ATTACHMENT 1

VOLUME 11

SAN ONOFRE NUCLEAR GENERATING STATION

IMPROVED TECHNICAL SPECIFICATIONS CONVERSION

ITS SECTION 3.8 ELECTRICAL POWER SYSTEMS

LIST OF ATTACHMENTS

ATTACHMENT 1

ITS 3.8.1, AC SOURCES-OPERATING

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources — Operating

LCO 3.8.1

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

Applicability

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

---------------------NOTE-----------------
LCO 3.0.4.b is not applicable to DGs.

A02

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit. INSERT 1 AND A.2 Restore required offsite circuit to OPERABLE status.	1 hour AND Once per 8 hours thereafter ~~------NOTE--------~~ ~~The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance.~~ ~~------------------~~ 72 hours ~~AND~~ ~~17 days from discovery of failure to meet LCO~~

M01

A07

L01

(continued)

M01

INSERT 1

AND		
A.2	Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)

ITS

A01

ACTIONS (continued)

ACTION B

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One ~~required~~ DG inoperable.	B.1	Perform SR 3.8.1.1 for the OPERABLE required offsite circuits.	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.3.1	Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	AND		
	B.4	Restore ~~required~~ DG to OPERABLE status.	14 days ~~AND~~ ~~17 days from discovery of failure to meet LCO~~

A04

A04

L01

(continued)

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)	
		AND		
		C.2 Restore one required offsite circuit to OPERABLE status.	24 hours	
ACTION D	D. One required offsite circuit inoperable. AND One ~~required~~ DG inoperable.	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems — Operating," when Condition D is entered. with no AC power source to any train ----------------------------		A04 A03
		D.1 Restore required offsite circuit to OPERABLE status.	12 hours	
		OR		
		D.2 Restore ~~required~~ DG to OPERABLE status.	12 hours	A04
ACTION E	E. Two ~~required~~ DGs inoperable.	E.1 Restore one ~~required~~ DG to OPERABLE status.	2 hours	A04

(continued)

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION F	F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE ~~5~~ 4. -NOTE- LCO 3.0.4.a is not applicable when entering MODE 4.	6 hours ~~36~~ 12 hours	L02
ACTION G	G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.1.1	SR 3.8.1.1	~~NOTES~~ ~~1. Bus 3A04 is required when unit crosstie breaker 3A0416 is used to provide a source of AC power.~~ ~~2. Bus 3A06 is required when unit crosstie breaker 3A0603 is used to provide a source of AC power.~~ Verify correct breaker alignment and power availability for each required offsite circuit.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.2

SURVEILLANCE		FREQUENCY
SR 3.8.1.2	--------------------NOTES------------------- ~~1. Performance of SR 3.8.1.7 satisfies this SR.~~ 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to rated speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. 4. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last 60 days, plus any allowance per SR 3.0.2.~~ --- Verify each DG starts from standby conditions and achieves: a. Steady state voltage ≥ 4161 V and ≤ 4576 V; and b. Steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program ~~As specified in Table 3.8.1-1~~

LA03

An automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals.

A05

LA02

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
SR 3.8.1.3	SR 3.8.1.3	---NOTES--- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. 5. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last 60 days, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals. --- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ 4450 kW and ≤ 4700 kW.	~~As specified in Table 3.8.1-1~~ In accordance with the Surveillance Frequency Control Program	A05 LA02
SR 3.8.1.4	SR 3.8.1.4	Verify each day tank contains ~~≥ 31.5 inches of fuel oil~~ a fuel oil level ≥ 1 hour of DG operation at full load plus 10%.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA08 LA02
SR 3.8.1.5	SR 3.8.1.5	Check for and remove accumulated water from each day tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
SR 3.8.1.6	SR 3.8.1.6	Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.1.7	SR 3.8.1.7 -------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ --- Verify each DG starts from standby condition and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; and c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	~~184 days~~ In accordance with the Surveillance Frequency Control Program	A06 LA02
SR 3.8.1.8 This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.	SR 3.8.1.8 -------------------NOTE------------------ 1. Credit may be taken for unplanned events that satisfy this SR. 2. Testing to satisfy this SR shall include actual automatic and manual transfer to at least one alternate offsite circuit. The other alternate offsite circuit may be verified by overlapping circuit tests. --- Verify capability of automatic and manual transfer of AC power sources from the normal offsite circuit to each alternate required offsite circuit.	~~24 months~~	M03 LA02

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9 (SR 3.8.1.9) INSERT 2 INSERT 3	-------------------NOTE------------------ S 1. Credit may be taken for unplanned events that satisfy this SR. ~~2.~~ 3 ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. --- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 66.75 Hz; b. Within 4 seconds following load rejection, the voltage is ≥ 4161 V and ≤ 4576 V; and c. Within 4 seconds following load rejection, the frequency is ≥ 59.7 Hz and ≤ 61.2 Hz.	~~24 months~~ In accordance with the Surveillance Frequency Control Program M03 M02 A05 LA02
SR 3.8.1.10 (SR 3.8.1.10) INSERT 2 INSERT 3	-------------------NOTE------------------ S 1. Credit may be taken for unplanned events that satisfy this SR. ~~2.~~ 3 ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. --- Verify each DG, ~~when connected to its bus in parallel with offsite power and~~ operating with inductive loading that offsite power conditions permit, during and following a load rejection of ≥ 4450 kW and ≤ 4700 kW: a. Does not trip; and b. Voltage is maintained ≤ 5450 V. SR 3.8.1.10 Note 2 (second sentence)	~~24 months~~ M03 M02 A05 LA04 LA02 M02

(continued)

M03 **INSERT 2**

This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

M02 **INSERT 3**

2. If performed with the DG synchronized with offsite power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.11	SR 3.8.1.11 --------------------NOTES-------------------- 1. All DG starts may be preceded by an engine prelube period. 2. Credit may be taken for unplanned events that satisfy this SR. INSERT 4 -- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads and resets the 4.16kV bus undervoltage relay logic in ≤ 10 seconds; 2. maintains steady state voltage ≥ 4161 V and ≤ 4576 V; 3. maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and 4. supplies permanently connected loads for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program M03 LA02

(continued)

M03 **INSERT 4**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.1.12 SR 3.8.1.12	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ --- Engineered Safety Feature (ESF) actuation signal Verify on an actual or simulated ~~SIAS~~, each DG auto-starts from standby condition and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and d. Operates for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	A06 LA07 LA02
SR 3.8.1.13 SR 3.8.1.13	~~-------------------NOTE-------------------~~ ~~Credit may be taken for unplanned events that satisfy this SR.~~ ~~---~~ noncritical Verify each DG automatic trip is bypassed on actual or simulated ~~SIAS except:~~ ESF actuation signal ~~a. Engine overspeed;~~ ~~b. Generator differential current; and~~ ~~c. Low-low lube oil pressure.~~	~~24 months~~	A06 LA02 LA07 LA05

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	SR 3.8.1.14 -------------------NOTES------------------- 1. Momentary transients outside the load range does not invalidate this test. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ INSERT 5 -- Verify each DG~~, when connected to its bus in parallel with offsite power and~~ operating with inductive loading that offsite power conditions permit, operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 4935 kW and ≤ 5170 kW; and b. For the remaining hours of the test loaded ≥ 4450 kW and ≤ 4700 kW.	~~24 months~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.15	SR 3.8.1.15 -------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 4450 kW and ≤ 4700 kW. Momentary transients outside the load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. -- Verify each DG starts and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and ~~d. Operates for ≥ 5 minutes.~~	~~24 months~~

SR 3.8.1.14 Note 3 (second sentence)

A06 M02 LA02 LA04 M02

LA02

L03

(continued)

M02 **INSERT 5**

2. If performed with DG synchronized with offsite power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.1.16	SR 3.8.1.16 INSERT 6 -------------------NOTE-------------------- Credit may be taken for unplanned events that satisfy this SR. -- Verify each DG: a. Is capable of being synchronized with offsite power while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation, ~~with:~~ ~~1. steady state voltage ≥ 4161 V and ≤ 4576 V;~~ ~~2. steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and~~ ~~3. the DG output breaker open.~~	~~24 months~~ In accordance with the Surveillance Frequency Control Program	M03 LA02 LA06
SR 3.8.1.17	SR 3.8.1.17 INSERT 7 -------------------NOTE-------------------- Credit may be taken for unplanned events that satisfy this SR. -- Verify, with a DG operating in test mode and connected to its bus in parallel with offsite power, an actual or simulated ~~SIAS~~ ESF actuation signal overrides the test mode by: a. Returning the DG to ready-to-load operation, ~~with:~~ ~~1. steady state voltage ≥ 4161 V and ≤ 4576 V;~~ ~~2. steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and~~ ~~3. the DG output breaker open; and~~ b. Automatically energizing the emergency loads from offsite power.	~~24 months~~	M03 LA02 LA07 LA06

(continued)

M03 **INSERT 6**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

M03 **INSERT 7**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	~~NOTE~~ ~~Credit may be taken for unplanned events that satisfy this SR.~~ Verify the timing of each sequenced load block is within its timer setting ± 10% or ± 2.5 seconds, whichever is greater, with the exception of the 5 second load group which is -0.5, +2.5 seconds, for each programmed time interval load sequence.	In accordance with the Surveillance Frequency Control Program A06 ~~24 months~~ LA02

SR 3.8.1.18

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.19	SR 3.8.1.19	
	--------------------NOTES-------------------- 1. All DG starts may be preceded by an engine prelube period. 2. INSERT 8 Credit may be taken for unplanned events that satisfy this SR. 3. An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ --	M03 A05
	Verify on an actual or simulated loss of offsite power signal in conjunction with actual or simulated ESF actuation signals: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads and resets the 4.16 kV bus undervoltage relay logic in ≤ 10 seconds; 2. energizes auto-connected emergency loads through the programmed time interval load sequence; 3. achieves steady state voltage ≥ 4161 V and ≤ 4576 V; 4. achieves steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program LA02

(continued)

M03 **INSERT 8**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.20	SR 3.8.1.20 -------------------NOTE-------------------- All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, each DG: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; and c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	~~10 years~~ In accordance with the Surveillance Frequency Control Program LA02

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~~Table 3.8.1-1 (page 1 of 1)~~
~~Diesel Generator Test Schedule~~

LA02

~~NUMBER OF FAILURES IN LAST 25 VALID TESTS[(a)]~~	~~FREQUENCY~~
~~≤ 3~~	~~31 days~~
~~≥ 4~~	~~7 days[(b)] (but no less than 24 hours)~~

~~(a) Criteria for determining number of failures and valid tests shall be in accordance with Regulatory Position C.2.1 of Regulatory Guide 1.9, Revision 3, where the number of tests and failures is determined on a per DG basis.~~

~~(b) This test frequency shall be maintained until seven consecutive failure free starts from standby conditions and load and run tests have been performed. This is consistent with Regulatory Position C.3.2, of Draft Regulatory Guide DG-1021 (Second Proposed Revision 3 to Regulatory Guide 1.9) (Ref. 14). If, subsequent to the 7 failure free tests, 1 or more additional failures occur, such that there are again 4 or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until 7 consecutive failure free tests have been performed. This test frequency is also consistent with paragraph (a)(3)(ii) of 10CFR50.63, "Loss of all alternating current power", as published in the Federal Register, Vol. 57, No. 77, page 14517, dated April 21, 1992 (Ref. 15).~~

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3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources — Operating

LCO 3.8.1

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System; and

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System.

Applicability

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

---------------------NOTE-----------------
LCO 3.0.4.b is not applicable to DGs.

