2
~~8~~.7 Overpower ΔT	1- S	10- R	7- Q	N.A.	N.A.	1, 2
~~9~~8a Pressurizer Pressure-Low (Above P-7)	1- S	10- R	7- Q	N.A.	N.A.	1
~~10~~8b Pressurizer Pressure-High	1- S	10- R	7- Q	N.A.	N.A.	1, 2
~~11~~.1 Pressurizer Water Level-High (Above P-7)	1- S	10- R	7- Q	N.A.	N.A.	1

SR 3.3.1.10 note - This Surveillance shall include verification that the time constants are adjusted to the prescribed values. (A27)

Rev E

TABLE ~~4.3-1~~ (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
~~12~~10 Reactor Coolant Flow-Low	1-S	10-R	7-Q	N.A.	N.A.	1
~~13~~14 Steam Generator Water Level-Low-Low	1-S	10-R	7-Q	N.A.	N.A.	1, 2
~~14~~12 Undervoltage-Reactor Coolant Pumps (Above P-7)	N.A.	10-R	N.A.	9-Q(10)	N.A.	1
~~15~~13 Underfrequency-Reactor Coolant Pumps (Above P-7)	N.A.	10-R	N.A.	9-Q(10)	N.A.	1
~~16~~15 Turbine Trip (Above P-8)						
a. Emergency Trip Header Pressure	N.A.	10-R	N.A.	14-S/U(1, 10)	N.A.	1
b. Turbine Throttle Valve Closure	N.A.	10-R	N.A.	14-S/U(1, 10)	N.A.	1
~~17~~16 Safety Injection Input form ESF	N.A.	N.A.	N.A.	13-R (10) (L28)	N.A.	1, 2
~~18~~11 Reactor Coolant Pump Breaker Position Trip (Above P-7)	N.A.	N.A.	N.A.	13-R (10)	N.A.	1
~~19~~.17 Reactor Trip System Interlocks						
a. ~~Intermediate~~ Range ~~Neutron Flux,~~ P-6 (A29)	N.A.	11-R(4)	12-R	N.A.	N.A.	2##
b. Low Power Reactor Trips Block, P-7	N.A.	11-R(4)	12-R	N.A.	N.A.	1
c. Power Range Neutron Flux, P-8	N.A.	11-R(4)	12-R	N.A.	N.A.	1

SR 3.3.1-10 Note This Surveillance shall include verification that the time constants are adjusted to the prescribed values. (A27)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater (Continued)		
d. ~~f.~~ Loss of Offsite Power: ~~Division 11 for Unit 1 (Division 21 for Unit 2) ESF Bus Undervoltage-Start Motor-Driven Pump~~	2870 volts	≥ 2730 volts
f. ~~g.~~ Auxiliary Feedwater Pump Suction Pressure-Low (Transfer to Essential Service Water)	≥ 18.1 psia	≥ 17.4 psia
7. Automatic Opening of Containment Sump Suction Isolation Valves		
a. Automatic Actuation Logic and Actuation Relays	N.A.	≥ N.A.
b. RWST Level-Low-Low Coincident with Safety Injection	See Item 1. above for Safety Injection Trip Setpoints and Allowable Values.	

For SR markups, only the final number is shown, ie:
1- => SR 3.3.2.1 a-d
9- => SR 3.3.2.9, etc...

3.3.2-1

TABLE ~~4.3-2~~

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Feedwater Isolation, Start Diesel Generators, Containment Cooling Fans, Control Room Isolation, Phase "A" Isolation, Turbine Trip, Auxiliary Feedwater, Containment Vent Isolation and Essential Service Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3, 4
c. Containment Pressure-High-1	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Pressurizer Pressure-Low (Above P-11)	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Steam Line Pressure-Low (Above P-11)	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
2. Containment Spray								
a. Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3, 4
c. Containment Pressure-High 3	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
3. Containment Isolation								
a. Phase "A" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3, 4

Insert SR 3.3.2.10 Note A 27

3.3.2-1

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3.a. Phase "A" Isolation (continued)								
3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
b. Phase "B" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3, 4
3) Containment Pressure-High-3	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
LCO 3.3.6 c. Containment Vent Isolation								
3 ~~3~~ Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	SR 3.3.6.2-M(1)	SR 3.3.6.3-M(1)	SR 3.3.6.5 Q	1, 2, 3, 4
1 ~~2~~ Manual Phase "A" Isolation	See Item 3.a.1 above for all manual Phase "A" Isolation Surveillance Requirements.							
2 ~~3~~ Manual Phase "B" Isolation	See Item 3.b.1 above for all manual Phase "B" Isolation Surveillance Requirements.							
5 ~~4~~ Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
4. Steam Line Isolation								
a. Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3
c. Containment Pressure-High-2	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. ~~c~~ Steam Line Pressure-Low (Above P-11)	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

INSERT SR 3.3.2.10 NOTE (A27)

3.3.2-1

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Steam Line Isolation (continued)								
d2 ~~e.~~ Steam Line Pressure - Negative Rate - High (Below P-11)	1- S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	3
5. Turbine Trip and Feedwater Isolation								
a. Automatic Actuation Logic and Actuation Relay	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2
b. Steam Generator Water Level-High-High (P-14)	1- S	10-R	6-Q	N.A.	4- M(1)	5- M(1)	7- Q	1, 2
c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
6. Auxiliary Feedwater								
~~a. Manual Initiation~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~R~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~1, 2, 3~~ (LA15)
a ~~b.~~ Automatic Actuation Logic and Actuation Relay	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3
b. ~~c.~~ Steam Generator Water Level-Low-Low	1- S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e ~~d.~~ Undervoltage-RCP Bus	N.A.	10-R	N.A.	8-Q(3)	N.A.	N.A.	N.A.	1, 2
c ~~e.~~ Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
d ~~f.~~ Loss of Offsite Power Division 11 for Unit 1 (Division 21 for Unit 2) ESF Bus Undervoltage	N.A.	10-R	N.A.	3-M(2, 3)	N.A.	N.A.	N.A.	1, 2, 3, 4
f ~~g.~~ Auxiliary Feedwater Pump Suction Pressure-Low	1- S	10- R	2-M	N.A.	N.A.	N.A.	N.A.	1, 2, 3

Insert SR 3.3.2.10 Note (A27)

3.3.2-1

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. Automatic Opening of Containment Sump Suction Isolation Valves								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3, 4
b. RWST Level-Low-Low Coincident With Safety Injection	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
	See Item 1. above for all Safety Injection Surveillance Requirements							
LCO 3.3.5 8. Loss of Power								
a. ESF Bus Undervoltage	N.A.	R - SR 3.3.5.2	N.A	M(2, 3) - SR 3.3.5.1	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Grid Degraded Voltage	N.A.	R - SR 3.3.5.2	N.A.	M(3) - SR 3.3.5.1	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Feature Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Reactor Trip, P-4	N.A.	N.A.	N.A.	9- R	N.A.	N.A.	N.A.	1, 2, 3
c. Low-Low T_{avg}, P-12	N.A.	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

REV E

(A5) (31)

TABLE NOTATION

~~(1)~~ Each train shall be tested at least every ~~62~~ days on a STAGGERED TEST BASIS.

~~(2)~~ Undervoltage relay operability is to be verified independently. An inoperable channel may be bypassed for up to 2 hours for surveillance testing of the OPERABLE channel per Specification 4.3.2.1.

~~(3)~~ Setpoint verification is not applicable.

{SR 3.3.2.3 Note
SR 3.3.5.1 Note
SR 3.3.2.8 Note}

LCO 3.3.5 RA A.1 Note
LCO 3.3.2 RA F.1 Note 2

SR 3.3.2.9 Note ← INSERT 3.3-37A (A17)

Insert SR 3.3.2.10 Note (A27)

REV 0

REVISED PAGE INSERT

BRWD CTS MARKUPS

TABLE ~~4.3-1~~ 3.3.1-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

For SR markups, only the final number is shown, ie.;
1- => SR 3.3.1.1 and
7- => SR 3.3.1.7, etc...

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Manual Reactor Trip	N.A.	N.A.	N.A.	13- R(14) (10) (L29)	N.A.	1, 2, 3*, 4*, 5*
2. Power Range, Neutron Flux						
a. High Setpoint	1- S	~~2- D(2,4),~~ ~~3- M(3, 4)~~ ~~6- Q(4, 6),~~ ~~11 R(4, 5a)~~ (A4)	7- Q	N.A.	N.A.	1, 2
b. Low Setpoint	1- S	11- R(4)	8- Q	N.A.	N.A.	1###, 2
~~3.~~3a Power Range, Neutron Flux, High Positive Rate	N.A.	11- R(4)	7- Q	N.A.	N.A.	1, 2
~~4.~~3b Power Range, Neutron Flux, High Negative Rate	N.A.	11 R(4)	7 Q	N.A.	N.A.	1, 2
~~5.~~4 Intermediate Range, Neutron Flux	1- S	11 R(4, 5a)	8- Q	N.A.	N.A.	1###, 2
~~6.~~5 Source Range, Neutron Flux	1 S SR3.3.9.4	11 R(4, 5b) SR3.3.9.10	7- 8- Q(9) SR3.3.9.8	N.A.	N.A.	2##, 3, 4, 5
~~7.~~6 Overtemperature ΔT	1- S	10- R~~(13)~~ (A7)	7- Q	N.A.	N.A.	1, 2
~~8.~~7 Overpower ΔT	1- S	10- R	7- Q	N.A.	N.A.	1, 2
~~9.~~8 Pressurizer Pressure-Low (Above P-7)	1 S	10 R	7- Q	N.A.	N.A.	1
10. Pressurizer Pressure-High	1 S	10 R	7 Q	N.A.	N.A.	1, 2
11. Pressurizer Water Level-High (Above P-7)	1 S	10 R	7 Q	N.A.	N.A.	1