A02

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for required OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
INSERT 1	AND	
	A.2 Restore required offsite circuit to OPERABLE status.	~~-----NOTE--------~~ ~~The Completion Time may be extended to 10 days once per train prior to 7/01/2012 to perform maintenance.~~ ~~----------------~~ 72 hours ~~AND~~ ~~17 days from discovery of failure to meet LCO~~

ACTION A

M01

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L01

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M01

INSERT 1

AND		
A.2	Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION B B. One ~~required~~ DG inoperable.	B.1	Perform SR 3.8.1.1 for the OPERABLE required offsite circuits.	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		
	B.3.1	Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	AND		
	B.4	Restore ~~required~~ DG to OPERABLE status.	14 days ~~AND~~ ~~17 days from discovery of failure to meet LCO~~

A04

A04

L01

(continued)

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	C. Two required offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)	
		AND		
		C.2 Restore one required offsite circuit to OPERABLE status.	24 hours	
ACTION D	D. One required offsite circuit inoperable. AND One ~~required~~ DG inoperable.	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems — Operating," when Condition D is entered with no AC power source to any train. ----------------------------		A04 A03
		D.1 Restore required offsite circuit to OPERABLE status.	12 hours	
		OR		
		D.2 Restore ~~required~~ DG to OPERABLE status.	12 hours	A04
	E. Two ~~required~~ DGs inoperable.	E.1 Restore one ~~required~~ DG to OPERABLE status.	2 hours	A04

(continued)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and Associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE ~~5~~ 4.	6 hours ~~36~~ 12 hours
G. Three or more required AC sources inoperable.	G.1 Enter LCO 3.0.3.	Immediately

L02

----------NOTE-----------
LCO 3.0.4.a is not applicable when entering MODE 4.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.1.1 ~~-------NOTES-------~~ ~~1. Bus 2A04 is required when unit crosstie breaker 2A0417 is used to provide a source of AC power.~~ ~~2. Bus 2A06 is required when unit crosstie breaker 2A0619 is used to provide a source of AC power.~~ ~~---------------~~ Verify correct breaker alignment and power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program ~~7 days~~

SR 3.8.1.1

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LA02

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.2 — SR 3.8.1.2	-------------------NOTES------------------- ~~1. Performance of SR 3.8.1.7 satisfies this SR.~~ LA03 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to rated speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. 4. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last 60 days, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals. A05 --- Verify each DG starts from standby conditions and achieves: a. Steady state voltage ≥ 4161 V and ≤ 4576 V; and b. Steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	~~As specified in Table 3.8.1-1~~ In accordance with the Surveillance Frequency Control Program LA02

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.1.3	SR 3.8.1.3 --------------------NOTES-------------------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. 5. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last 60 days, plus any allowance per SR 3.0.2.~~ An AVR is only required to be tested once per two Surveillance intervals. -- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ 4450 kW and ≤ 4700 kW.	~~As specified in Table 3.8.1-1~~ In accordance with the Surveillance Frequency Control Program	A05 LA02
SR 3.8.1.4	SR 3.8.1.4 Verify each day tank contains ~~≥ 31.5 inches of fuel oil~~ a fuel oil level ≥ 1 hour of DG operation at full load plus 10%.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA08 LA02
SR 3.8.1.5	SR 3.8.1.5 Check for and remove accumulated water from each day tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
SR 3.8.1.6	SR 3.8.1.6 Verify the fuel oil transfer system operates to transfer fuel oil from storage tank to the day tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.7 SR 3.8.1.7	-------------------NOTES-------------------- 1. All DG starts may be preceded by an engine prelube period. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ -- Verify each DG starts from standby condition and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; and c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	~~184 days~~ In accordance with the Surveillance Frequency Control Program A06 LA02
SR 3.8.1.8	--------------------NOTE------------------- 1. Credit may be taken for unplanned events that satisfy this SR. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. 2. Testing to satisfy this SR shall include actual automatic and manual transfer to at least one alternate offsite circuit. The other alternate offsite circuit may be verified by overlapping circuit tests. --- Verify capability of automatic and manual transfer of AC power sources from the normal offsite circuit to each alternate required offsite circuit.	~~24 months~~ M03 LA02

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	SR 3.8.1.9 --------------------NOTE S-------------------- INSERT 2 1. Credit may be taken for unplanned events that satisfy this SR. INSERT 3 ~~2.~~ 3 ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. -- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load, and: a. Following load rejection, the frequency is ≤ 66.75 Hz; b. Within 4 seconds following load rejection, the voltage is ≥ 4161 V and ≤ 4576 V; and c. Within 4 seconds following load rejection, the frequency is ≥ 59.7 Hz and ≤ 61.2 Hz.	~~24 months~~ In accordance with the Surveillance Frequency Control Program M03 M02 A05 LA02
SR 3.8.1.10	SR 3.8.1.10 --------------------NOTE S-------------------- INSERT 2 1. Credit may be taken for unplanned events that satisfy this SR. INSERT 3 ~~2.~~ 3 ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. -- Verify each DG, ~~when connected to its bus in parallel with offsite power and~~ operating with inductive loading that offsite power conditions permit, during and following a load rejection of ≥ 4450 kW and ≤ 4700 kW: SR 3.8.1.10 Note 2 (second sentence) a. Does not trip; and b. Voltage is maintained ≤ 5450 V.	~~24 months~~ M03 M02 A05 LA04 LA02 M02

(continued)

M03 **INSERT 2**

This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

M02 **INSERT 3**

2. If performed with the DG synchronized with offsite power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11 SR 3.8.1.11	-------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. INSERT 4 Credit may be taken for unplanned events that satisfy this SR. -- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads and resets the 4.16kV bus undervoltage relay logic in ≤ 10 seconds; 2. maintains steady state voltage ≥ 4161 V and ≤ 4576 V; 3. maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and 4. supplies permanently connected loads for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program M03 LA02

(continued)

M03 **INSERT 4**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.8.1.12 SR 3.8.1.12	------------------NOTES------------------ 1. All DG starts may be preceded by an engine prelube period. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ --- Verify on an actual or simulated ~~SIAS~~ Engineered Safety Feature (ESF) actuation signal, each DG auto-starts from standby condition and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; and c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz. d. Operates for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	A06 LA07 LA02
SR 3.8.1.13 SR 3.8.1.13	~~------------------NOTE------------------~~ ~~Credit may be taken for unplanned events that satisfy this SR.~~ ~~---~~ Verify each DG noncritical automatic trip is bypassed on actual or simulated ~~SIAS except:~~ ESF actuation signal ~~a. Engine overspeed;~~ ~~b. Generator differential current; and~~ ~~c. Low-low lube oil pressure~~.	In accordance with the Surveillance Frequency Control Program ~~24 months~~	A06 LA07 LA02 LA05

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	SR 3.8.1.14	-------------------NOTES------------------- 1. Momentary transients outside the load range does not invalidate this test. ~~2. Credit may be taken for unplanned events that satisfy this SR.~~ INSERT 5 -- Verify each DG~~, when connected to its bus in parallel with offsite power and~~ operating with inductive loading that offsite power conditions permit, operates for ≥ 24 hours: a. For ≥ 2 hours loaded ≥ 4935 kW and ≤ 5170 kW; and b. For the remaining hours of the test loaded ≥ 4450 kW and ≤ 4700 kW. SR 3.8.1.14 Note 3 (second sentence)	~~24 months~~ In accordance with the Surveillance Frequency Control Program A06 M02 LA02 LA04 M02
SR 3.8.1.15	SR 3.8.1.15	-------------------NOTES------------------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 4450 kW and ≤ 4700 kW. Momentary transients outside the load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. -- Verify each DG starts and: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and ~~d. Operates for ≥ 5 minutes~~.	In accordance with the Surveillance Frequency Control Program ~~24 months~~ LA02 L03

(continued)

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M02 **INSERT 5**

2. If performed with DG synchronized with offsite power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable.

ITS

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.1.16	SR 3.8.1.16 INSERT 6 ---NOTE--- Credit may be taken for unplanned events that satisfy this SR. --- Verify each DG: a. Is capable of being synchronized with offsite power while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation~~, with~~: ~~1. steady state voltage ≥ 4161 V and ≤ 4576 V;~~ ~~2. steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and~~ ~~3. the DG output breaker open~~.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	M03 LA02 LA06
SR 3.8.1.17	SR 3.8.1.17 INSERT 7 ---NOTE--- Credit may be taken for unplanned events that satisfy this SR. --- Verify, with a DG operating in test mode and connected to its bus in parallel with offsite power, an actual or simulated ~~SIAS~~ ESF actuation signal overrides the test mode by: a. Returning the DG to ready-to-load operation, ~~with:~~ ~~1. steady state voltage ≥ 4161 V and ≤ 4576 V;~~ ~~2. steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and~~ ~~3. the DG output breaker open; and~~ b. Automatically energizing the emergency loads from offsite power.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	M03 LA02 LA07 LA06

(continued)

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M03 **INSERT 6**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

M03 **INSERT 7**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.18	SR 3.8.1.18	~~-------------------NOTE-------------------~~ ~~Credit may be taken for unplanned events that satisfy this SR.~~ ~~--~~ Verify the timing of each sequenced load block is within its timer setting ± 10% or ± 2.5 seconds, whichever is greater, with the exception of the 5 second load group which is -0.5, +2.5 seconds, for each programmed time interval load sequence.	In accordance with the Surveillance Frequency Control Program ~~24 months~~

A06

LA02

(continued)

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.19	SR 3.8.1.19 --------------------NOTES------------------- 1. All DG starts may be preceded by an engine prelube period. 2. INSERT 8 Credit may be taken for unplanned events that satisfy this SR. 3. ~~To ensure Operability of an AVR, it must have been aligned to the DG during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2.~~ An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. --- Verify on an actual or simulated loss of offsite power signal in conjunction with actual or simulated ESF actuation signals: a. De-energization of emergency buses; b. Load shedding from emergency buses; c. DG auto-starts from standby condition and: 1. energizes permanently connected loads and resets the 4.16 kV bus undervoltage relay logic in ≤ 10 seconds; 2. energizes auto-connected emergency loads through the programmed time interval load sequence; 3. achieves steady state voltage ≥ 4161 V and ≤ 4576 V; 4. achieves steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	~~24 months~~ In accordance with the Surveillance Frequency Control Program

M03

A05

LA02

(continued)

M03 **INSERT 8**

This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced.

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.20 SR 3.8.1.20	-------------------NOTE-------------------- All DG starts may be preceded by an engine prelube period. -- Verify, when started simultaneously from standby condition, each DG: a. In ≤ 9.4 seconds, achieves voltage ≥ 4161 V and frequency ≥ 59.7 Hz; b. Maintains steady state voltage ≥ 4161 V and ≤ 4576 V; and c. Maintains steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz.	~~10 years~~ In accordance with the Surveillance Frequency Control Program

LA02

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~~Table 3.8.1-1 (page 1 of 1)~~
~~Diesel Generator Test Schedule~~

~~NUMBER OF FAILURES IN LAST 25 VALID TESTS~~[(a)]	~~FREQUENCY~~
~~≤ 3~~	~~31 days~~
~~≥ 4~~	~~7 days~~[(b)] ~~(but no less than 24 hours)~~

LA02

~~(a) Criteria for determining number of failures and valid tests shall be in accordance with Regulatory Position C.2.1 of Regulatory Guide 1.9, Revision 3, where the number of tests and failures is determined on a per DG basis.~~

~~(b) This test frequency shall be maintained until seven consecutive failure free starts from standby conditions and load and run tests have been performed. This is consistent with Regulatory Position C.3.2, of Draft Regulatory Guide DG-1021 (Second Proposed Revision 3 to Regulatory Guide 1.9) (Ref. 14). If, subsequent to the 7 failure free tests, 1 or more additional failures occur, such that there are again 4 or more failures in the last 25 tests, the testing interval shall again be reduced as noted above and maintained until 7 consecutive failure free tests have been performed. This test frequency is also consistent with paragraph (a)(3)(ii) of 10CFR50.63, "Loss of all alternating current power", as published in the Federal Register, Vol. 57, No. 77, page 14517, dated April 21, 1992 (Ref. 15).~~

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES-OPERATING

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 ITS 3.8.1 ACTIONS include a Note that states LCO 3.0.4.b is not applicable. CTS 3.8.1 does not include this Note. This changes the CTS by including the ACTIONS Note excluding the use of LCO 3.0.4.b.

This change is consistent with TSTF-359. The purpose of the ITS 3.8.1 ACTIONS Note is to prohibit entry into the Applicability of LCO 3.8.1 with an inoperable AC electrical source (offsite circuit or DG). Currently, CTS 3.8.1 and LCO 3.0.4 preclude entering MODE 4 when an AC electrical source is inoperable. However, CTS 3.0.4 has been modified as described in the Discussion for Changes for ITS Section 3.0. ITS LCO 3.0.4 allows entry into a MODE or other specified condition in the Applicability under certain conditions when a Technical Specification required component is inoperable. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed and determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. This addition of this restriction (LCO 3.0.4.b is not applicable) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable AC electrical source, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because CTS 3.8.1 and LCO 3.0.4 do not currently allow this option (i.e., MODES changes are not allowed while in the ACTIONS of this Specification). This change is considered administrative because it does not result in technical changes to the CTS.

A03 CTS 3.8.1 Required Actions D.1 and D.2 are modified by a Note which requires entry into applicable Conditions and Required Actions of LCO 3.8.9, Distribution Systems – Operating, when Condition D is entered. ITS Required Actions D.1 and D.2 are modified by a Note which requires entry into applicable Conditions and Required Actions of LCO 3.8.9, Distribution Systems – Operating, when Condition D is entered “with no AC power source to any train.” This changes the CTS by adding clarifying words to the Required Action Note.

The purpose of the CTS 3.8.1 Required Actions D.1 and D.2 Note is to ensure the ACTIONS of LCO 3.8.9, Distribution Systems – Operating Specification is entered when one offsite circuit and one DG are inoperable. The assumption is, as described in the CTS Bases, that these inoperabilities result in no AC power to a train. Otherwise, pursuant to LCO 3.0.6, LCO 3.8.9 would not be entered, even if all AC sources to it were inoperable resulting in de-energization. The

DISCUSSION OF CHANGES
ITS 3.8.1, AC SOURCES-OPERATING

proposed change is acceptable because it clarifies that LCO 3.8.9 should be entered when there is no AC power source to any train (offsite circuit or DG) without regard to whether the train is de-energized. This change is designated as administrative because clarifying words are being added to the Required Action Note without technically changing the intent.

A04 CTS 3.8.1 ACTION B and ACTION D (second Condition) provide actions when a "required" DG is inoperable and Required Actions B.4 and D.2 require the restoration of the "required" DG to OPERABLE status. CTS 3.8.1 ACTION E provides actions when two “required” DGs are inoperable and Required Action E.1 requires restoration of one “required” DG to OPERABLE status. ITS 3.8.1 ACTION B, ACTION D, and ACTION E require similar actions as the CTS, but do not use "required" when referring to the DGs. This changes the CTS by deleting the word "required" when used in conjunction with DGs from CTS 3.8.1 ACTION B, ACTION D, and ACTION E.

The purpose of the CTS LCO 3.8.1 is to ensure the AC electrical sources are available to provide the required power to shut down the reactor and maintain it in a safety shutdown condition after an AOO or postulated DBA. The proposed change deletes the word "required" from CTS 3.8.1 ACTIONS when used in conjunction with DG. This change is acceptable because the word "required" is not needed in "required DG" because the LCO stipulates that two DGs shall be OPERABLE. SONGS has only two DGs and both are required to be OPERABLE. The term “required” is used when there are more installed systems, structures, or components (SSCs) than are required to be OPERABLE. This change is designated as administrative because no technical changes are being made to the Specification.

A05 CTS SRs 3.8.1.2 and 3.8.1.3 are modified by a Note (Note 4 for SR 3.8.1.2 and Note 5 for SR 3.8.1.3) which states that to ensure Operability of an automatic voltage regulator (AVR), it must have been aligned to the DG during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last 60 days, plus any allowance per SR 3.0.2. CTS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.19 are modified by a Note (Note 2 for SRs 3.8.1.9 and 3.8.1.10 and Note 3 for SR 3.8.1.19) which states that to ensure Operability of an AVR, it must have been aligned to the DG during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 within the last 24 months, plus any allowance per SR 3.0.2. ITS SRs 3.8.1.2 and 3.8.1.3 are modified by a Note (Note 3 for SR 3.8.1.2 and Note 5 for SR 3.8.1.3) which states that an automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals. ITS SRs 3.8.1.9, 3.8.1.10, and 3.8.1.19 are modified by a Note (Note 3) which states that an automatic voltage regulator (AVR) is only required to be tested once each surveillance interval during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. This changes the CTS by rewording AVR Notes in SRs 3.8.1.2, 3.8.1.3, 3.8.1.9, 3.8.1.10, and 3.8.1.19.

The purpose of the AVR Note in CTS SRs 3.8.1.2, 3.8.1.3, 3.8.1.9, 3.8.1.10, and 3.8.1.19 is to ensure each AVR is tested once within the past 60 days with SRs 3.8.1.2 and 3.8.1.3 and tested once, with either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 in the past 24 months. The SONGS design includes two AVRs, either of which can perform the required function. Thus the Notes allow both AVRs to be

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OPERABLE, provided, for SRs 3.8.1.2 and 3.8.1.3, the AVRs have been tested every 60 days (essentially, one out of every 2 Surveillance intervals), and for SRs 3.8.1.9, 3.8.1.10, and 3.8.1.19, each AVR is tested during performance of at least one of the three SRs each Surveillance interval (i.e., one AVR is tested during one of the three SRs and the other AVR is tested during the other two SRs). The proposed change is editorial in that it rewords the Notes to be more consistent with the ISTS format without changing the intent of the Note. This change is designated as administrative because no technical changes are being made to the Specification.

A06 CTS SR 3.8.1.7, SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.14, and SR 3.8.1.18 include a Note that states credit may be taken for unplanned events that satisfy this SR. ITS SR 3.8.1.7, SR 3.8.1.12, SR 3.8.1.13, SR 3.8.1.14, and SR 3.8.1.18 do not include this Note. This changes the CTS by deleting this Note.

The purpose of the Note is to allow an unplanned event to be credited with meeting the applicable SR, provided the necessary data is obtained. However, this Note is unnecessary and redundant, since nothing in the CTS nor ITS currently precludes an unplanned event from being used to meet an SR. As long as the necessary data is obtained to prove an SR is satisfactorily met, any event, whether planned or unplanned, can be credited with meeting an SR. Therefore, this redundant Note has been deleted. This change is acceptable and designated as administrative since the technical requirements have not been changed.

A07 CTS 3.8.1 Required Action A.2 includes a Note to the Completion Time that states that the Completion Time may be extended to 10 days (from the normal 72 hour Completion Time) once per train prior to 7/01/2012 to perform maintenance. ITS 3.8.1 Required Action A.3 (the ITS equivalent of CTS 3.8.1 Required Action A.2) does not include this allowance. This changes the CTS by deleting this one-time exception to the normal 72 hour Completion Time to restore an inoperable DG.

The purpose of the Note was to provide SONGS Units 2 and 3 with a one-time exception to the normal 72 hour Completion Time for restoring an inoperable DG. This allowance was approved as part of License Amendments 224 and 217. The Note only provides the exception until 7/01/2012. Thus, by the time the ITS is scheduled to be implemented at SONGS Units 2 and 3, the allowed date (7/01/2012) for using the exception will have expired. Therefore, deletion of this one-time allowance is acceptable and designated as administrative.

<u>MORE RESTRICTIVE CHANGES</u>

M01 CTS 3.8.1 ACTION A provides actions when one required offsite circuit is inoperable. ITS 3.8.1 ACTION A provides similar actions when one required offsite circuit is inoperable, but also contains an additional Required Action (Required Action A.2) that requires declaring required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable. ITS 3.8.1 Required Action A.2 is required to be completed 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s). This changes the CTS by adding a Required

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Action to declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.

The purpose of ITS 3.8.1 Required Action A.2 is to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. The proposed change adds an additional Required Action when one required offsite circuit is inoperable to declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable within 24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s). The CTS would allow 72 hours if no offsite power is available to a feature based on the CTS definition of OPERABILITY which requires normal or emergency power. Inoperability of these required feature(s) concurrent with a loss of the associated DG can result in a loss of function. This change is designated as more restrictive because additional requirements are added to the ACTIONS of the ITS that are not currently in the CTS.

M02 CTS SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.14 provide requirements for DG testing. For CTS SR 3.8.1.10 and SR 3.8.1.14, the Surveillances include a requirement that the test should be performed, when operating paralleled with offsite power, at the inductive loading that offsite power conditions permit. ITS SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.14 provide similar requirements, but contain a Note (Note 2) which states, "If performed with the DG synchronized with offsite power, it shall be performed within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable." This changes the CTS by adding the power factor Note to these Surveillances.

The purpose of the ITS Note is to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible. The proposed change adds a power factor Note to some CTS Surveillances. This Note will ensure the DG is tested at a power factor that is representative of the actual inductive loading a DG would see under design basis accident conditions, while ensuring it is compatible with the grid conditions. This change is designated as more restrictive because an additional requirement is added to ITS Surveillances that is not currently in the CTS.

M03 CTS SR 3.8.1.8, CTS SR 3.8.1.9, and CTS SR 3.8.1.10 contain a Note (Note 1) which states, "Credit may be taken for unplanned events that satisfy this SR." ITS SR 3.8.1.8, ITS SR 3.8.1.9, and ITS SR 3.8.1.10 Note 1 modifies this Note by stating that the Surveillance shall not normally be performed in MODE 1 or 2. CTS SR 3.8.1.11 and CTS 3.8.1.19 contain a Note (Note 2) which states, "Credit may be taken for unplanned events that satisfy this SR." ITS SR 3.8.1.11 and ITS SR 3.8.1.19 Note 2 modifies this Note by stating that the Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. CTS SR 3.8.1.16 and CTS SR 3.8.1.17 contain a Note which states, "Credit may be taken for unplanned events that satisfy this SR." ITS SR 3.8.1.16 and ITS SR 3.8.1.17 Notes modify this Note by stating that the Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. Additionally, all of these ITS SR Notes state that either the Surveillance or portions of the Surveillance may be performed to reestablish

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OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. This changes the CTS by allowing the Surveillances (or portions of the Surveillances, as applicable) to be performed in their respective MODES only as long as an assessment is performed.

The purpose of the CTS SR 3.8.1.8 is to confirm the OPERABILITY of the alternate circuit distribution network to power shutdown loads. The purpose of the remaining CTS SRs is to confirm the OPERABILITY of the DGs. This change is acceptable because all of these SRs are normally performed during plant shutdown conditions. This change is designated as more restrictive because explicit restrictions are being added.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.8.1.1 requires verifying the correct breaker alignment and power availability for each required offsite circuit. The SR is modified by two notes which state Bus 3A04 (unit 2) and 2A04 (unit 3) is required when unit crosstie breaker 3A0416 (unit 2) and 2A0417 (unit 3) is used to provide a source of AC power (Note 1) and Bus 3A06 (unit 2) and 2A06 (unit 3) is required when unit crosstie breaker 3A0603 (unit 2) and 2A0619 (unit 3) is used to provide a source of AC power (Note 2). ITS SR 3.8.1.1 requires a similar Surveillance, but does not contain the Notes. This changes the CTS by moving the requirements in the CTS Notes to the Bases.

The removal of the requirement for Buses 3A04, 3A06, 2A04, and 2A06 to be required when crosstie breakers 3A0416, 3A603, 2A0417, and 2A0619, respectively, are used to provide a source of AC power is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. CTS and ITS SR 3.8.1.1 still require verification of correct breaker alignment and power availability for each required offsite circuit. The procedural information in the Note is not required for inclusion in the Specification and is being moved to the Bases. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.1.1 through SR 3.8.1.20 requires verifying that the AC electrical sources can and will operate as designed at the

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ITS 3.8.1, AC SOURCES-OPERATING

specified Surveillance Frequencies listed for each SR and in CTS Table 3.8.1-1. ITS SR 3.8.1.1 through SR 3.8.1.20 requires similar Surveillances; however, the specific periodic Frequencies are being replaced with "In accordance with the Surveillance Frequency Control Program." This also includes relocating the Frequency requirements in CTS Table 3.8.1-1 to the Surveillance Frequency Control Program. This changes the CTS by moving the specified frequencies for the SRs and the Bases for the frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

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ITS 3.8.1, AC SOURCES-OPERATING

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

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- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

DISCUSSION OF CHANGES
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5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.8.1.2 requires verifying each DG starts from standby conditions. The SR is modified by a Note (Note 1) which states performance of SR 3.8.1.7 satisfies this SR. ITS SR 3.8.1.2 requires the same Surveillance but does not contain a Note similar to CTS Note 1. This changes the CTS by moving the requirements in the CTS Note to the Bases.