SR3.3.1.10 NOTE - This Surveillance shall include verification that the time constants are adjusted to the prescribed values. (A27)

Rev 0

3.3.1-1

TABLE ~~4.3-1~~ (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
~~12.~~ 10 Reactor Coolant Flow-Low	1-S	10-R	7 Q	N.A.	N.A.	1
~~13.~~ 14 Steam Generator Water Level-Low-Low	1-S	10-R	7 Q	N.A.	N.A.	1, 2
~~14.~~ 12 Undervoltage-Reactor Coolant Pumps (Above P-7)	N.A.	10-R	N.A.	9-Q(10)	N.A.	1
~~15.~~ 13 Underfrequency-Reactor Coolant Pumps (Above P-7)	N.A.	10 R	N.A.	9-Q(10)	N.A.	1
~~16.~~ 15 Turbine Trip (Above P-8)						
a. Emergency Trip Header Pressure	N.A.	10 R	N.A.	14-S/U(1, 10)	N.A.	1
b. Turbine Throttle Valve Closure	N.A.	10 R	N.A.	14-S/U(1, 10)	N.A.	1
~~17.~~ 16 Safety Injection Input from ESF	N.A.	N.A.	N.A.	13-R(10) L28	N.A.	1, 2
18. 11 Reactor Coolant Pump Breaker Position Trip (Above P-7)	N.A.	N.A.	N.A.	13-R(10) L28	N.A.	1
~~19.~~ 17 Reactor Trip System Interlocks						
a. ~~Intermediate Range~~ Source Block Neutron ~~Flux~~, P-6 A24	N.A.	11-R(4)	12-R	N.A.	N.A.	2**
b. Low Power Reactor Trips Block, P-7	N.A.	11-R(4)	12-R	N.A.	N.A.	1
c. Power Range Neutron Flux, P-8	N.A.	11-R(4)	12-R	N.A.	N.A.	1

SR 3.3.1-10 NOTE - THIS SURVEILLANCE shall INCLUDE VERIFICATION THAT THE TIME CONSTANTS ARE ADJUSTED TO THE prescribed values. (A27)

L03-1-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater (Continued)		
d. ~~Division 11 for Unit 1 (Division 21 for Unit 2) ESF Bus Undervoltage-Start Motor-Driven Pump~~ Loss of Offsite Power	2870 volts	≥ 2730 volts
e. Auxiliary Feedwater Pump Suction Pressure-Low (Transfer to Essential Service Water)	≥ 18.1 psia	≥ 17.4 psia
7. Automatic Opening of Containment Sump Suction Isolation Valves		
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
b. RWST Level-Low-Low Coincident with Safety Injection	46.7%	≥ 44.7% of instrument span

See Item 1. above for Safety Injection Trip Setpoints and Allowable Values.

For SR markup, only the final number is shown, i.e, 1- => SR 3.3.2.1 and 9- => SR 3.3.2.9, etc.

3.3.2-1

TABLE ~~4.3-2~~

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Feedwater Isolation, Start Diesel Generators, Containment Cooling Fans, Control Room Isolation, Phase "A" Isolation, Turbine Trip, Auxiliary Feedwater, Containment Vent Isolation and Essential Service Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	9- R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3, 4
c. Containment Pressure-High-1	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
d. Pressurizer Pressure-Low (Above P-11)	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Steam Line Pressure-Low (Above P-11)	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
2. Containment Spray								
a. Manual Initiation	N.A.	N.A.	N.A.	9- R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3, 4
c. Containment Pressure-High-3	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
3. Containment Isolation								
a. Phase "A" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	9- R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3, 4

INSERT SR 3.3.2.10 NOTE

Δ27

LCO 3.3.2

3.3.2-1

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3.a. Phase "A" Isolation (continued)								
3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
b. Phase "B" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3, 4
3) Containment Pressure-High-3	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
~~e.~~ Containment Vent Isolation								
3 ~~1~~ Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A. SR3.3.6.2	- M(1) SR3.3.6.3	M(1) SR3.3.6.5	Q	1, 2, 3, 4
1 ~~2~~ Manual Phase "A" Isolation	See Item 3.a.1 above for all manual Phase "A" Isolation Surveillance Requirements.							
2 ~~3~~ Manual Phase "B" Isolation	See Item 3.b.1 above for all manual Phase "B" Isolation Surveillance Requirements.							
5 ~~4~~ Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
4. Steam Line Isolation								
a. Manual Initiation	N.A.	N.A.	N.A.	9-R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3
c. Containment Pressure-High-2	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
~~d.~~ d. Steam Line Pressure-Low (Above P-11)	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

LCO 3.3.2

LCO 3.3.2

REVISED

INSERT SR3.3.2.10 Note A27

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Steam Line Isolation (continued)								
~~d.2.e.~~ Steam Line Pressure - Negative Rate - High (Below P-11)	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	3
5. Turbine Trip and Feedwater Isolation								
a. Automatic Actuation Logic and Actuation Relay	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2
b. Steam Generator Water Level-High-High (P-14)	1-S	10-R	6-Q	N.A.	4-M(1)	5-M(1)	7-Q	1, 2
c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
6. Auxiliary Feedwater								
~~a. Manual Initiation~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~R~~	~~N.A.~~	~~N.A.~~	~~N.A~~	~~1, 2, 3~~ (LA 15)
a ~~b.~~ Automatic Actuation Logic and Actuation Relay	N.A.	N.A.	N.A.	N.A.	4-M(1)	5-M(1)	7-Q	1, 2, 3
b ~~c.~~ Steam Generator Water Level-Low-Low	1-S	10-R	6-Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e ~~d.~~ Undervoltage-RCP Bus	N.A.	10-R	N.A.	8-Q(3)	N.A.	N.A.	N.A.	1, 2
c ~~e.~~ Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
d ~~f.~~ ~~Division II for Unit 1 (Division 21 for Unit 2)~~ Loss of Offsite Power- ESF Bus Undervoltage	N.A.	10-R	N.A.	3-M(2, 3)	N.A.	N.A.	N.A.	1, 2, 3, 4
f ~~g.~~ Auxiliary Feedwater Pump Suction Pressure-Low	1-S	10-R	2 M	N.A.	N.A.	N.A.	N.A.	1, 2, 3

INSERT 3.3.2.10 Note (A27)

Rev 0

LCO 3.3.2

Rev 0

TABLE ~~4.3-2~~ (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. Automatic Opening of Containment Sump Suction Isolation Valves								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	4- M(1)	5- M(1)	7- Q	1, 2, 3, 4
b. RWST Level-Low-Low Coincident With Safety Injection	1- S	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
	See Item 1. above for all Safety Injection Surveillance Requirements							
LCO 3.3.5 8. Loss of Power								
a. ESF Bus Undervoltage	N.A.	R-SR 3.3.5.2	N.A	M(2, 3)-SR 3.3.5.1	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Grid Degraded Voltage	N.A.	R-SR 3.3.5.2	N.A.	M(3)-SR 3.3.5.1	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Feature Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Reactor Trip, P-4	N.A.	N.A.	N.A.	9- R	N.A.	N.A.	N.A.	1, 2, 3
c. Low-Low T_{avg}, P-12	N.A.	10- R	6- Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

REV E

TABLE NOTATION

(A5) (31)

(1) Each train shall be tested at least every 62 days on a STAGGERED TEST BASIS.
(2) Undervoltage relay operability is to be verified independently. An inoperable channel may be bypassed for up to 2 hours for surveillance testing of the OPERABLE channel per Specification 4.3.2.1.
(3) Setpoint verification is not applicable.

<SR 3.3.5.1 Note>
<SR 3.3.2.3 Note>
<SR 3.3.2.8 Note>

INSERT SR 3.3.2.10 Note (A27)

<LCO 3.3.5 RA A.1 Note>
<LCO 3.3.2 RA F.1 Note 2>

SR 3.3.2.9 NOTE ← INSERT 3.3-37A (A17)

REV 0 5-3027 LCO 3.3.2

CTS DOCs

A_{22} By letter dated October 6, 1998, ComEd received License Amendment 104 (Byron) / 96 (Braidwood) which changed CTS Table 3.3-4 Functional Unit 6.g, Auxiliary Feedwater Pump Suction Pressure - Low, Trip Setpoint and Allowable Value (and LCO 3.7.1.3 to raise the CST level, which is addressed in another ITS Section). The clouded portions of the CTS markup reflect this change. This change was requested as a result of ComEd identifying an operability concern involving the postulated failure of Safety Category II CST piping in the turbine building during a seismic event. This postulated failure of the non-seismic piping could eventually result in atmospheric pressure (14.7 psia) in the AF suction line. This would minimize the potential for an automatic switch over of the AF water supply from the CST to SX water, since the previous Trip Setpoint value was 14.1 psia (1.22" Hg vac). In response to the operability concern, the minimum administrative CST level and the physical height of the CST were raised. Additionally, the above mentioned CTS License Amendment increased the AF pump Suction Pressure - Low Trip Setpoint and Allowable Value to greater than or equal to 18.1 psia and 17.4 psia, respectively, as well as increasing the minimum required CST level. These setpoints ensure that the automatic switch over of the AF supply would occur when required.