The removal of the requirement that performance of SR 3.8.1.7 satisfies SR 3.8.1.2 is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. CTS and ITS SR 3.8.1.2 still require verification each DG starts from standby conditions. The procedural information in the Note is not required for inclusion in the Specification and is being moved to the Bases. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA04 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.8.1.10 requires verifying that each DG, "when connected to its bus in parallel with offsite power," during and following a load rejection ≥ 4450 kW and ≤ 4700 kW does not trip and voltage is maintained ≤ 5450 V. CTS SR 3.8.1.14 requires verifying that each DG, "when connected to its bus in parallel with offsite power," operates for ≥ 24 hours for ≥ 2 hours loaded ≥ 4935 kW and ≤ 5170 kW and for the remaining hours of the test loaded ≥ 4450 kW and ≤ 4700 kW. ITS SR 3.8.1.10 and SR 3.8.1.14 require the same requirements except the descriptive information, "when connected to its bus in parallel with offsite power," included in the CTS will not be included in the ITS. This changes the CTS by moving the descriptive information, "when connected to its bus in parallel with offsite power," to the Bases.

The removal of the CTS SR 3.8.1.10 and SR 3.8.1.14 information stating the DG requirements during the load rejection test is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS SR 3.8.1.10 still

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requires verifying the capability of each DG during a load rejection and ITS SR 3.8.1.14 still requires a 24 hour DG run. The procedural information in the SR is not required for inclusion in the Specification to adequately perform the SR. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA05 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS SR 3.8.1.13 requires verifying that each DG automatic trip is bypassed on an actual or simulated SIAS except: engine overspeed, generator differential current, and low-low lube oil pressure. ITS SR 3.8.1.13 requires verifying each DG noncritical automatic trip is bypassed on an actual or simulated ESF actuation signal. This changes the CTS by adding the term "noncritical" in the SR and moving the list of trips that will not be bypassed to the Bases.

The removal of the CTS SR 3.8.1.13 listing of the DG automatic trips that will not be bypassed and adding the descriptive term "noncritical" to the SR is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS SR 3.8.1.13 still requires verifying each DG non-critical automatic trips are bypassed on an ESF actuation signal. The three trips currently listed in the CTS SR are critical trips. The performance of the CTS and ITS SRs are not being affected; only descriptive information is being moved to the Bases. The procedural information in the SR is not required for inclusion in the Specification to adequately perform the SR. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA06 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS SR 3.8.1.16 and SR 3.8.1.17, as part of their respective tests, require the DG to return to ready-to-load operation with "steady state voltage ≥ 4161 V and ≤ 4576 V; steady state frequency ≥ 59.7 Hz and ≤ 61.2 Hz; and the DG output breaker open." ITS SR 3.8.1.16 and SR 3.8.1.17 require the same Surveillances; however, the ITS does not list the specific criteria for returning the DG to ready-to-load operation. This changes the CTS by moving the specific ready-to-load criteria to the Bases.

The removal of the CTS SR 3.8.1.16 and SR 3.8.1.17 specific criteria for returning the DG to ready-to-load operation is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS SR 3.8.1.16 and SR 3.8.1.17 still require performance of their respective SRs. The performance of the ITS SRs are not being affected; only descriptive information is being

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moved to the Bases. The procedural information in the SR is not required for inclusion in the Specification to adequately perform the SR. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA07 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS SR 3.8.1.12 requires verification of DG auto-start from standby condition on an actual or simulated safety injection actuation signal (SIAS). CTS SR 3.8.1.13 requires verification that the DG automatic trip is bypassed on an actual or simulated SIAS. CTS SR 3.8.1.17 requires verification that the test mode is overridden on an actual or simulated SIAS. ITS contains similar Surveillance Requirements but on an actual or simulated ESF Actuation Signal. This changes the CTS by moving the safety injection actuation signal to the Bases.

This change is acceptable because the ESF Actuation Signal for the diesel generators is the safety injection actuation signal. The removal of the CTS SR 3.8.1.12, SR 3.8.1.13, and SR 3.8.1.17 specific criteria for actual or simulated signal is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS SR 3.8.1.12, SR 3.8.1.13, and SR 3.8.1.17 still require performance of their respective SRs. The performance of the ITS SRs are not being affected; only descriptive information is being moved to the Bases. The procedural information in the SR is not required for inclusion in the Specification to adequately perform the SR. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details are being moved from the Technical Specifications to the ITS Bases.

LA08 *(Type 4 – Removing Details of System Design and System Description, Including Design Limits)* CTS SR 3.8.1.4 requires verifying that each day tank contains a fuel oil level ≥ 31.5 inches of fuel oil. ITS SR 3.8.1.4 requires verifying that each day tank contains a fuel oil level ≥ 1 hour of DG operation at full load plus 10%. This changes the CTS by moving the specific value for the fuel volume to the Bases.

The removal of these details from the Technical Specification is acceptable because this type of information is not necessary to provide adequate protection of public health and safety. The purpose of CTS SR 3.8.1.4 is to ensure that the diesel generator has sufficient fuel oil to operate the DG at full power plus 10 % for greater than or equal to 1 hour. This is stated in the CTS Bases. ITS SR 3.8.1.4 will continue to ensure that sufficient fuel is available for the DG to perform this safety function, as this is also stated in the ITS Bases. Also, this

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change is acceptable because these details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. The program provides for the evaluation of changes to ensure the Bases are properly controlled. Furthermore, the original intent of CTS SR 3.8.1.4 has not changed. This change is designated as a less restrictive removal of detail change because details are being moved from the Technical Specifications to the ITS Bases.

LESS RESTRICTIVE CHANGES

L01 *(Category 3 – Relaxation of Completion Time)* CTS 3.8.1 Required Actions A.2 and B.4, contain a second Completion Time to restore the affected AC electrical source within 17 days from discovery of failure to meet the LCO. ITS 3.8.1 ACTION A and ACTION B, which provide the actions for the same Conditions of CTS 3.8.1 ACTIONS A and B, do not contain this second Completion Time. This changes the CTS by deleting the second Completion Time that requires restoration of the affected inoperable AFW AC electrical sources within 17 days from discovery of failure to meet the LCO.

The second Completion Time was included in the SONGS TS and originally in the ISTS for certain Required Actions to establish a limit on the maximum time allowed for any combination of Conditions that result in a single continuous failure to meet the LCO. These Completion Times (henceforth referred to as "second Completion Times") are joined by an "AND" logical connector to the Condition-specific Completion Time and state "X days from discovery of failure to meet the LCO" (where "X" varies by specification). The intent of the second Completion Time was to preclude entry into and out of the ACTIONS for an indefinite period of time without meeting the LCO by providing a limit on the amount of time that the LCO could not be met for various combinations of Conditions.

This change was initiated (in accordance with NUREG-1432 as revised by TSTF-439) due to the problems the second Completion Time presents when Completion Times are extended by risk informed methodology by complicating the presentation of the ITS and complicating the implementation of risk-informed Completion Times. Deleting the second Completion Time is acceptable due to other regulatory requirements that are now present that were not present when the second Completion Time was proposed.

The two regulatory programs in place which provide a strong disincentive to continued operation with concurrent multiple inoperabilities of the type the second Completion Times were designed to prevent are the Maintenance Rule,10 CFR 50.65, and the Reactor Oversight Process, NEI 99-02.

The Maintenance Rule requires each licensee to monitor the performance of System, Structures, and Components (SSCs) against licensee-established goals to ensure that the SSCs are capable of fulfilling their intended functions. This Rule also considers all inoperable risk-significant equipment and not just those in the same system or those governed by the same LCO. The risk assessments performed prior to maintenance activities are governed by Regulatory Guide

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1.182. Any issues associated with equipment inoperability is monitored by the NRC Resident Inspector and reported in the Corrective Action Program.

The Reactor Oversight Process: NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," describes the tracking and reporting of performance indicators to support the NRC's Reactor Oversight Process (ROP). The NEI document is endorsed by RIS 2001-11, "Voluntary Submission of Performance Indicator Data." NEI 99-02, Section 2.2, describes the Mitigating Systems Cornerstone. NEI 99-02 specifically addresses emergency AC Sources (which encompasses the AC Sources and Distribution System LCOs), and the Auxiliary feedwater system. Extended unavailability of these systems due to multiple entries into the ACTIONS would affect the NRC's evaluation of the licensee's performance under the ROP.

In addition to these regulatory programs, a requirement is being added to TS Section 1.3 which requires the licensees to have administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls should consider plant risk and shall limit the maximum contiguous time of failing to meet the LCO. This Technical Specification requirement, when considered with the regulatory processes discussed above, provide an equivalent or superior level of plant safety without the unnecessary complication of the Technical Specifications by second Completion Times on some Specifications.

This change is considered less restrictive because it results in the relaxation of the Completion Time by eliminating the requirement for the AC electrical source to be restored 17 days from discovery of failure to meet the LCO.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.8.1 ACTION F provides the actions when the Required Actions and associated Completion Time of Condition A, B, C, D, or E is not met. It requires the unit to be in MODE 3 within 6 hours and MODE 5 within 36 hours. ITS 3.8.1 ACTION F provides the actions to be taken under the same conditions. However, it requires the unit to be in MODE 3 in 6 hours and MODE 4 in 12 hours. Furthermore, the Required Action to be in MODE 4 is modified by a Note which states LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by eliminating the requirement for the unit to be in MODE 5 within 36 hours and only requires the unit to be in MODE 4 within 12 hours.

The purpose of CTS 3.8.1 ACTION F is to place the unit in a condition where the LCO is not applicable. The proposed change, which is consistent with TSTF-422, allows the plant end state to conclude at MODE 4 within 12 hours versus MODE 5 within 36 hours. This change is based on a topical report, CE NPSD-01186 (approved by NRC on July 17, 2001), which justified a modified end state for some TS allowed outage time requirements of which the AC electrical sources is one. The topical report demonstrates through probabilistic and deterministic safety evaluations that the proposed end states represent a condition of equal or lower risk than the original end states. Preventing plant challenges during shutdown conditions has been, and continues to be, an important aspect of ensuring safe operation of the plant. Past events demonstrate that risk of core damage associated with entry into, and operation

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in, shutdown cooling is not negligible and should be considered when a plant is required to shutdown. Therefore, the Technical Specifications should encourage plant operation in the steam generator heat removal mode whenever practical, and require reliance on shutdown cooling only when it is a risk beneficial alternative to other actions.

The Note which modifies ITS 3.8.1 Required Action F.2 prohibits entry into the end state Mode of Applicability during startup using the provisions of LCO 3.0.4.a. The purpose of this Note is to provide assurance that entry into the end state Mode of Applicability during startup is not made without the appropriate risk assessment. Entry into the end state Mode of Applicability during startup will still be allowed under the provisions of LCO 3.0.4.b. This is acceptable because LCO 3.0.4.b allows entry only after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate. Details of the risk assessment are provided in the Bases for LCO 3.0.4.b.

SONGS will adopt the end states proposed in TSTF-422 and will perform a risk assessment in accordance with 10 CFR 50.65(a)(4) when using the end states regardless of whether maintenance is being performed. The risk assessment will follow Regulatory Guide 1.182, “Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants,” which endorses NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” Section 11 guidance for implementation of 10 CFR 50.65(a)(4). SONGS will also follow the industry-developed implementation guidance, WCAP-16364-NP, Revision 0, "Implementation Guidance for Risk Informed Modification to Selected Required Action End States at Combustion Engineering NSSS Plants (TSTF-422)," November 2004.

This change is designated as less restrictive because it relaxes the end state from MODE 5 to MODE 4.

L03 *(Category 5 – Deletion of Surveillance Requirement)* CTS SR 3.8.1.15 is a hot restart test and requires verifying the DG starts, achieves a specified voltage and frequency within 9.4 seconds, maintains a specified steady state voltage and frequency, and "operates for ≥ 5 minutes." ITS SR 3.8.1.15 contains the same requirements for the DG hot restart test except it does not require the DG to operate for ≥ 5 minutes after starting and achieving steady state voltage and frequency. This changes the CTS by eliminating the requirement to operate the DG for ≥ 5 minutes.

The purpose of CTS SR 3.8.1.15 is to demonstrate that the diesel engine restarts from a hot condition, such as subsequent to shutdown from normal surveillances, and achieves the required voltage and frequency within 9.4 seconds. The 9.4 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. CTS SR 3.8.1.15 contains a requirement for the DG to operate for ≥ 5 minutes. This requirement is not included in ITS SR 3.8.1.15. Operation of the DG for ≥ 5 minutes is not required to demonstrate the diesel engine restarts from a hot condition and achieves the required voltage and frequency within the time requirements assumed in the accident analysis.

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ITS 3.8.1, AC SOURCES-OPERATING

Therefore, deletion of the requirement that the DG operates for ≥ 5 minutes is acceptable. This change is designated as less restrictive because a requirement in the SR has been eliminated from the ITS that is included in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources - Operating

LCO 3.8.1

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electrical Power Distribution System, ;

b. Two diesel generators (DGs) each capable of supplying one train of the onsite Class 1E AC Electrical Power Distribution System, and .

~~[c. Automatic load sequencers for Train A and Train B.]~~

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Applicability

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

ACTIONS

---NOTE---
LCO 3.0.4.b is not applicable to DGs.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [required] offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for [required] OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable.	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s)
	AND	

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
		A.3 Restore ~~[~~required~~]~~ offsite circuit to OPERABLE status.	72 hours	2
ACTION B	B. One ~~[required]~~ DG inoperable.	B.1 Perform SR 3.8.1.1 for the OPERABLE ~~[~~required~~]~~ offsite circuit(s). AND B.2 Declare required feature(s) supported by the inoperable DG inoperable when its redundant required feature(s) is inoperable. AND B.3.1 Determine OPERABLE DG~~(s)~~ is not inoperable due to common cause failure. OR B.3.2 Perform SR 3.8.1.2 for OPERABLE DG~~(s)~~. AND B.4 Restore ~~[required]~~ DG to OPERABLE status.	1 hour AND Once per 8 hours thereafter 4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s) ~~[~~24~~]~~ hours ~~[~~24~~]~~ hours ~~72 hours~~ 14 days	2 2 2 1 2 1 2 8

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	C. Two [required] offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when its redundant required feature(s) is inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)	2
		AND		
		C.2 Restore one [required] offsite circuit to OPERABLE status.	24 hours	2
ACTION D	D. One [required] offsite circuit inoperable. AND One ~~[required]~~ DG inoperable.	--------------------NOTE------------------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition D is entered with no AC power source to any train. ---		2 2
		D.1 Restore [required] offsite circuits to OPERABLE status.	12 hours	2
		OR		
		D.2 Restore ~~[required]~~ DG to OPERABLE status.	12 hours	2
ACTION E	E. Two ~~[required]~~ DGs inoperable.	E.1 Restore one ~~[required]~~ DG to OPERABLE status.	2 hours	2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. ------------NOTE------------ [This Condition may be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads following a loss of offsite power independent of, or coincident with, a Design Basis Event. --------------------------------- One [required] [automatic load sequencer] inoperable.	F.1 Restore [required] [automatic load sequencer] to OPERABLE status.	[12] hours]
ACTION F G. Required Action and associated Completion Time of Condition A, B, C, D, E, or [F] not met. F or G	G.1 Be in MODE 3. F AND G.2 Be in MODE 5. 4	6 hours 12 36 hours
ACTION G H. Three or more [required] AC sources inoperable.	H.1 Enter LCO 3.0.3.	Immediately

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--------------NOTE--------------
LCO 3.0.4.a is not applicable when entering MODE 4.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1 SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each [required] offsite circuit.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.2 SR 3.8.1.2	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. [A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] 3. An automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals. ----- Verify each DG starts from standby conditions and achieves steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, and frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ [61.2] Hz.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.3 SR 3.8.1.3	-----NOTES----- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. 5. An automatic voltage regulator (AVR) is only required to be tested once per two Surveillance intervals. ----- Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load ≥ ~~[4500]~~ 4450 kW and ≤ ~~[5000]~~ 4700 kW.	~~31 days~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.4 SR 3.8.1.4	Verify each day tank ~~[and engine mounted tank]~~ contains ~~≥ [220] gal of fuel oil~~ a fuel oil level ≥ 1 hour of DG operation at full load plus 10%.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.5	SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].	[31] days
SR 3.8.1.6	SR 3.8.1.6 Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].	[92] days
SR 3.8.1.7	SR 3.8.1.7 -------------------------------NOTE------------------------------ All DG starts may be preceded by an engine prelube period. -- Verify each DG starts from standby condition and achieves: 9.4 a. In ≤ [10] seconds, voltage ≥ [3740] V and frequency ≥ [58.8] Hz and 59.7 4161 4576 b. Steady state voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz. 59.7	184 days
SR 3.8.1.8	SR 3.8.1.8 S 1. -------------------------------NOTE------------------------------ [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] 2. Testing to satisfy this SR shall include actual automatic and manual transfer to at least one alternate offsite circuit. The other alternate offsite circuit may be verified by overlapping circuit tests. -- [Verify [automatic [and] manual] transfer of AC power sources from the normal offsite circuit to each alternate [required] offsite circuit.	[18] months]

In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	-----------------------------NOTES---------------------------- 1. ~~[~~ This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with the DG synchronized with offsite power, it shall be performed ~~at a power factor ≤ [0.9]~~ within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. ~~]~~ 3. An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. --- Verify each DG rejects a load greater than or equal to its associated single largest post-accident load and: a. Following load rejection, the frequency is ≤ ~~[63]~~ 66.75 Hz, b. Within ~~[3]~~ 4 seconds following load rejection, the voltage is ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, and c. Within ~~[3]~~ 4 seconds following load rejection, the frequency is ≥ ~~[58.8]~~ 59.7 Hz and ≤ ~~[~~61.2~~]~~ Hz.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.1.9

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.10 SR 3.8.1.10	-----------------------------NOTES---------------------------- 1. ~~[~~ This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed ~~at a power factor ≤ [0.9]~~ within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. ~~]~~ 3. An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. --- Verify each DG does not trip, and voltage is maintained ≤ ~~[5000]~~ 5450 V during and following a load rejection of ≥ ~~[4500]~~ 4450 kW and ≤ ~~[5000]~~ 4700 kW.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	-----------------------------NOTES---------------------------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. --- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses, b. Load shedding from emergency buses, c. DG auto-starts from standby condition and: 1. Energizes permanently connected loads in ≤ [10] seconds, and resets the 4.16 kV bus undervoltage relay logic ~~2. Energizes auto-connected shutdown loads through [automatic load sequencer],~~ ~~3~~ 2. Maintains steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, ~~4~~ 3. Maintains steady state frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ [61.2] Hz, and ~~5~~ 4. Supplies permanently connected ~~[and auto-connected]~~ shutdown loads for ≥ 5 minutes.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.1.11

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.12	SR 3.8.1.12 -----------------------------NOTE~~S~~--------------------------- ~~1.~~ ~~[~~ All DG starts may be preceded by an engine prelube period. ~~2. This Surveillance shall not normally be performed in MODE 1 or 2. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.~~ --- Verify on an actual or simulated Engineered Safety Feature (ESF) actuation signal each DG auto-starts from standby condition and: a. In ≤ ~~[10]~~ 9.4 seconds after auto-start and during tests, achieves voltage ≥ ~~[3740]~~ 4161 V and frequency ≥ ~~[58.8]~~ 59.7 Hz, b. Achieves steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V and frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ ~~[~~61.2~~]~~ Hz, and c. Operates for ≥ 5 minutes~~,~~ . ~~d. Permanently connected loads remain energized from the offsite power system, and~~ ~~e. Emergency loads are energized [or auto-connected through the automatic load sequencer] from the offsite power system.~~	~~[18] months]~~ In accordance with the Surveillance Frequency Control Program TSTF-425-A

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	~~-----NOTE----- [This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] ----------~~ Verify each DG's noncritical automatic trips are bypassed on ~~[actual or simulated loss of voltage signal on the emergency bus concurrent with~~ an actual or simulated ESF actuation signal~~]~~.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.1.13

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.8.1.14	SR 3.8.1.14	------------------------------NOTES---------------------------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not normally be performed in MODE 1 or 2. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2 → ~~3~~. If performed with DG synchronized with offsite power, it shall be performed ~~at a power factor ≤ [0.9]~~ within the power factor limit. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as close to the limit as practicable. --- Verify each DG operates for ≥ 24 hours: a. For ≥ ~~[~~2~~]~~ hours loaded ≥ ~~[5250]~~ 4935 kW and ≤ ~~[5500]~~ 5170 kW and b. For the remaining hours of the test loaded ≥ ~~[4500]~~ 4450 kW and ≤ ~~[5000]~~ 4700 kW.	15 15 6 ~~[18] months~~ In accordance with the Surveillance Frequency Control Program TSTF-425-A 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	SR 3.8.1.15	-----NOTES----- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ ~~[~~2~~]~~ hours loaded ≥ ~~[4500]~~ 4450 kW and ≤ ~~[5000]~~ 4700 kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves: a. In ≤ ~~[10]~~ 9.4 seconds, voltage ≥ ~~[3740]~~ 4161 V and frequency ≥ ~~[58.8]~~ 59.7 Hz and b. Steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, and frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ ~~[~~61.2~~]~~ Hz.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program
SR 3.8.1.16	SR 3.8.1.16	-----NOTE----- This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power, b. Transfers loads to offsite power source, and c. Returns to ready-to-load operation.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.17 SR 3.8.1.17	------------------------------NOTE----------------------------- ~~[~~ This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events satisfy this SR. --- 2 Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ESF actuation signal overrides the test mode by: a. Returning DG to ready-to-load operation and ~~[~~ b. Automatically energizing the emergency load from offsite power. ~~]~~	~~[18] months]~~ In accordance with the Surveillance Frequency Control Program TSTF-425-A
SR 3.8.1.18 SR 3.8.1.18	~~------------------------------NOTE----------------------------- [This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.] ---~~ 16 2 Verify timing of ~~interval between~~ each sequenced load block is within its timer setting ± ~~[~~ 10% ~~of design interval]~~ or ± 2.5 seconds, whichever is greater, with the exception of the 5 second load group, whose criteria is -0.5, +2.5 seconds, for each programmed time interval ~~emergency [and shutdown]~~ load sequencer ~~]~~. 13 2	~~[18] months~~ TSTF-425-A

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.19 SR 3.8.1.19	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 3. An automatic voltage regulator (AVR) is only required to be tested once each Surveillance interval during the performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses, b. Load shedding from emergency buses, c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ ~~[~~10~~]~~ seconds, and resets the 4.16 kV bus undervoltage relay logic 2. energizes auto-connected emergency loads through ~~[~~load sequence~~r]~~ the programmed time interval, 3. achieves steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, 4. achieves steady state frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ ~~[~~61.2~~]~~ Hz, and 5. supplies permanently connected ~~[~~and auto-connected~~]~~ emergency loads for ≥ ~~[~~5~~]~~ minutes.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program TSTF-425-A 10 7 7 2

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.20 SR 3.8.1.20	-------------------------------NOTE------------------------------ All DG starts may be preceded by an engine prelube period. --- Verify, when started simultaneously from standby condition, each DG achieves: a. In ≤ ~~[10]~~ 9.4 seconds, voltage ≥ ~~[3740]~~ 4161 V and frequency ≥ ~~[58.8]~~ 59.7 Hz and b. Steady state voltage ≥ ~~[3740]~~ 4161 V and ≤ ~~[4580]~~ 4576 V, and frequency ≥ ~~[58.8]~~ 59.7 Hz and ≤ ~~[~~61.2~~]~~ Hz.	~~10 years~~ In accordance with the Surveillance Frequency Control Program TSTF-425-A 2

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1, AC SOURCES-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

4. The bracketed ISTS LCO 3.8.1.c and ACTION F are being deleted. SONGS "sequencer" is a series of timer relays which loads required systems on the emergency bus on timed intervals in load blocks. It is not a solid state system or self contained therefore, inoperabilities of the "sequencer" only affects the systems associated with individual load blocks. Therefore, SONGS will not add the automatic load sequencer to the LCO or ACTIONS in the ITS. In addition, due to the deletion, subsequent ACTIONS have been renumbered.