A_{23} CTS Table 3.3-1 Actions 10 and 13 are revised (see also DOC L_1) to include a Note precluding a MODE change into MODE 5 with the Rod Control System capable of rod withdrawal or all rods not fully inserted for ITS Functions 18, 19, and 20. This Note is inserted in conjunction with a revision to LCO 3.0.4 (refer to Section 3.0 DOC L_5). As a result of the change to LCO 3.0.4, all ITS Actions were evaluated for individual acceptability of this change. Based on this evaluation where MODE change restrictions were determined to be required in MODES 5 and 6, or in MODES 1, 2, 3, and 4 during unit shutdown, Notes containing the appropriate MODE change restrictions are added to the individual Specifications. The Note that is added to ITS 3.3.1 Condition C is a result of this evaluation. Since the technical aspects of this change are addressed in Section 3.0, this change is considered administrative in this Section.

A_{24} CTS and STS use the term "Intermediate Range Neutron Flux" for the P-6 RTS interlock. In ITS, the P-6 interlock is referred to as "Source Range Block Permissive." This change was made so that the TS agree with plant design and terminology. The Byron/Braidwood Main Control Room annunciator and Bypass Permissive Panel windows, as well as plant procedures, reference "Source Range Block Permissive" for the P-6 interlock. This change is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS.

A_{25} CTS Table 2.2-1 for Functional Unit 19.b (P-7) lists the inputs into P-7, namely Functional Unit 19.b.1 (P-10) and Functional Unit 19.b.2 (P-13). Functional Unit 19.b.1 and Functional Unit 19.b.2 have been deleted since they are redundant to CTS Table 2.2-1 Functional Units 19.d (P-10) and 19.e (P-13). The Allowable Values in CTS Table 2.2-1 for Functional Unit 19.d and Functional Unit 19.e have been retained in ITS Table 3.3.1-1 for Function 17.d (P-10) and Function 17.e (P-13). During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified. The change is consistent with NUREG-1431.

A_{26} In CTS Table 3.3-3, Functional Unit 1.d for "Pressurizer Pressure-Low (Above P-11)" and Functional Units 1.e and 4.d for "Steam Line Pressure-Low (Above P-11)" have an Applicability of Modes 1, 2, and 3# where footnote (#) states that the trip function may be blocked in Mode 3 below the P-11 setpoint. Functional Unit 4.e for "Steam Line Pressure Negative Rate - High (below P-11)" has an Applicability of Mode 3## where footnote (##) states that the trip function is automatically blocked above P-11 and may be blocked below P-11 when the steam line pressure-low SI is not blocked.

In ITS Table 3.3.2-1, Function 1.d for "Pressurizer Pressure - Low" and Function 1.e for "Steam Line Pressure - Low" have an Applicability of Modes 1, 2, and 3(a) where footnote (a) states above the P-11 interlock. Function 4.d.1 for "Steam Line Pressure - Low" has an Applicability of Modes 1, 2(g), and 3(a)(f)(g) where footnote (a) states above the P-11 interlock, footnote (g) states except when all MSIVs and MSIV bypass valves are closed, and footnote (f) states below the P-11 interlock with Function 4.d.2 not enabled. Function 4.d.2 for "Steam Line Pressure Negative Rate - High" has an Applicability of Mode 3(d)(g) where footnote (d) states below the P-11 interlock with Function 4.d.1 blocked.

This change is necessary due to the reformatting of the requirements contained in the ITS. This change is perceived as the intent of the CTS wording, is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS unless otherwise noted.

A_{27} CTS Table 4.3-1 Functional Units 7 through 16, and CTS Table 4.3-2 Functional Units 1 through 7 and 9, have been revised by a Note stating, "This Surveillance shall include verification that the time constants are adjusted to the prescribed values." This Note is consistent with current operating practices and is therefore consistent with NUREG-1431.

LCO MARKUPS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.9	----------NOTE---------- Verification of setpoint is not required. ---------- Perform TADOT.	(B1) ~~[92]~~ days
SR 3.3.1.10	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	(B1) ~~[18]~~ months
SR 3.3.1.11	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	(B1) ~~[18]~~ months
SR 3.3.1.12	----------NOTE---------- This Surveillance shall include verification of Reactor Coolant System resistance temperature detector bypass loop flow rate. ---------- Perform CHANNEL CALIBRATION.	(P45) [18] months
SR 3.3.1.~~13~~ 12	Perform COT.	18 months

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT (a)
15 ~~16~~. Turbine Trip						
a. ~~Low Fluid Oil~~ Emergency Trip Header Pressure (per train)	1 (d)	3	L	SR 3.3.1.10 SR 3.3.1.~~15~~ 14	≥ ~~[750]~~ 815 psig	≥ [800] psig
b. Turbine ~~Stop~~ Throttle Valve Closure (per train)	1 (d)	4	L	SR 3.3.1.10 SR 3.3.1.~~15~~ 14	≥ ~~[1]~~% open	≥ [1]% open
16 ~~17~~. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	M	SR 3.3.1.~~14~~ 13	NA	NA
17 ~~18~~. Reactor Trip System Interlocks						
a. ~~Intermediate~~ Source Range ~~Neutron Flux~~, P-6	2 (e)	2	O	SR 3.3.1.11 SR 3.3.1.~~13~~ 12	≥ ~~[6E-11]~~ amp	≥ [1E-10] amp
b. Low Power Reactor Trips Block, P-7	P-10 Input 1	3	P	SR 3.3.1.11 SR 3.3.1.~~12~~ 12	NA	NA
	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.~~13~~ 12	≤ ~~[50.2]~~% RTP 32.1	≤ [48]% RTP
d. Power Range Neutron Flux, P-9	1	4	P	SR 3.3.1.11 SR 3.3.1.13	≤ ~~[52.2]~~% RTP 7.9	≤ [50]% RTP
~~d~~ e. Power Range Neutron Flux, P-10	1,2	3	O	SR 3.3.1.11 SR 3.3.1.~~13~~ 12	≥ ~~[7.9]~~% RTP and ≤ ~~[43.2]~~% RTP 12.1	≤ [10]% RTP
~~e~~ f. Turbine Impulse Pressure, P-13	1	2	P	~~[SR 3.3.1.11]~~ SR 3.3.1.10 SR 3.3.1.~~13~~ 12	≤ ~~[12.2]~~% turbine power	≤ [10]% turbine power

(continued)

(a) Reviewer's Note: Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

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

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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.2.~~X~~ 8 ----------NOTE---------- Verification of relay setpoints not required. ---------- Perform TADOT.	~~[92]~~ days
SR 3.3.2.~~8~~ 9 (P53) ----------NOTE---------- Verification of setpoint not required ~~for manual initiation functions~~. ---------- Perform TADOT.	~~[18]~~ months
SR 3.3.2.~~9~~ 10 ----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ---------- Perform CHANNEL CALIBRATION.	~~[18]~~ months
SR 3.3.2.~~10~~ 12 (P19) ~~----------NOTE----------~~ ~~Not required to be performed for the turbine driven AFW pump until [24] hours after SG pressure is ≥ [1000] psig.~~ ~~----------~~ Verify ESFAS RESPONSE TIMES are within limit.	~~[18]~~ months on a STAGGERED TEST BASIS

SR 3.3.2.11 Verify ESFAS RESPONSE TIMES are within limits. 18 months (continued)

(P33)

Rev E

Rev 0

Rev E

LCO JFDS

P_{55} ITS SR 3.3.3.2 Note for PAM Instrumentation exempts neutron detectors from a Channel Calibration. This Note is revised to replace "neutron detectors" with "radiation detectors." None of the PAM Instrumentation listed either in CTS Table 3.3-10 or in ITS Table 3.3.3-1 contains any neutron detectors. Revision of this note is consistent with the plant design and consistent with the general intent of NUREG-1431.

P_{56} ITS 3.3.1 Conditions O and P, and ITS LCO 3.3.2 Condition L is revised to reflect Condition entry based on "one or more" inoperable interlock channels. This is consistent with the CTS allowance for these actions.

Rev E

P_{57} ITS Table 3.3.1-1 Function 17.b for the P-7 Low Power Reactor Trip Block is split into two line items in order to reflect the (as in CTS) the difference in the number of channels for this interlock depending on whether referring to the P-10 input into P-7, or the P-13 input into P-7.

P_{58} NUREG Table 3.3.3.1-1 Function 18.d (P-9 Interlock) is deleted The Byron and Braidwood design does not include this interlock.

Rev Q

P_{59} Not used.

P_{60} This Note is inserted in conjunction with adopting NUREG LCO 3.0.4 (refer to NUREG LCO 3.0.4 Reviewer's Note). As a result of adopting LCO 3.0.4, all ITS Actions were evaluated for individual acceptability of any increased flexibility beyond CTS allowances. Based on this evaluation where MODE change restrictions were determined to be required in MODES 5 and 6, or in MODES 1, 2, 3, and 4 during unit shutdown, Notes containing the appropriate MODE change restrictions are added to the individual Specifications. The Note ITS 3.3.1 Condition C is added as a result of this evaluation.

Rev E.

BASES MARKUPS

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.9 (continued)

The SR is modified by a Note that excludes verification of setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.

SR 3.3.1.10

(B1) A CHANNEL CALIBRATION is performed every ~~[18]~~ months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the ~~unit~~ plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the ~~drift allowance used in~~ the setpoint methodology.

(P3) (P1) calculated normal uncertainty consistent with

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.

SR 3.3.1.11

SR 3.3.1.11 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every ~~[18]~~ 24 months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. The CHANNEL CALIBRATION for the source range, ~~and~~ intermediate range, neutron detectors consists of obtaining the detector

(P60) and power range (P1)

INSERT B 3.3-56A

(continued)

REV E

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.~~8~~ 9

SR 3.3.2.~~8~~ 9 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and ~~AFW pump start on trip of all MFW pumps.~~ It is performed every [18] months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT ~~for manual initiation functions~~. The ~~manual initiation~~ Functions have no associated setpoints.