5. ISTS SR 3.8.1.4 states, "Verify each day tank [and engine mounted tank] contains ≥ [220] gal of fuel oil." The bracketed value of fuel oil volume is calculated on a plant-specific basis. The licensing basis for this bracketed value is to maintain sufficient fuel oil volume to operate the DG at full load plus 10% for greater than or equal to 1 hour. Proposed ITS SR 3.8.1.4 does not specify the gallons of fuel oil but does specify that each day tank contains a fuel level greater than or equal to 1 hour of DG operation at full load plus 10 %. The proposed change is necessary because the US Environmental Protection Agency (EPA) has more stringent standards for diesel fuel. Since the processing required to reduce sulfur in ultra lower sulfur diesel (ULSD) also reduces the aromatics content and density of diesel fuel, this also results in a reduction of volumetric energy content (BTU/gallon). Furthermore, the requirements on diesel fuel oil may continue to change in the future and the addition of additives to compensate for the issues associated with ULSD may further affect the volumetric energy content (and, as a result, the stored diesel fuel oil volume requirements). These changes would result in future license amendments to revise the fuel oil volume. In order to facilitate the expeditious revision of the fuel oil volume requirement when needed and to avoid the unnecessary expenditure of licensee and NRC resources to prepare and review future license amendment requests that simply revise the volume, the proposed change places the requirement to have stored fuel oil sufficient to support 1 hour of DG operation at full load plus 10 % in the Technical Specifications with the equivalent numerical volume under licensee control in the Technical Specification Bases. This change is based on TSTF-501 which was approved for ISTS SR 3.8.3.1. ISTS SR 3.8.3.1 contained the volumetric requirements for a 7 day supply of fuel.

6. The ISTS contains a Note in SRs 3.8.1.9, 3.8.1.10, and 3.8.1.14 which states, "If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ [0.9]. However, if grid conditions do not permit, the power factor limit is not required to be met. Under this condition the power factor shall be maintained as

JUSTIFICATION FOR DEVIATIONS
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close to the limit as practicable." This Note is being changed by replacing "at a power factor ≤ [0.9]" with "within the power factor limit," to be consistent with the SONGS CTS allowances. Currently, the power factor Note is not contained in the SONGS CTS, but is contained in the CTS Bases. The ITS will include the Note, but it will not specify a specific power factor value (e.g., 0.9) in the Notes to the Surveillances. The specific power factor value (as represented by inductive loading-kVARS) is included in the ITS Bases for the three Surveillances and will therefore be controlled under the Technical Specifications Bases Control Program. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This type of change was previously approved in the ITS conversions for Davis-Besse, Monticello Nuclear Generating Plant, James A. FitzPatrick Nuclear Power Plant, Quad Cities Units 1 and 2, Dresden Units 1 and 2, and LaSalle Units 1 and 2.

7. ISTS SR 3.8.1.19.c.1 was changed to add to energizes permanently connected loads, "and resets the 4.16kV bus undervoltage relay logic" and the actual name of the load sequencer was changed to "programmed time interval load sequence" in ISTS SR 3.9.1.19.c.2 to specifically list what is required in the SONGS ITS and to use the specific SONGS nomenclature.

8. ISTS 3.8.1 Required Action B.4 Completion Time is being changed from 72 hours to 14 days. This change is based on an augmented analysis using the methodology set forth in the ASME Code for Operation and Maintenance of Nuclear Power Plants which provides a series of deterministic and probabilistic justifications and supports continued operations in Condition B for a period that should not exceed 14 days. This change was approved by the NRC in License Amendment 141 and 133, as documented in the NRC Safety Evaluation dated 9/27/98 (Adams Accession No. ML022000066).

9. ISTS SR 3.8.1.11.c.2 requirement that the SR verify auto-connected loads are energized through the automatic load sequencer is being deleted for the SONGS ITS. ISTS SR 3.8.1.11.c.5 also ensure the auto-connected loads are energized for 5 minutes. Since SONGS does not have auto-connected shutdown loads, the RG 1.9 requirements for sequencing of auto-connected shutdown loads do not apply. Due to this deletion, subsequent parts of this SR have been renumbered. In addition, ISTS SR 3.8.1.11.c.1 was changed to add to energizes permanently connected loads, "and resets the 4.16kV bus undervoltage relay logic" to specifically list what is required in the SONGS ITS.

10. A Note is being added to ISTS SRs 3.8.1.2, 3.8.1.3, 3.8.1.9, 3.8.1.10, and 3.8.1.19 to modify the SRs for the SONGS automatic voltage regulator (AVR). SONGS DGs each have two AVRs, and each is capable of performing the required AVR function. The SONGS CTS provides allowances such that SONGS is only required to test an AVR once every two Surveillance intervals for SRs 3.8.1.2 and 3.8.1.3; and only required to test an AVR during performance of SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 for each Surveillance interval (i.e., every 24 months).

11. A Note is being added to ISTS SR 3.8.1.8 to modify the SR to adopt SONGS current allowance to verify the transfer of AC power sources from the normal offsite circuit to the alternate offsite circuit via actual transfer for one alternate offsite circuit and via overlapping circuit tests for the other alternate circuit. SONGS has two alternate

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offsite circuits, both of which are qualified to meet the LCO requirements. This Note allows only one of the two to be tested similar to the SR requirements, with the other circuit tested by overlapping circuit tests. This is allowed by the CTS and is being maintained in the ITS upgrade submittal.

12. ISTS SR 3.8.1.12.d and e require, following the DG start on an ESF actuation signal, for the permanently connected loads to remain powered from the offsite power system and the emergency loads to be energized or autoconnected through the load sequencer from the offsite power system. These two requirements have not been included in the SONGS ITS. The SONGS design includes individual timer relays, as discussed in JFD 4, not a load sequencer. The loads that are sequenced have single timers that are based not on what the power source is, but if power is available. Therefore, the timers are adequately tested in other SRs, like SR 3.8.1.18 and SR 3.18.1.19. In addition, the permanently connected loads are not deenergized on an ESF signal, thus there is no reason to confirm that they are not inadvertently removed from service. As stated in the ISTS Bases, the requirement to verify the connection of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. Since the timers are already adequately tested as part of other SRs, there is no reason to include it in this specific SR. This is also consistent with current Technical Specifications, which does not include these two requirements.

    Furthermore, since these two requirements are not being added, there is no reason to include ISTS SR 3.8.1.12 Note 2. This Note precludes the entire SR from being performed in MODE 1 or 2. However, the remaining portions of the SR (a, b, and c) can safely be performed in MODE 1. The three criteria to be met are performed at least every six months as required by ITS SR 3.8.1.7. As stated in the ISTS Bases, the reason for the Note is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and unit safety systems. However, ESF signal generation is performed in accordance with SRs in ITS SR 3.3.6.2 every 184 days, and the DG is started and operated in accordance with SR 3.8.1.7 every 184 days. Neither of these tests have similar restrictions, nor does this ITS SR 3.8.1.12 test cause any of the problems noted in the ISTS SR 3.8.1.12 Bases. Therefore, this Note has not been adopted in the SONGS ITS. This is also consistent with the CTS, which does not have this restrictive Note. Due to this deletion, the word "NOTES" has been changed to "NOTE" and the number for the first Note has been deleted.

13. ISTS SR 3.8.1.18 requires verifying the interval between each sequenced load block is within ± 10% of design interval. ISTS requires verifying the timing of each sequenced load block is within its timer setting ± 10% or ± 2.5 seconds, whichever is greater, with the exception of the 5 second load group, whose criteria is -0.5, +2.5 seconds. This change was previously approved by the NRC as documented in the NRC Safety Evaluation for Units 2 and 3 Amendments 169 and 160, respectively, dated September 1, 2000 (ADAMS Accession No. ML00374807).

14. ISTS SR 3.8.1.13 requires verifying each DG's non-critical automatic trips are bypassed on an actual or simulated ESF actuation signal. The SR includes a Note precluding performing this Surveillance in MODE 1 or 2. This Note has not been

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included in the ITS SR 3.8.1.13. The bypassing of these trip is currently tested as part of every fourth performance of ITS SR 3.3.6.2, which verifies the subgroup relays every 184 days. During this required instrument Surveillance, the DG is not being operated as part of the required instrument Surveillance (but it may be running to perform a DG related Surveillance), but it is not connected to the 1E bus. The ISTS Bases for the SR states that the Note is not required if performance of the SR will not render any safety system or component inoperable, will not cause any perturbation to any electrical distribution systems that could result in a challenge to steady state operation or plant safety systems, and will not cause or result in an anticipated operational occurrences (AOO) with attendant challenge to plant safety systems. Since the DG is not connected to the 1E bus, it does not affect the electrical distribution systems. Furthermore, since it is performed concurrent with the routinely performed subgroup relay Surveillance required every 184 days by SR 3.3.6.2 (it is just an additional data collection requirement after the ESF signal is generated), it does not result in any safety system or component being inoperable or cause an AOO. Therefore, this Note is not needed in the SONGS ITS. This is also consistent with the CTS, which does not include this Note.

15. ISTS SR 3.8.1.14 requires performance of a 24 hour DG run. The SR includes a Note (Note 2) precluding this SR from being performed in MODE 1 or 2. This Note has not been included in the ITS SR 3.8.1.14. The SR is performed with the DG paralleled with offsite power. The ISTS Bases for the SR says the reason for the Note is because performing the SR while critical could cause perturbations to the electrical distribution system that could challenge continued steady state operation and unit safety systems. However, another DG Surveillance performed on a monthly basis (e.g., SR 3.8.1.3) requires the DG to be paralleled with offsite power. The only difference between this Surveillance and SR 3.8.1.3 is the duration of the test. SONGS Transformer and generator sizes and impedances were selected considering voltage and short circuit current. Contributions from the running DG, offsite power system, and operating loads on the Class 1E electrical power system were all considered. Calculations demonstrate that Class 1E voltages and short circuit currents remain within equipment design limits when the DG is connected to the bus (as required to perform the 24 hour run Surveillance). If an actuation signal occurs while the DG is paralleled to offsite, the DG is automatically taken out of the test mode. Furthermore, the DG output breaker is opened, which results in the DG governor being reset to 60Hz so that when the DG breaker recloses, the proper speed and voltage are generated. Therefore, this Note is not needed in the SONGS ITS, since the DG can safely be run while paralleled with offsite power. This is also consistent with the CTS, which does not include this Note, and SONGS currently performs this SR on line. In addition, due to this deletion, the subsequent Note has been renumbered.

16. ISTS SR 3.8.1.18, requires verification of the intervals between each load block is within the limit. The SR includes a Note precluding this SR from being performed in MODE 1 or 2. This Note has not been included in the ITS SR 3.8.1.18. ITS SR 3.8.1.18 has been modified as discussed in JFD 13 to require the timing of each sequenced load block is within its timer setting limits. The SONGS design includes individual timer relays, as discussed in JFD 4, not a load sequencer. The loads that are sequenced have single timers that are based not on what the power source is, but if power is available. This SR is routinely performed while on line during

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performance of the ESFAS instrument logic testing required by ITS 3.3.6. During this normal instrument test, the DG is not being operated, thus it is not paralleled with offsite power. The ISTS Bases for the SR states that the Note is not required if performance of the SR will not render any safety system or component inoperable, will not cause any perturbation to any electrical distribution systems that could result in a challenge to steady state operation or plant safety systems, and will not cause or result in an anticipated operational occurrences (AOO) with attendant challenge to plant safety systems. Since the DG is not operated nor paralleled, it does not affect the electrical distribution systems. Furthermore, it does not result in any safety system or component being inoperable or cause an AOO. Therefore, this Note is not needed in the SONGS ITS. This is also consistent with the CTS, which does not include this Note.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources - Operating

BASES

BACKGROUND

The unit Class 1E Electrical Power Distribution System AC sources consist of the offsite power sources (preferred power sources, normal and alternate(s)), and the onsite standby power sources (Train A and Train B diesel generators (DGs)). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two preferred offsite power sources and a single DG.