SR 3.3.2.~~9~~ 10

SR 3.3.2.~~9~~ is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every [18] months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the ~~unit~~ plant specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of [18] months is based on the assumption of an [18] month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

SR 3.3.2.~~10~~ 11 and SR 3.3.2.12

This ~~SR~~ ESF SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the

(continued)

BASES JFDS

P_{57} Condition B of ITS LCO 3.3.2 and associated Bases were revised to replace the reference to "trains" with "channels" and to replace the references to "channels" to "switches." These changes are consistent with the SI, Containment Spray, Phase A Isolation, and Phase B Isolation manual initiation design descriptions.

P_{58} Consistent with the addition of ITS SR 3.3.2.11, ITS SR 3.3.2.11 Bases are revised to reflect ITS SR 3.3.2.11 and ITS SR 3.3.2.12. All Response Time testing is performed on an 18 month staggered test basis, with the exception of the motor-driven pump auxiliary feedwater start on bus 141(241) undervoltage.

Rev Q

P_{59} Not used.

P_{60} ITS SR 3.3.1.11 Bases is revised to add "...and obtaining the detector plateau curves, evaluating those curves, and comparing the curves to the manufacturer's data." This change provides a more accurate description of how this SR is accomplished.

P_{61} NUREG-1431 SR 3.3.1.16 Bases states, "The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core)." The statement, "(i.e., control and shutdown rods fully inserted in the reactor core)" is being deleted.

The ITS Definition for Reactor Trip System (RTS) Response Time specifically states, "The RTS Response Time shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor *until loss of stationary gripper coil voltage.*" This conflicts with the example provided in the SR, which identifies the final measurement state as "*rods fully inserted.*" When the stationary gripper coil voltage is lost, the control rods are not yet fully inserted. therefore, this change eliminates potential confusion, and establishes consistency with the Definition.

Rev E

P_{62} ITS SR 3.3.3.2 Note for PAM Instrumentation exempts neutron detectors from a Channel Calibration. This Note is revised to replace "neutron detectors" with "radiation detectors." None of the PAM Instrumentation listed either in CTS Table 3.3-10 or in ITS Table 3.3.3-1 contains any neutron detectors. Revision of this note is consistent with the plant design and consistent with the general intent of NUREG-1431.

ITS SECTION 3.6

BYRON ITS

BASES

ACTIONS (continued)

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

RAI 3.6.1-09 Rev Q

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6.2

Operating each containment cooling train fan unit (in slow speed) for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 31 day Frequency was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of significant degradation of the containment cooling train occurring between surveillances. It has also been shown to be acceptable through operating experience.

SR 3.6.6.3

Verifying that each containment cooling train SX cooling flow rate to each cooling unit is ≥ 2660 gpm provides assurance that the design flow rate assumed in the safety analyses will be achieved. The Frequency was developed considering the known reliability of the SX System, the two train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

SR 3.6.6.4

Verifying each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head (resulting in 265 psig discharge pressure) ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by SECTION XI of the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by abnormal performance. The Frequency of the SR is in accordance with the Inservice Testing Program.

BRWD ITS

BASES

ACTIONS (continued)

D.1 and D.2

If the inoperable containment air lock cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program.

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria which is applicable to SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the combined Type B and C containment leakage rate.

R4I 3.6.1-09
Rev 0

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6.2

Operating each containment cooling train fan unit (in slow speed) for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 31 day Frequency was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of significant degradation of the containment cooling train occurring between surveillances. It has also been shown to be acceptable through operating experience.

SR 3.6.6.3

Verifying that each containment cooling train SX cooling flow rate to each cooling unit is ≥ 2660 gpm provides assurance that the design flow rate assumed in the safety analyses will be achieved. The Frequency was developed considering the known reliability of the SX System, the two train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

SR 3.6.6.4

Verifying each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head (resulting in 265 psig discharge pressure) ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by SECTION XI of the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by abnormal performance. The Frequency of the SR is in accordance with the Inservice Testing Program.

BASES MARKUPS

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

Maintaining containment air locks OPERABLE requires compliance with the leakage rate test requirements of the 10 CFR 50, Appendix J (Ref. 1), as modified by approved exemptions. This SR reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during initial air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by Appendix J (Ref. 1), as modified by approved exemptions. Thus, SR 3.0.2 (which allows Frequency extensions) does not apply.

Insert B3.6-27A

The SR has been modified by two Notes. Note 1 states that an inoperable air lock door does not invalidate the previous successful performance of the overall air lock leakage test. This is considered reasonable since either air lock door is capable of providing a fission product barrier in the event of a DBA. Note 2 has been added to this SR requiring the results to be evaluated against the acceptance criteria of SR 3.6.1.1. This ensures that air lock leakage is properly accounted for in determining the overall containment leakage rate.

Insert B3.6-27B

combined Type B and C

Rat 2.4 1.09

SR 3.6.2.2

The air lock interlock is designed to prevent simultaneous opening of both doors in a single air lock. Since both the inner and outer doors of an air lock are designed to withstand the maximum expected post accident containment pressure, closure of either door will support containment OPERABILITY. Thus, the door interlock feature supports containment OPERABILITY while the air lock is being used for personnel transit in and out of the containment. Periodic testing of this interlock demonstrates that the interlock will function as designed and that simultaneous opening of the inner and outer doors will not inadvertently occur. Due to the purely mechanical nature of this interlock, and given that the interlock mechanism is not normally challenged when the containment air lock door is ~~opened, this test is only required to be performed upon entering or exiting a containment air lock but is not required more frequently~~

Insert B3.6-27C

(continued)

Rev 2

BASES INSERT(S)
SECTION 3.6

Bases 3.6.2

INSERT B 3.6-27A (C_1)

... Containment Leakage Rate Testing Program.

CAI 3.6.1-07
Rev 0

INSERT B 3.6-27B (C_1)

... which is applicable to ...

INSERT B 3.6-27C (C_2)

CAI 3.6.2-09

... used for entry and exit (procedures require strict adherence to single door opening), this test is only required to be performed every 24 months. The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage, and the potential for loss of containment OPERABILITY if the Surveillance were performed with the reactor at power. The 24 month Frequency for the interlock is justified based on generic operating experience.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.~~6A~~.2

Operating each ~~required~~ containment cooling train fan unit (in slow speed) for ≥ 15 minutes ensures that all trains are OPERABLE and that all associated controls are functioning properly. It also ensures that blockage, fan or motor failure, or excessive vibration can be detected for corrective action. The 31 day Frequency was developed considering the known reliability of the fan units and controls, the two train redundancy available, and the low probability of significant degradation of the containment cooling train occurring between surveillances. It has also been shown to be acceptable through operating experience.

SR 3.6.~~6A~~.3

Verifying that each ~~required~~ containment cooling train ~~ESW~~ SX cooling flow rate to each cooling unit is ≥ [~~700~~] 2660 gpm provides assurance that the design flow rate assumed in the safety analyses will be achieved ~~(Ref. 3)~~. The Frequency was developed considering the known reliability of the ~~Cooling Water~~ SX System, the two train redundancy available, and the low probability of a significant degradation of flow occurring between surveillances.

SR 3.6.~~6A~~.4

Verifying each containment spray pump's developed head at the flow test point (resulting in 265 psig discharge pressure) is greater than or equal to the required developed head ensures that spray pump performance has not degraded during the cycle. Flow and differential pressure are normal tests of centrifugal pump performance required by Section XI of the ASME Code (Ref. 8). Since the containment spray pumps cannot be tested with flow through the spray headers, they are tested on recirculation flow. This test confirms one point on the pump design curve and is indicative of overall performance. Such inservice tests confirm component OPERABILITY, trend performance, and detect incipient failures by abnormal performance. The Frequency of the SR is in accordance with the Inservice Testing Program.

(continued)

ITS SECTION 3.7

BYRON CTS MARKUPS

~~3.7 PLANT SYSTEMS~~

LCO 3.7.12
Section 5.5.11

3.7.12 ~~3/4.7.7~~ NON-ACCESSIBLE AREA EXHAUST FILTER PLENUM VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.12 ~~3.7.7~~ Three ~~independent~~ non-accessible area exhaust filter plenums ~~(with one plenum capacity each)~~ shall be OPERABLE with two ~~plenums~~ aligned for operation and one ~~plenum~~ in standby.

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

ACTION:

CTS A / COND B: With one non-accessible area exhaust filter plenum inoperable, restore the inoperable plenum to OPERABLE status within 7 days; or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. ~~During testing of any inoperable plenum, it is acceptable to place one of the two OPERABLE plenums in standby.~~

SURVEILLANCE REQUIREMENTS

~~4.7.7~~ Each non-accessible area exhaust filter plenum shall be demonstrated OPERABLE:

SR 3.7.12.1 a. ~~At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and~~ verifying that operation occurs for at least 15 minutes;

SR 3.7.12.2 Insert 3.7-19c

b. At least once per 18 months, or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the exhaust filter plenum by:

1) Verifying that the exhaust filter plenum satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% when using the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the flow rate is between 55,869 cfm and 68,200 cfm for the train;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample from each bank of adsorbers of the train obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for methyl iodide penetration of less than 1% when tested at the temperature of 30°C and a relative humidity of 70%;

Addressed in Section 5.0
See DOCs for Section 5.0

BRWD CTS MARKUPS

A1 A21

LCO 3.7.12
Section 5.5.11

PLANT SYSTEMS

3.7.12

3/4 7.7 NON-ACCESSIBLE AREA EXHAUST FILTER PLENUM VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

Ventilation Systems trains

LCO 3.7.12 A30 LA11

3.7.7 Three independent non-accessible area exhaust filter plenums (50% capacity each) shall be OPERABLE with two plenums aligned for operation and one plenum in standby.