Offsite power is supplied to the unit switchyard~~(s)~~ from the transmission network by ~~[two]~~ nine transmission lines. From the switchyard~~(s)~~, two electrically and physically separated circuits provide AC power, through ~~[step down station~~ reserve auxiliary transformers~~]~~, to the 4.16 kV ESF buses. A detailed description of the offsite power network and the circuits to the Class 1E ESF buses is found in the U FSAR, Chapter ~~[~~8~~]~~ (Ref. 2). 1 2

An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus or buses.

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the transformer supplying offsite power to the onsite Class 1E Distribution System. Within ~~[1 minute]~~ 77 seconds after the initiating signal is received, all automatic and permanently connected loads needed to recover the unit or maintain it in a safe condition are returned to service via the ~~load sequencer~~ programmed time interval load sequence. 2 1

The onsite standby power source for each 4.16 kV ESF bus is a dedicated DG. DGs ~~[11] and [12]~~ G002 and G003 are dedicated to ESF buses ~~[11]~~ A04 and ~~[12]~~ A06, respectively. A DG starts automatically on a safety injection (SI) signal (i.e., low pressurizer pressure or high containment pressure signals) or on an ~~[~~ESF bus degraded voltage or undervoltage signal~~]~~. After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or 2

BASES

BACKGROUND (continued)

degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, ~~[a sequencer/~~ an undervoltage signal~~]~~ strips ~~nonpermanent~~ selected loads (except load centers and High Pressure Safety Injection (HPSI) pumps) from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to its respective ESF bus by the ~~automatic load sequencer~~ programmed time interval load sequence. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application. 2 1

In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Within ~~[1] minute~~ 77 seconds after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service. 2

Ratings for Train A and Train B DGs satisfy the requirements of Regulatory Guide 1.9 (Ref. 3). The continuous service rating of each DG is ~~[7000]~~ 4700 kW with ~~[~~10~~]~~% overload permissible for up to 2 hours in any 24 hour period. The ESF loads that are powered from the 4.16 kV ESF buses are listed in Reference 2. 2

APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the UFSAR, Chapter ~~[~~6~~]~~ (Ref. 4) and Chapter ~~[~~15~~]~~ (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems. 1 2

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least one train of the onsite or offsite AC sources OPERABLE during accident conditions in the event of:

BASES

APPLICABLE SAFETY ANALYSES (continued)

a. An assumed loss of all offsite power or all onsite AC power and

b. A worst case single failure.

The AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Two qualified circuits between the offsite transmission network and the onsite Class 1E Electrical Power Distribution System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

U

Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit. 1

~~[In addition, one required automatic load sequencer per train must be OPERABLE.]~~ 3

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses.

INSERT 1

~~[Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNB01, which, in turn, powers the #1 ESF bus through its normal feeder breaker. Offsite circuit #2 consists of the Startup Transformer, which is normally fed from the Switchyard Bus A, and is fed through breaker PA 0201 powering the ESF transformer, which, in turn, powers the #2 ESF bus through its normal feeder breaker.]~~ 2

, and resetting the 4.16 kV bus undervoltage relay logic

Each DG must be capable of starting, accelerating to rated speed and voltage, ~~and~~ connecting to its respective ESF bus on detection of bus undervoltage. This will be accomplished within ~~[~~10~~]~~ seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot and DG in standby with the engine at ambient conditions. Additional DG capabilities must be demonstrated to meet required Surveillances, e.g., capability of the DG to revert to standby status on an ECCS signal while operating in parallel test mode. 2 1

2 **INSERT 1**

The normal preferred power source (Offsite circuit #1) for each unit is Reserve Auxiliary Transformers XR1 and XR2 for the specific unit. XR1 feeds one 4.16 kV ESF bus (Train A) A04 and XR2 feeds the other 4.16 kV ESF bus (Train B) A06 of the onsite Class 1E AC distribution system for each unit. In addition, when a unit is in MODE 3 or 4 with the unit's main generator isophase bus links removed, the unit's Main Transformer and the Unit Auxiliary Transformer XU1 may be used as the normal preferred power source (Offsite circuit #1). The alternate preferred power source (Offsite circuit #2) is the other unit's Reserve Auxiliary Transformers XR1 and XR2, or the other unit's Main Transformer and Unit Auxiliary Transformer XU1 (if the other unit is in MODE 3 or 4) through the train oriented 4.16 KV ESF bus cross-ties between the two units. The 4.16 kV ESF bus alignment in the other unit determines which transformer(s) serves as the alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Reserve Auxiliary Transformer (XR1 or XR2), then that transformer is the required alternate preferred power source. If the 4.16 kV ESF bus in the other unit is aligned to the Main Transformer and Unit Auxiliary Transformer (XU1), then that transformer is the required alternate preferred power source.

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BASES

LCO (continued)

Proper sequencing of loads, [including tripping of nonessential loads,] is a required function for DG OPERABILITY. 2

The AC sources in one train must be separate and independent (to the extent possible) of the AC sources in the other train. For the DGs, separation and independence are complete.
For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, with ~~fast~~ transfer capability to the other circuit OPERABLE, and not violate separation criteria. ~~A circuit that is not connected to an ESF bus is required to have OPERABLE fast transfer interlock mechanisms to at least two ESF buses to support OPERABILITY of that circuit.~~ 1 1

APPLICABILITY

The AC sources ~~[and sequencers]~~ are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that: 1

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

A Note prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

A.1

To ensure a highly reliable power source remains with the one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

BASES

ACTIONS (continued)

-----------------------------------REVIEWER'S NOTE-----------------------------------
~~The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.~~
--- 4

A.2

Required Action A.2, which only applies if the train cannot be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features.
INSERT 2
These features are powered from the redundant AC electrical power train. 7
This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

The Completion Time for Required Action A.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. The train has no offsite power supplying its loads and

b. A required feature on the other train is inoperable.

If at any time during the existence of Condition A (one offsite circuit inoperable) a redundant required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

7 **INSERT 2**

These redundant required features are those that are assumed to function to mitigate an accident, coincident with a loss of offsite power, in the safety analyses, such as the Emergency Core Cooling System and Auxiliary Feedwater System. These redundant required features do not include monitoring requirements, such as Post Accident Monitoring and Remote Shutdown.

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BASES

ACTIONS (continued)

Discovering no offsite power to one train of the onsite Class 1E Electrical Power Distribution System coincident with one or more inoperable required support or supported features, or both, that are associated with the other train that has offsite power, results in starting the Completion Times for the Required Action. Twenty-four hours is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

The remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to Train A and Train B of the onsite Class 1E Distribution System. The 24 hour Completion Time takes into account the component OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 24 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

A.3

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition A for a period that should not exceed 72 hours. With one offsite circuit inoperable, the reliability of the offsite system is degraded, and the potential for a loss of offsite power is increased, with attendant potential for a challenge to the unit safety systems. In this Condition, however, the remaining OPERABLE offsite circuit and DGs are adequate to supply electrical power to the onsite Class 1E Distribution System.

The 72 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

B.1

To ensure a highly reliable power source remains with an inoperable DG, it is necessary to verify the availability of the offsite circuits on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions and Required Actions must then be entered.

BASES

ACTIONS (continued)

--------------------------------REVIEWER'S NOTE--------------------------------
The turbine driven auxiliary feedwater pump is only required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor or turbine driven auxiliary feedwater pump(s) is not by itself capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

4

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a complete loss of safety function of critical ~~systems. These features are designed with redundant safety related trains~~. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, are not included. Redundant required feature failures consist of inoperable features with a train, redundant to the train that has an inoperable DG.

redundant required features

7

The Completion Time for Required Action B.2 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. An inoperable DG exists and

b. A required feature on the other train is inoperable.

If at any time during the existence of this Condition (one DG inoperable) a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

BASES

ACTIONS (continued)

Discovering one required DG inoperable coincident with one or more inoperable required support or supported features, or both, that are associated with the OPERABLE DG, results in starting the Completion Time for the Required Action. Four hours from the discovery of these events existing concurrently, is acceptable because it minimizes risk while allowing time for restoration before subjecting the unit to transients associated with shutdown.

In this Condition, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. Thus, on a component basis, single failure protection for the required feature's function may have been lost; however, function has not been lost. The 4 hour Completion Time takes into account the OPERABILITY of the redundant counterpart to the inoperable required feature. Additionally, the 4 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

<u>B.3.1 and B.3.2</u>

Required Action B.3.1 provides an allowance to avoid unnecessary testing of OPERABLE DGs. If it can be determined that the cause of the inoperable DG does not exist on the OPERABLE DG, SR 3.8.1.2 does not have to be performed. If the cause of inoperability exists on the other DG~~(s)~~, the other DG~~(s)~~ would be declared inoperable upon discovery and Condition E of LCO 3.8.1 would be entered. Once the failure is repaired, the common cause failure no longer exists and Required Action B.3.1 is satisfied. If the cause of the initial inoperable DG cannot be confirmed not to exist on the remaining DG~~(s)~~, performance of SR 3.8.1.2 suffices to provide assurance of continued OPERABILITY of that DG. 3 3 3

In the event the inoperable DG is restored to OPERABLE status prior to completing either B.3.1 or B.3.2, the ~~[~~plant corrective action program~~]~~ will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed while in Condition B. 2

According to Generic Letter 84-15 (Ref. 7), ~~[~~24~~]~~ hours is reasonable to confirm that the OPERABLE DG~~(s)~~ is not affected by the same problem as the inoperable DG. 2 1

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BASES

ACTIONS (continued)

B.4

INSERT 3

~~According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition B for a period that should not exceed 72 hours.~~ 1

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The ~~72 hour~~ 14 day Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period. 3

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required ~~safety functions~~ features. INSERT 4 The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are not included in the list. 7

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. All required offsite circuits are inoperable and

b. A required feature is inoperable.

1

INSERT 3

An augmented analysis using the methodology set forth in Reference 12 provides a series of deterministic and probabilistic justifications and supports continued operations in Condition B for a period that should not exceed 14 days.

7

INSERT 4

These redundant required features are those that are assumed to function to mitigate an accident, coincident with a loss of offsite power, in the safety analyses, such as the Emergency Core Cooling System and Auxiliary Feedwater System. The redundant required features do not include monitoring requirements, such as Post Accident Monitoring and Remote Shutdown.

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BASES

ACTIONS (continued)

If at any time during the existence of Condition C (two offsite circuits inoperable) and a required feature becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure and

b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient. In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

ACTIONS (continued)

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems - Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized train.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours.

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

E.1

With Train A and Train B DGs inoperable, there are no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

BASES

ACTIONS (continued)

According to Regulatory Guide 1.93 (Ref. 6), with both DGs inoperable, operation may continue for a period that should not exceed 2 hours.