LA11 TRAINS TRAIN A44

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

ACTION:

Ventilation System train

With one non-accessible area exhaust filter plenum inoperable, restore the inoperable plenum to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. During testing of any inoperable plenum, it is acceptable to place one of the two OPERABLE plenums in standby.

A44 LA23

SURVEILLANCE REQUIREMENTS

Ventilation System trains

4.7.7 Each non-accessible area exhaust filter plenum shall be demonstrated OPERABLE:

SR 3.7.12.1 a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that operation occurs for at least 15 minutes;

LA16 LA18

SR 3.7.12.2 INSERT 3.7-19B A20

b. At least once per 18 months, or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the exhaust filter plenum by:

1) Verifying that the exhaust filter plenum satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 1% when using the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the flow rate is 66,900 cfm ±10% for the train and 22,300 cfm ±10% per bank;

2) Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample from each bank of adsorbers of the train obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for methyl iodide penetration of less than 1% when tested at the temperature of 30°C and a relative humidity of 70%;

ADDRESSED in Section 5.0
See DCs for Section 5.0

*Not applicable prior to December 1, 1987.

A30

ZEJ D

CTS DOCs

A_{42} CTS LCO 3.7.1.1 Action a requires restoration of an inoperable MSSV. NUREG-1431 does not contain the restoration action, but rather relies upon the guidance of LCO 3.0.2 which allows the restoration of a parameter within the time limits of the specified Required Actions. The CTS has been revised to delete this restoration action since the option to restore an inoperable component currently exists in the ITS. During this reformatting, no technical changes (either actual or interpretational) were made to the TS, unless identified and justified. The change is consistent with NUREG-1431 as modified by WOG-83.

A_{43} CTS SR 4.7.3.1 requires verification that each valve (manual, power-operated, or automatic) servicing safety-related ... is in its correct position. The Byron and Braidwood CC System does not include any automatic valves. Therefore, the CTS Reference to "automatic" does not have any technical meaning and ITS SR 3.7.7.1 does not include the words automatic. Because the ITS SR accurately reflects the design and intent of the CTS requirement, no technical changes were made to the TS, unless identified and justified.

A_{44} By letter dated October 15, 1998, a revision to the Byron and Braidwood CTS for the Nonaccessible Area Exhaust Filter Plenum Ventilation System was received (Amendment # 105 for Byron / Amendment # 97 for Braidwood). Any revisions to the request as a result of the conversion to the ITS are annotated and justified separately.

A_{45} A note is added to CTS LCO 3.7.7 (ITS LCO 3.7.12) that allows the Nonaccessible Area Exhaust Filter Plenum Ventilation System alignment requirement to be suspended intermittently under administrative controls for purposes of train realignment. The Nonaccessible Area Exhaust Filter Plenum Ventilation System is required to have two trains aligned for operation and one train aligned in standby because the system design cannot support operation of three trains simultaneously. This note is added to clarify that during realignment of the system there may be a short time period when three inlet dampers may be open or two inlet dampers may be closed. This is an administrative change with no impact on safety because the clarification provided by the Note is consistent with the existing interpretation of the CTS.

ITS SECTION 3.8

BYRON ITS

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.10

This Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine/generator response under the simulated test conditions. This test simulates a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide for DG damage protection. While the DG is not expected to experience this transient during an event and continues to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

The 18 month Frequency is consistent with the recommendation of Regulatory Guide 1.9 (Ref. 3) and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by two Notes. Note 1 states that momentary transients above the stated voltage limit immediately following a load rejection (i.e., the DG full load rejection) do not invalidate this test. The momentary transient is that which occurs immediately after the circuit breaker is opened, lasts a few milliseconds, and may or may not be observed on voltage recording or monitoring instrumentation. The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbation to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems.

BRWD ITS

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.10

This Surveillance demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine/generator response under the simulated test conditions. This test simulates a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide for DG damage protection. While the DG is not expected to experience this transient during an event and continues to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

The 18 month Frequency is consistent with the recommendation of Regulatory Guide 1.9 (Ref. 3) and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by two Notes. Note 1 states that momentary transients above the stated voltage limit immediately following a load rejection (i.e., the DG full load rejection) do not invalidate this test. The momentary transient is that which occurs immediately after the circuit breaker is opened, lasts a few milliseconds, and may or may not be observed on voltage recording or monitoring instrumentation. The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbation to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems.

RAI 3.8.1-21 Rev Q

LRNI 3.8.1-21 Revc

BASES MARKUPS

INSERT B 3.8-23A (P_{40})

Note 1 states that momentary transients above the stated voltage limit immediately following a load rejection (i.e., the DG full load rejection) do not invalidate this test. The momentary transient is that which occurs immediately after the circuit breaker is opened, lasts a few milliseconds, and may or may not be observed on voltage recording or monitoring instrumentation.

ITS SECTION 3.9

BYRON ITS

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

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

APPLICABILITY: MODE 6.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

LCO 3.9.6 Two RHR locps shall be OPERABLE, and one RHR loop shall be in operation.

---NOTE---

One required RHR loop may be removed from operation and considered OPERABLE:

a. To support filling and draining the reactor cavity when aligned to, or during transitioning to or from, the refueling water storage tank provided the required RHR loop is capable of being realigned to the Reactor Coolant System (RCS); or

b. To support required testing provided the required RHR loop is capable of being realigned to the RCS.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more RHR loops inoperable.	A.1	Initiate action to restore RHR loop(s) to OPERABLE status.	Immediately
	OR		
	A.2	Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately

(continued)

BASES

LCO

The LCO requires that a minimum boron concentration be maintained in all filled portions of the RCS, the refueling canal, and the refueling cavity, that are hydraulically coupled to the reactor core, while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a $k_{eff} \leq 0.95$. In MODES 1 and 2 with $k_{eff} \geq 1.0$, LCO 3.1.4, "Rod Group Alignment Limits," LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure an adequate amount of negative reactivity is available to shutdown the reactor. In MODE 2 with $k_{eff} < 1.0$ and MODES 3, 4, and 5, LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," ensures that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

Rev 0

ACTIONS

A.1, A.2, and A.3

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO.

12AI3.7.1-02

BASES

ACTIONS

A.1 and A.2

With one or more RHR loops inoperable, the RHR System may not be capable of removing decay heat and mixing the borated coolant. Therefore, action shall be immediately initiated and continued until the required number of RHR loops are restored to OPERABLE status or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

B.1, B.2, and B.3

If no RHR loop is in operation, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations can occur by the addition of water with a lower boron concentration than that contained in the RCS. Therefore, actions that would result in a reduction in the coolant boron concentration must be suspended immediately.

In addition, with no forced circulation, any decay heat removal occurs by ambient losses only. Therefore, action shall be initiated immediately to restore one RHR loop to operation. Once initiated, actions shall continue until one RHR loop has been restored to operation.

BRWD ITS

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

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

APPLICABILITY: MODE 6.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

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

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation - Low Water Level

LCO 3.9.6 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

---NOTE---

One required RHR loop may be removed from operation and considered OPERABLE:

a. To support filling and draining the reactor cavity when aligned to, or during transitioning to or from, the refueling water storage tank provided the required RHR loop is capable of being realigned to the Reactor Coolant System (RCS); or

b. To support required testing provided the required RHR loop is capable of being realigned to the RCS.

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more RHR loops inoperable.	A.1 Initiate action to restore RHR loop(s) to OPERABLE status. OR A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately Immediately

(continued)

BASES

LCO

The LCO requires that a minimum boron concentration be maintained in all filled portions of the RCS, the refueling canal, and the refueling cavity, that are hydraulically coupled to the reactor core, while in MODE 6. The boron concentration limit specified in the COLR ensures that a core k_{eff} of ≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a $k_{eff} \leq 0.95$. In MODES 1 and 2 with $k_{eff} \geq 1.0$, LCO 3.1.4, "Rod Group Alignment Limits," LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure an adequate amount of negative reactivity is available to shutdown the reactor. In MODE 2 with $k_{eff} < 1.0$ and MODES 3, 4, and 5, LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," ensures that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

Rev 0

ACTIONS

RAI 3.9.1-02

A.1, A.2, and A.3

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO.

BASES

ACTIONS

A.1 and A.2

With one or more RHR loops inoperable, the RHR System may not be capable of removing decay heat and mixing the borated coolant. Therefore, action shall be immediately initiated and continued until the required number of RHR loops are restored to OPERABLE status or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

B.1, B.2, and B.3

If no RHR loop is in operation, there will be no forced circulation to provide mixing to establish uniform boron concentrations. Reduced boron concentrations can occur by the addition of water with a lower boron concentration than that contained in the RCS. Therefore, actions that would result in a reduction in the coolant boron concentration must be suspended immediately.

In addition, with no forced circulation, any decay heat removal occurs by ambient losses only. Therefore, action shall be initiated immediately to restore one RHR loop to operation. Once initiated, actions shall continue until one RHR loop has been restored to operation.

BYRON CTS MARKUPS

3.9 ~~3/4.9~~ REFUELING OPERATIONS

LCO 3.9.1
LCO 3.9.2

3.9.1 ~~3/4.9.1~~ BORON CONCENTRATION

A1

LIMITING CONDITION FOR OPERATION

LCO 3.9.1 The boron concentration ~~of all filled portions~~ of the Reactor Coolant System and the refueling canal shall be maintained ~~uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:~~ within the limit specified in the COLR.

~~a. A K_{eff} of 0.95 or less, or~~

~~b. 1)# A boron concentration of greater than or equal to 2000 ppm.~~

~~2)** A boron concentration of greater than or equal to 2300 ppm.~~

APPLICABILITY: MODE 6.

ACTION:

Cond A

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate action to restore boron concentration to within limits. ~~and continue boration at greater than or equal to 30 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2000 ppm (2300 ppm), whichever is the more restrictive.~~

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

~~a. Removing or unbolting the reactor vessel head, and~~

b. Withdrawal of any full-length control rod in excess of 57 steps (approximately 3 feet) from its fully inserted position within the reactor vessel.

SR 3.9.1.1 ~~4.9.1.1~~ The boron concentration of the Reactor Coolant System and the refueling canal and the refueling cavity shall be ~~determined by chemical analysis~~ within the limit specified in the COLR at least once per 72 hours.

SR 3.9.2.1 ~~4.9.1.3~~ Valves ~~CV1116, CV8428, CV8441, CV8435, and CV8439~~ shall be verified closed and secured in position ~~by mechanical stops or by removal of air or electrical power~~ at least once per 31 days.

LCO 3.9.2 ACTIONS NOTE COND A — INSERT 3.9-1A

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*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

#Not applicable to Unit 1. Applicable to Unit 2 until the completion of cycle 5.

**Applicable to Unit 1. Not applicable to Unit 2 until after cycle 5.

Rev 0

3.9 REFUELING OPERATIONS

3.9.6 LOW WATER LEVEL — Residual Heat Removal (RHR) and Coolant Circulation —

(A.1)

LIMITING CONDITION FOR OPERATION

LCO 3.9.6 ~~3.9.8~~ Two residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation.

LCO Note ← INSERT 3.9-10B — (L11)

APPLICABILITY: MODE 6, when the water level above the top of the reactor vessel flange is less than 23 feet.

ACTION:

Cond A ~~a.~~ With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or establish greater than or equal to 23 feet of water above the reactor vessel flange. ~~as soon as possible~~ immediately initiate action to (M7) — immediately (M4)

Cond B ~~b.~~ With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

RAI 3.9.6-04 REV I

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1 ~~4.9.8~~ At least once per 12 hours one RHR loop shall be verified in operation and circulating coolant at a flowrate of greater than or equal to 1000 gpm ~~with~~ ~~RCS temperature less than or equal to 140°F~~ (LA10)

SR 3.9.6.2 ← INSERT 3.9-10A — (M5)

LCO 3.9.6

INSERT 3.9-10A (M_5)

SURVEILLANCE		FREQUENCY
SR 3.9.6.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days

INSERT 3.9-10B (L_{11})

---NOTE---

One required RHR loop may be removed from operation and considered OPERABLE:

a. To support filling and draining the reactor cavity when aligned to, or during transitioning to or from, the refueling water storage tank provided the required RHR loop is capable of being realigned to the Reactor Coolant System (RCS); or

b. To support required testing provided the required RHR loop is capable of being realigned to the RCS.

INSERT 3.9-10C

Deleted in Revision Q

BRWD CTS MARKUPS

LCO 3.9.1
LCO 3.9.2

3.9 ~~3/4.9~~ REFUELING OPERATIONS

3.9.1 ~~3/4.9.1~~ BORON CONCENTRATION

A9

and the refueling cavity

A1

LIMITING CONDITION FOR OPERATION

LA7

LCO 3.9.1 The boron concentration ~~of all filled portions~~ of the Reactor Coolant System and the refueling canal shall be maintained ~~uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:~~

within the limit specified in the COLR

LA2 LA1

~~a. A K_{eff} of 0.95 or less, or~~

LA2

~~b. 1) A boron concentration of greater than or equal to 2000 ppm.~~

A3

~~2) A boron concentration of greater than or equal to 2300 ppm.~~

LA1

APPLICABILITY: MODE 6.

A2

LA3 action to restore boron concentration to within limits.

ACTION:

COND A

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate ~~and continue boration at greater than or equal to 10 gpm of a solution containing greater than or equal to 7000 ppm boron or its equivalent until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2000 ppm (2300 ppm), whichever is the more restrictive.~~

LA2 LA3 A3 LA1 A3

SURVEILLANCE REQUIREMENTS

~~4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:~~

A2

~~a. Removing or unbolting the reactor vessel head, and~~

L3

~~b. Withdrawal of any full-length control rod in excess of 57 steps (approximately 3 feet) from its fully inserted position within the reactor vessel.~~

SR 3.9.1.1

and the refueling cavity A9

~~4.9.1.2~~ The boron concentration of the Reactor Coolant System and the refueling canal shall be ~~determined by chemical analysis~~ at least once per 72 hours.

within the limit specified in the COLR LA8

LA4

SR 3.9.2.1

~~4.9.1.3~~ Valves ~~CV1110, CV8428, CV8441, CV8435, and CV8439~~ shall be verified closed and secured in position ~~by mechanical stops or by removal of air or electrical power~~ at least once per 31 days.

LA5

LCO 3.9.2 ACTIONS NOTE COND A

INSERT 3.9-1A

A10 M1

~~The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.~~

A2

~~*Applicable to Unit 1 and Unit 2 until completion of cycle 5.~~
~~**Applicable to Unit 1 and Unit 2 starting with cycle 6.~~

A3

3.9 REFUELING OPERATIONS

3.9.6 LOW WATER LEVEL → Residual Heat Removal (RHR) and Coolant Circulation

LIMITING CONDITION FOR OPERATION

LCO 3.9.6

~~3.9.8.2~~ Two residual heat removal (RHR) loops shall be OPERABLE, and at least one RHR loop shall be in operation.

LCO Note ← INSERT 3.9-10B — L_{11}

APPLICABILITY: MODE 6, when the water level above the top of the reactor vessel flange is less than 23 feet.

ACTION:

immediately initiate action to (M_7)

COND A ~~a.~~ With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status, or establish greater than or equal to 23 feet of water above the reactor vessel flange ~~as soon as possible~~.

(M_7) immediately (M_4)

COND B ~~b.~~ With no RHR loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required RHR loop to operation. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within 4 hours.

SURVEILLANCE REQUIREMENTS

SR 3.9.6.1

~~4.9.8.2~~ At least once per 12 hours one RHR loop shall be verified in operation and circulating coolant at a flowrate of greater than or equal to 1000 gpm ~~with RCS temperature less than or equal to 140°F.~~

(LA_{10})

SR 3.9.6.2 ← INSERT 3.9-1CA — (M_5)

RAI 3.9.6-04 REV I

REV Q

LCO 3.9.6

INSERT 3.9-10A (M_5)

SURVEILLANCE		FREQUENCY
SR 3.9.6.2	Verify correct breaker alignment and indicated power available to the required RHR pump that is not in operation.	7 days

INSERT 3.9-10B (L_{11})

---NOTE---
One required RHR loop may be removed from operation and considered OPERABLE:

a. To support filling and draining the reactor cavity when aligned to, or during transitioning to or from, the refueling water storage tank provided the required RHR loop is capable of being realigned to the Reactor Coolant System (RCS); or

b. To support required testing provided the required RHR loop is capable of being realigned to the RCS.

INSERT 3.9-10C

Deleted in Revision Q

CTS DOCs

A_{12} Not used.

LCO MARKUPS

3.9 REFUELING OPERATIONS

3.9.1 Boron Concentration

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

APPLICABILITY: MODE 6.

ACTIONS

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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.9.1.1	Verify boron concentration is within the limit specified in the COLR. (P1)	72 hours

3.9 REFUELING OPERATIONS

3.9.6 Residual Heat Removal (RHR) and Coolant Circulation—Low Water Level

LCO 3.9.6 Two RHR loops shall be OPERABLE, and one RHR loop shall be in operation.

Note ← INSERT 3.9-10A (C1) (P4)

APPLICABILITY: MODE 6 with the water level < 23 ft above the top of reactor vessel flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~Less than the required number of RHR loops OPERABLE.~~ One or more RHR loops inoperable. (P5)	A.1 Initiate action to restore ~~required~~ RHR loops to OPERABLE status. (P5) OR A.2 Initiate action to establish ≥ 23 ft of water above the top of reactor vessel flange.	Immediately Immediately
B. No RHR loop in operation.	B.1 Suspend operations involving a reduction in reactor coolant boron concentration. AND	Immediately (continued)

Rev Q

LCO JFDS

JUSTIFICATION FOR DIFFERENCES TO NUREG-1431 LCOS
SECTION 3.9 - REFUELING OPERATIONS

P_5 Condition A of ITS LCO 3.9.6 was revised to clarify the description of the Condition and the associated Required Action. This change eliminates the potential for misinterpretation of the Action requirements and provides consistency with the style and format of other similar ITS Action requirements. This is an additional enhancement only and does not involve a technical issue.

P_6 Not used.

BASES MARKUPS

BASES

LCO (continued)

≤ 0.95 is maintained during fuel handling operations. Violation of the LCO could lead to an inadvertent criticality during MODE 6.

APPLICABILITY

This LCO is applicable in MODE 6 to ensure that the fuel in the reactor vessel will remain subcritical. The required boron concentration ensures a k_{eff} ≤ 0.95. ~~Above MODE 6, LCO 3.1.1, "SHUTDOWN MARGIN (SDM) T_{avg} > 200°F," and LCO 3.1.2, "SHUTDOWN MARGIN (SDM) T_{avg} ≤ 200°F," ensure~~ that an adequate amount of negative reactivity is available to shut down the reactor and maintain it subcritical.

INSERT B3.9-3A

Fig

ACTIONS

A.1 and A.2, ~~A.3~~

Continuation of CORE ALTERATIONS or positive reactivity additions (including actions to reduce boron concentration) is contingent upon maintaining the unit in compliance with the LCO. If the boron concentration of any coolant volume in the RCS, the refueling canal, or the refueling cavity is less than its limit, all operations involving CORE ALTERATIONS or positive reactivity additions must be suspended immediately.

P7

the filled portions of

P4

and

INSERT B3.9-2B

P4

RAI 3.9.1-02 Rev I

RAI 3.9.1-03

(RAI 3.9.1-04 Rev I)

Suspension of CORE ALTERATIONS and positive reactivity additions shall not preclude moving a component to a safe position.

P14

, or heating or cooling the coolant volume for the purpose of system temperature control within established procedures.

~~A.3~~

In addition to immediately suspending CORE ALTERATIONS ~~or~~ and positive reactivity additions, ~~boration~~ action to restore the boron concentration must be initiated immediately.

P2

There are no safety analysis assumptions ~~In determining the required combination~~ of boration flow rate and concentration, ~~no unique Design Basis Event~~ that must be satisfied. The only requirement is to restore the boron concentration to its required value as soon as possible. In order to raise the boron concentration as soon as possible, the operator should begin boration with the best source available for unit conditions.

(cont'

INSERT B 3.9-3A (P_{18})

In MODES 1 and 2 with $k_{eff} \geq 1.0$, LCO 3.1.4, "Rod Group Alignment Limits," LCO 3.1.5, "Shutdown Bank Insertion Limits," and LCO 3.1.6, "Control Bank Insertion Limits," ensure an adequate amount of negative reactivity is available to shutdown the reactor. In MODE 2 with $k_{eff} < 1.0$ and MODES 3, 4, and 5, LCO 3.1.1, "SHUTDOWN MARGIN (SDM)," ensures

INSERT B 3.9-3B (P_4)

an inadvertent criticality may occur due to an incorrect fuel loading. To minimize the potential of an inadvertent criticality resulting from a fuel loading error.

INSERT B 3.9-3C

Deleted in Revision Q

P1

BASES

LCO (continued)

In addition, ~~Additionally~~, one loop ~~of~~ RHR must be in operation in order to provide:

a. Removal of decay heat;

b. Mixing of borated coolant to minimize the possibility of criticality; and

c. Indication of reactor coolant temperature.

An OPERABLE RHR loop consists of an RHR pump, a heat exchanger, valves, piping, instruments and controls to ensure an OPERABLE flow path. ~~and to determine the low end temperature.~~ The flow path starts in one of the RCS hot legs and is returned to the RCS cold legs. Insert B 3.9-22B

C2

REV I
PMI 3.9.6-02

APPLICABILITY

P1a

and mixing of the borated coolant

Two RHR loops are required to be OPERABLE, and one RHR loop must be in operation in MODE 6, with the water level < 23 ft above the top of the reactor vessel flange, to provide decay heat removal. Requirements for the RHR System in ~~other~~ MODES ~~are covered by LCOs in Section 3.4, Reactor Coolant System (RCS), and Section 3.5, Emergency Core Cooling Systems (ECCS).~~ RHR loop requirements in MODE 6 with the water level ≥ 23 ft are located in LCO 3.9.5, "Residual Heat Removal (RHR) and Coolant Circulation—High Water Level."

Replace w/ INSERT B3.9-22A

P1b

ACTIONS

A.1 and A.2

the RHR System may not be capable of removing decay heat and mixing the borated coolant. Therefore,

P1g

With one or more

P4

~~If less than the required number of~~ inoperable RHR loops ~~are OPERABLE~~, action shall be immediately initiated and continued until ~~the RHR loop is~~ restored to OPERABLE status ~~and to operation~~, or until ≥ 23 ft of water level is established above the reactor vessel flange. When the water level is ≥ 23 ft above the reactor vessel flange, the Applicability changes to that of LCO 3.9.5, and only one RHR loop is required to be OPERABLE and in operation. An immediate Completion Time is necessary for an operator to initiate corrective actions.

the required number of RHR loops are

(continued)

BASES INSERT(S)
SECTION 3.9

INSERT B 3.9-22A (P_{18})

1, 2, 3, 4, and 5 are covered by LCO 3.4.6, "RCS Loops - MODE 4," LCO 3.4.7, "RCS Loops - MODE 5, Loops Filled," LCO 3.4.8, "RCS Loops - MODE 5, Loops Not Filled," LCO 3.5.2, "ECCS - Operating," and LCO 3.5.3, "ECCS - Shutdown."

INSERT B 3.9-22B (C_2 and P_{24})

However, the LCO is modified by a Note that permits the required RHR loop to be removed from operation and considered OPERABLE when aligned to, or during transitioning to or from, the Refueling Water Storage Tank (RWST) to support filling or draining the refueling cavity, or to support required testing, if capable of being realigned to the RCS.

INSERT B 3.9-22C

Deleted in Revision 0

BASES JFDS

P_{23} The Applicable Safety Analyses section of the Bases for NUREG 3.9.2 incorrectly refers to the RCS boron concentration (which is addressed in LCO 3.9.1.) The statement is revised to refer to the unborated water source isolation valves which are the subject of LCO 3.9.2.

P_{24} The Bases for LCO 3.9.6 is revised to reflect changes made to LCO 3.9.6. Specifically, the Note to SR 3.9.6.1, added by TSTF-21, Revision 1 is positioned following the LCO and is reformatted consistent with other LCO notes. This is an editorial enhancement only and does not involve any technical changes.

Rev Q

P_{25} Not used.

Rev L

P_{26} The Bases for SR 3.9.4.2 is revised by deleting the sentence, "The system actuation response time is demonstrated every 18 months, during refueling, on a STAGGERED TEST BASIS." These valves will continued to be tested on an 18 month frequency but our current licensing basis does not allow the flexibility of a STAGGERED TEST BASIS. This change is consistent with Byron and Braidwood current licensing basis.

ITS SECTION 5.0

CTS DOCs

DISCUSSION OF CHANGES TO CTS
ITS SECTION 5.0 - ADMINISTRATIVE CONTROLS

ADMINISTRATIVE CHANGES (A)

A_1 All reformatting, renumbering, and editorial rewording is in accordance with the Westinghouse Standard Technical Specifications, NUREG-1431. During the development certain wording preferences or English language conventions were adopted. As a result, the Technical Specifications (TS) should be more readily readable, and therefore understandable, by plant operators and other users. During the reformatting, renumbering, and rewording process, no technical changes (either actual or interpretational) to the TS were made unless they were identified and justified.

A_2 CTS Definitions 1.20.a, Footnotes * and **, and LCO 6.8.4.g provide (in part) values and limitations applicable to Unit 1 operation prior to completing Cycle 7 (Braidwood) and Cycle 8 (Byron). These values and limitations have been deleted. The deleted cycle specific values are for fuel cycles that will no longer be applicable to operation of the units since the applicable cycle will have been completed. The change is editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

RAI 5.2-01

A_3 CTS Specification 6.2.2.d and Table 6.2-1, Footnote (e) have been deleted. The requirement for a licensed operator observing Core Alterations is contained in 10 CFR 50.54. Since conformance to 10 CFR is a condition of the license, specific identification of this requirement in the TS would be duplicative and is not necessary. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_4 CTS Specification 6.6.1.a has been deleted. The requirement related to reportable event action notification and submittal is contained in 10 CFR 50.73. Since conformance to 10 CFR is a condition of the license, specific identification of this requirement in the TS would be duplicative and is not necessary. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_5 CTS Specifications 6.8.1.c and 6.8.1.d have been deleted. Procedures to implement the station security plan and emergency response plan are required by 10 CFR 50. Appendix E and 10 CFR 50.54(p). Since conformance to 10 CFR is a condition of the license. specific identification of these plans in the TS would be duplicative and is not necessary. Since the plant requirements remain the same. the change is considered to be a change in presentation only. During this reformatting no technical changes (either actual or interpretational) to the TS were made unless they were identified and justified (Ref. Section 5.0. DOC L_9). This change is consistent with NUREG-1431.

A_6 Not used.

A_7 Consistent with NUREG-1431, CTS 3.6.1.3.b is modified to add a "≥" when referring to the air lock test pressure. The intent of the CTS is to use a pressure sufficient to evaluate leakage, not test at exactly P_a. This change is administrative and is consistent with the CTS Surveillance.

A_8 (Byron Only) CTS Specification 6.9.1.4 has been revised to delete the reporting requirement for the initial annual report. This requirement is no longer applicable to the operation of the units since the initial reporting period has been completed. This change is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

A_9 Not used.

A_{10} CTS Specification 6.9.1.5 has been revised to add a clarification statement denoting that a single annual report may be made for the facility. This change is necessary to eliminate the potential for misinterpretation of the reporting requirement. This change is perceived as the intent of the CTS requirements, is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

A_{11} CTS Specifications 6.9.1.7 has been revised to modify the submittal date for the annual radioactive effluent release report. This change provides a reference to 10 CFR 50.36a in addition to the specified date contained in 10 CFR. This change does not involve a technical change since the reporting frequency has not changed. This change is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

A_{12} CTS Specifications 6.9.1.8, 6.9.1.9 and 6.9.2 have been revised to delete the reference to the submittal location for the monthly report, operating limits report, and special reports. The requirements related to report submittal are contained in 10 CFR. Since conformance to 10 CFR is a condition of the license, specific identification of this requirement in the TS would be duplicative and is not necessary. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_{13} CTS Specification 6.9.1.7. footnote ** has been revised to delete information that is not applicable to Byron and Braidwood. The radwaste systems are common to the units, therefore, reporting releases from each unit is not applicable. This change is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

A_{14} Not used.

A_{15} CTS Specifications 6.12.1 and 6.14.1 have been revised to incorporate references consistent with 10 CFR Part 20. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting no technical changes (either actual or interpretational) to the TS were made unless they were identified and justified. This change is consistent with NUREG-1431.

A_{16} Not used.

A_{17} CTS Specification 4.0.5.a has been deleted. The requirement to perform ASME Section XI testing is denoted in 10 CFR 50.55a(g). Since conformance to 10 CFR is a condition of the license, specific identification of this requirement in the TS would be duplicative and is not necessary. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_{18} CTS Specification 4.0.5.b has been revised to add a definition of the biennially frequency for the IST program. This change provides only a clarification of the meaning of the term and does not add any new requirement. This change is considered editorial in nature and does not involve a technical change (either actual or interpretational) to the TS. This change is consistent with NUREG-1431.

Rev 0

A_{27} The Explosive Gas and Storage Tank Radioactivity Monitoring Program includes a clarification statement denoting that the provisions of SR 3.0.2 and SR 3.0.3 are applicable to this Program. This statement of applicability clarifies the allowance for surveillance frequency extensions and allowance to perform missed surveillances. This change is necessary since the CTS requirements, CTS LCO 3.11.1.4 and CTS LCO 3.11.2.5, are being relocated from the TS, and the program described in ITS Specification 5.5.12 is being added where the statements of applicability are generally not applied. Since this change maintains current requirements, it is considered a change of presentation method only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified. This change is consistent with NUREG-1431.

Rev 0, RAI 5.0-01

A_{28} CTS 6.2.2.b is being deleted. The requirements of 10 CFR 50.54(m)(iii) and 50.54(k) adequately provide for shift manning. These regulations, 50.54(m)(iii), require, "when a nuclear power unit is in an operational MODE other than cold shutdown or refueling, as defined by the unit's Technical Specifications, each licensee shall have a person holding a senior operator license for the nuclear power unit in the control room at all times. In addition to this senior operator, for each fueled nuclear power unit, a licensed operator or senior operator shall be present at the controls at all times." Further, 50.54(k) requires, "An operator or senior operator licensed pursuant to part 55 of this chapter shall be present at the controls at all times during the operation of the facility." STS 5.2.2b requirements will be met through compliance with these regulations and is therefore, deleted from the CTS and not incorporated into the ITS. This is consistent with a letter from NRC, Chris Grimes to J. Davis dated April 9, 1997 as stated in TSTF-258. Reference Section 5.0, DOC L_9.

A_{29} (Byron Only) Consistent with the rest of CTS Section 6, CTS 6.9.1.4 is revised to reference the "facility" versus "unit." Specification 6.1.9 covers annual reports for which one report is prepared, covering the operation of both units or the "facility." This change is considered a format change and is administrative. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified. This change is consistent with NUREG-1431 philosophy.

Rev 0

A_{30} CTS LCO 6.9.1.9 details the general topic associated with the listed topical reports that are applicable to the COLR. These general topic details are deleted. This is information-only content and does not reflect and technical or interpretational guidance. This change is consistent with NUREG-1431.

A_{32} Based on utilization of WCAP-10216 as a basis for the F_q Surveillance Frequency in Specification 3.2, and the requirement stated in the WCAP's SER, reference to the WCAP is added to CTS Specification 6.9.1.9. This is an administrative change, reflecting commitments contained in the NRC's evaluation of the WCAP. Any technical changes made are discussed in the CTS markups for ITS Specification 3.2.

A_{33} The CTS Table 4.4-2 10 CFR 50.72 (b)(2) reporting requirement is deleted. Deletion of the CTS requirement does not change the requirement to report results that satisfy the criteria of 10 CFR 50.72 (b)(2). Therefore this change is considered a change of presentation method only. During this reformatting, no technical changes (either interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_{34} Reference to CTS 4.0.5 in CTS 4.4.5.0 is deleted. The requirement to perform ASME Section XI testing is denoted in 10 CFR 50.55a(g). Since conformance to 10 CFR is a condition of the license, specific identification of this requirement in the TS would be duplicative and is not necessary. Since the plant requirements remain the same, the change is considered to be a change in presentation only. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified (Ref. Section 5.0, DOC L_9). This change is consistent with NUREG-1431.

A_{35} Not used.

A_{36} Consistent with NUREG-1431, as modified by TSTF-52, CTS 1.7 item d is deleted. Item d simply provided a reference to another TS. The technical requirements remain the same. Therefore this change is considered a presentation preference. During this reformatting, no technical changes (either actual or interpretational) were made to the TS unless they were identified and justified.

A_{37} Not used.

Rev M

L_8 CTS LCOs 3.7.6, 3.7.7, and 3.9.12 have been revised adding a statement that verification of the specified flow rates may be accomplished during the performance of other specified surveillances within the ITS. Although accepted practice as related to the CTS, it is not specifically stated as in the ITS. Specifically stating that credit may be taken for successful performance for the same Surveillance in another section of the ITS is considered to be a less restrictive change. In addition, CTS SRs 4.7.6.c.2), 4.7.6.d, 4.7.6.h.2), 4.7.6.j, 4.7.7.b.2), 4.7.7.c, 4.9.12.b.2), and 4.9.12.c have been revised to change the methyl iodine penetration values for the VC filtration system (makeup) from 0.175% to 0.5%, VC Filtration System (Recirculation) from 1% to 4%, and the Nonaccessible Area Exhaust Filter Plenum Ventilation System from 1% to 4.5%. During the conversion process from CTS to ITS and additional discussion with the NRC reviewer, ComEd committed to comply with ASTM D 3803-1989 standards. Based on this standard, the subject penetration values were relaxed resulting in a less restrictive change. This change is consistent with NUREG-1431.

Rev Q

L_9 CTS Section 5.0 contains several statements referencing specific NRC Regulations and Standards (i.e., 10 CFR 20, Regulatory Guide 1.52, or ASTM-975). Since these are redundant to the appropriate NRC Standard, the NRC has agreed to remove the redundant information from the CTS. Although no changes in ComEd's commitment to the appropriate NRC Standards is being made, removal of the information is considered to be a Less Restrictive change. This change is consistent with NUREG-1431.

NSHCS

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 5.0 - ADMINISTRATIVE CONTROLS

TECHNICAL CHANGE - LESS RESTRICTIVE "Specific"
("L_9" Labeled Comments/Discussions)

Commonwealth Edison Company (ComEd) has evaluated each of the proposed Technical Specification changes identified as "Technical Change - Less Restrictive (Specific)" in accordance with the criteria set forth in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

The bases for the determination that the proposed changes do not involve a significant hazards consideration is an evaluation of these changes against each of the criteria in 10 CFR 50.92. The criteria and the conclusions of the evaluation are presented below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Some of the information in the CTS is descriptive in nature and incorporates redundant information as stated in the 10 CFR, Standard Review Plan, Regulatory Guides or other NRC regulations. This redundant information pertains to various equipment, system(s), actions, Programs or surveillances. The NRC has previously approved removing this redundant information and detail from the CTS to a licensee controlled document, reference the appropriate NRC regulation in a Program, or simply referencing the appropriate NRC Standard (i.e., 10 CFR or Regulatory Guide). The NRC has agreed that the inclusion of this redundant information in the ITS is not necessary to adequately protect the health and safety of the public. Although this information is being moved or referenced, no technical requirements or commitments for compliance are being changed. The only change is that instead of providing this redundant information in the ITS, credit is being taken for the same information and requirements in the appropriate NRC Standards. This is considered to be a Less Restrictive change since the information is being removed from the CTS and not being included in the ITS.

   This relaxation will not alter the operation of any plant equipment, reduce any ComEd commitments to appropriate NRC Standards, nor increase any failure probability for evaluated accidents in the UFSAR. The probability that equipment failures resulting in an analyzed event will occur is unrelated to this change. As such, the probability of occurrence for a previously analyzed accident is not significantly increased.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change does not involve a physical alteration to the plant. No new equipment is being introduced and no installed equipment is being operated in a new or different manner. There is no alteration to the parameters within which the plant is normally operated nor in the setpoints which initiate protective or mitigative actions. No technical change is being proposed to the procedures governing normal plant operation of those relied upon to mitigate a design basis event. Removing the redundant information and requirements from the CTS and taking credit for the appropriate NRC Standard (i.e., 10 CFR or Regulatory Guides) does not alter any ComEd commitments for compliance with the appropriate NRC Standards nor introduce any new failure modes. In addition, the changes do not alter assumptions made in the safety analysis and licensing basis. Therefore, the change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

The margin of safety is determined by the design and qualification of the plant equipment, the operation of the plant within analyzed limits, and the point at which protective or mitigative actions are initiated. Removing the duplicative information and requirements from the CTS and taking credit for the appropriate NRC Standard (i.e., 10 CFR or Regulatory Guides) does not alter any ComEd commitments for compliance with the NRC Standards. The proposed change has no effect on the assumptions of the design basis accident. This change has no impact on the safe operation of the plant. There are no design changes or equipment performance parameter changes associated with this change. No setpoints are affected, and no change is being proposed in the plant operational limits as a result of this change. Therefore, this change does not involve a significant reduction in the margin of safety.