~~[F.1~~

~~The sequencer(s) is an essential support system to [both the offsite circuit and the DG associated with a given ESF bus]. [Furthermore, the sequencer is on the primary success path for most major AC electrically powered safety systems powered from the associated ESF bus.] Therefore, loss of an [ESF bus sequencer] affects every major ESF system in the [division]. The [12] hour Completion Time provides a period of time to correct the problem commensurate with the importance of maintaining sequencer OPERABILITY. This time period also ensures that the probability of an accident (requiring sequencer OPERABILITY) occurring during periods when the sequencer is inoperable is minimal.~~

~~This Condition is preceded by a Note that allows the Condition to be deleted if the unit design is such that any sequencer failure mode will only affect the ability of the associated DG to power its respective safety loads under any conditions. Implicit in this Note is the concept that the Condition must be retained if any sequencer failure mode results in the inability to start all or part of the safety loads when required, regardless of power availability, or results in overloading the offsite power circuit to a safety bus during an event, thereby causing its failure. Also implicit in the Note, is that the Condition is not applicable to any train that does not have a sequencer.]~~ 3

F

~~G~~.1 and ~~G~~.2 3

plant risk is minimized

If the inoperable AC electrical power sources 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~~ 4 within ~~36~~ 12 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 unit systems. TSTF-422

INSERT 5 TSTF-422

TSTF-422

INSERT 5

Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 7). In MODE 5, it is likely that increased plant maintenance activities (particularly those involving the switchyard) will make the plant more susceptible to loss of offsite power events. In MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state. 14 1

F Required Action G.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. 3

BASES

ACTIONS (continued)

G

~~H~~.1 3

Condition ~~H~~ corresponds to a level of degradation in which all redundancy in the AC electrical power supplies has been lost. At this severely degraded level, any further losses in the AC electrical power system will cause a loss of function. Therefore, no additional time is justified for continued operation. The unit is required by LCO 3.0.3 to commence a controlled shutdown. 3

SURVEILLANCE REQUIREMENTS

The AC sources are designed to permit inspection and testing of all important areas and features, especially those that have a standby function, in accordance with 10 CFR 50, Appendix A, GDC 18 (Ref. 8). Periodic component tests are supplemented by extensive functional tests during refueling outages (under simulated accident conditions). The SRs for demonstrating the OPERABILITY of the DGs are in accordance with the recommendations of Regulatory Guide 1.9 (Ref. 3), Regulatory Guide 1.108 (Ref. 9), and Regulatory Guide 1.137 (Ref. 10), as addressed in the U FSAR.

1

Where the SRs discussed herein specify voltage and frequency tolerances, the following is applicable. The minimum steady state output voltage of ~~[3740]~~ 4297 V is ~~90% of the nominal 4160 V output voltage~~ INSERT 6. This value, which is specified in ANSI C84.1-1982 (Ref. 11), allows for voltage drop to the terminals of ~~4000~~ 4160 V motors whose minimum operating voltage is specified as 90% or ~~3600~~ 3744 V. ~~It also allows for voltage drops~~ This minimum voltage requirement also ensures that adequate voltage is provided to motors and other equipment down through the 120 V level ~~where minimum operating voltage is also usually specified as 80% of name plate rating~~. The specified maximum steady state output voltage of ~~[4756]~~ 4576 V is equal to the maximum operating voltage specified for ~~4000~~ 4160 V motors. It ensures that for a lightly loaded distribution system, the voltage at the terminals of ~~4000~~ 4160 V motors is no more than the maximum rated operating voltages. The specified minimum and maximum frequencies of the DG are ~~58.8~~ 59.7 Hz and 61.2 Hz, respectively. ~~These values are~~ The upper frequency limit is equal to ~~±~~ + 2% of the 60 Hz nominal frequency and ~~are~~ is derived from the recommendations given in Regulatory Guide 1.9 (Ref. 3). The lower frequency limit is equal to -0.5% of the 60 Hz nominal frequency and is based on maintaining acceptable high pressure safety injection system performance as assumed in the accident analyses.

2 1 8 2 1

1

INSERT 6

above the maximum reset voltage of the 4.16kV bus undervoltage relays. Achieving a voltage at or above 4297 V ensures that the LOVS/SDVS/DGVSS relay logic will reset allowing sequencing of the ESF loads on to the ESF bus if one or more ESF actuation signals is present.

BASES

SURVEILLANCE REQUIREMENTS (continued)

For Unit 2, Bus 3A04 or Bus 3A06 is required when unit crosstie breaker 3A0416 or 3A0603, respectively, is used to provide a source of AC power. For Unit 3, Bus 2A04 or Bus 2A06 is required when unit crosstie breaker 2A0417 or 2A0619, respectively, is used to provide a source of AC power.

SR 3.8.1.1

This SR assures proper circuit continuity for the offsite AC electrical power supply to the onsite distribution network and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their preferred power source, and that appropriate independence of offsite circuits is maintained. ~~The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.~~ 1 TSTF-425-A

INSERT 7

SR 3.8.1.2 and SR 3.8.1.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and to maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs are modified by a Note (Note 1 for SR 3.8.1.2 and Note for SR 3.8.1.7) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup period prior to loading ~~by an engine prelube period~~. 11

For the purposes of SR 3.8.1.2 and SR 3.8.1.7 testing, the DGs are started from standby conditions. Standby conditions for a DG mean the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations.

~~[~~ In order to reduce stress and wear on diesel engines, the DG manufacturer~~s~~ recommend s a modified start in which the starting speed of DGs is limited, warmup is limited to this lower speed, and the DGs are gradually accelerated to synchronous speed prior to loading. This is the intent of SR 3.8.1.2 Note 2, which is only applicable when such modified start procedures are recommended by the manufacturer. 2 11 5

SR 3.8.1.7 requires that~~, at a 184 day Frequency,~~ the DG starts from standby conditions and achieves required voltage and frequency within ~~10~~ 9.4 seconds. The ~~10~~ 9.4 second start requirement supports the assumptions of the design basis LOCA analysis in the UFSAR, Chapter ~~[~~15~~]~~ (Ref. 5). ~~]~~ TSTF-425-A 3 2 1

TSTF-425-A

INSERT 7

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note ---~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

9.4

The ~~10~~ second start requirement is not applicable to SR 3.8.1.2 (see Note 2) when a modified start procedure as described above is used. If a modified start is not used, ~~10~~ second start requirement of SR 3.8.1.7 applies. 3

9.4

Since SR 3.8.1.7 requires a ~~10~~ second start, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2.

In addition to the SR requirements, the time for the DG to reach steady state operation, unless the modified DG start method is employed, is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

INSERT 8

INSERT 9

~~The 31 day Frequency for SR 3.8.1.2 is consistent with Regulatory Guide 1.9 (Ref. 3). The 184 day Frequency for SR 3.8.1.7 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). These Frequencies provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.~~ TSTF-425-A

3

SR 3.8.1.3

This Surveillance verifies that the DGs are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to the equivalent of the maximum expected accident loads. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

Although no power factor requirements are established by this SR, ~~the DG is normally operated at a power factor between [0.8 lagging] and [1.0]. The 0.8 value is the design rating of the machine, while [1.0] is an operational limitation [to ensure circulating currents are minimized].~~ ~~The 31 day Frequency for this Surveillance is consistent with Regulatory Guide 1.9 (Ref. 3).~~ 9 TSTF-425-A

INSERT 10

INSERT 11

five

This SR is modified by ~~four~~ Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit will not invalidate the test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance. 1 3

INSERT 12

3

INSERT 8

The Automatic Voltage Regulator (AVR) is discussed in SR 3.8.1.2 Note 3. The AVR is an integral part of the DG; however, each DG has 2 AVRs that are 100% redundant to each other. Only one AVR is required to be OPERABLE and can be in service at any one time. To ensure OPERABILITY of each AVR, the AVRs must have been in service during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last two Surveillances intervals. Based on the design of the AVR, its intended function and the maintenance history, testing the AVR every second Surveillance will assure the AVRs are capable of performing their intended function.

Frequencies for each

TSTF-425-A

INSERT 9

The ~~Frequency~~ is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~ 4

9

INSERT 10

the surveillance is performed with DG kVAR output that offsite power system conditions permit during testing without exceeding equipment ratings (i.e., without creating an overvoltage condition on the ESF buses, over excitation condition on the ESF buses, over excitation condition in the generator, or overloading the DG main feeder). The kVAR loading requirement during this test is met, and the equipment ratings are not exceeded, when the DG kVAR output is increased such that:

a. kVAR is $\geq$ 3000 and $\leq$ 3200;
b. the excitation current is $\geq$ 3.8 A and $\leq$ 4.0 A for all EDGs except 3G003 and $\geq$ 5.1 A and $\leq$ 5.5 A for EDG 3G003;
c. the ESF bus voltage is $\geq$ 4530 V and $\leq$ 4550 V; or
d. DG feeder current is $\geq$ 730 A and $\leq$ 750 A.

This method of establishing kVAR loading ensures that, in addition to verifying the load carrying capability (kW) of the diesel engine, the reactive power (kVAR) and voltage regulation capability of the generator is verified to the extent practicable, consistent with the recommendations of Regulatory Guide 1.9 (Ref. 3).

TSTF-425-A

INSERT 11

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~--~~

3

INSERT 12

The Automatic Voltage Regulator (AVR) is discussed in Note 5. The AVR is an integral part of the DG; however, each DG has 2 AVRs that are 100% redundant to each other. Only one AVR is required to be OPERABLE and can be in service at any one time. To ensure OPERAABILITY of each AVR, the AVRs must have been in service during the performance of SR 3.8.1.2 and SR 3.8.1.3 within the last two Surveillances intervals. Based on the design of the AVR, its intended function and the maintenance history, testing the AVR every second Surveillance will assure the AVRs are capable of performing their intended function.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank ~~[and engine mounted tank]~~ is at or above the level ~~at which fuel oil is automatically added. The level is expressed as an equivalent volume in gallons, and is~~ selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%. 3

INSERT 13

INSERT 14

~~The 31 day Frequency is adequate to assure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.~~ TSTF-425-A

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day ~~[and engine mounted]~~ tanks ~~once every [31] days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). ~~This SR is for preventive maintenance.~~ The presence of water does not necessarily represent failure of this SR provided the accumulated water is removed during the performance of this Surveillance. 3 TSTF-425-A

INSERT 14

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

3

INSERT 13

The fuel oil level equivalent to 1 hour of DG operation at full load plus 10% is 389 gallons or 31.5 inches, when calculated in accordance with References 10 and 15.

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INSERT 14

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note ---~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

INSERT 15

~~[The Frequency for this SR is variable, depending on individual system design, with up to a [92] day interval. The [92] day Frequency corresponds to the testing requirements for pumps as contained in the ASME Code (Ref. 12); however, the design of fuel transfer systems is such that pumps will operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day [and engine mounted] tanks during or following DG testing. In such a case, a 31 day Frequency is appropriate. Since proper operation of fuel transfer systems is an inherent part of DG OPERABILITY, the Frequency of this SR should be modified to reflect individual designs.]~~

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SR 3.8.1.7

See SR 3.8.1.2.

~~[~~ SR 3.8.1.8

Transfer of each ~~[~~4.16 kV ESF bus~~]~~ power supply from the normal offsite circuit to the alternate offsite circuit , via the train-aligned 4.16 kV crosstie between Unit 2 and Unit 3, demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. 2 1

INSERT 15

~~The [18 month] Frequency of the Surveillance is based on engineering judgment, taking into consideration the unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~

TSTF-425-A

This SR is modified by ~~a Note~~ two Notes. The reason for ~~the~~ Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system 3

TSTF-425-A

INSERT 15

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.~~]~~

INSERT 16

3

SR 3.8.1.9

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency and while maintaining a specified margin to the overspeed trip. ~~[~~For this unit, the single load for each DG and its horsepower rating is ~~as follows;]~~ This Surveillance may be accomplished by:

the motor-driven Auxiliary Feedwater pump which has a nameplate rating of 800 HP.

2

a. Tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest post-accident load while paralleled to offsite power or while solely supplying the bus, or

b. Tripping its associated single largest post-accident load with the DG solely supplying the bus.

As required by IEEE-308 (Ref. 13), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower.

The time, voltage, and frequency tolerances specified in this SR are derived from Regulatory Guide 1.9 (Ref. 3) recommendations for response during load sequence intervals. The ~~[3]~~ 4 seconds specified is equal to ~~60%~~ 80% of a typical 5 second load sequence interval associated with sequencing of the largest load. INSERT 17 The voltage and frequency specified are consistent with the design range of the equipment powered by the DG. SR 3.8.1.9.a corresponds to the maximum frequency excursion, while SR 3.8.1.9.b and SR 3.8.1.9.c are steady state voltage and frequency values to which the system must recover following load rejection. ~~The [18 month] Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9).~~ INSERT 18

2

1

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1

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1

INSERT 16

The reason for Note 2 is to ensure that the actual transfer (manual and automatic) from the normal offsite circuit to at least one of the alternate offsite circuits is satisfied by the test; however, testing on the other alternate offsite circuit may be verified by overlapping circuit tests. For each 4.16kV ESF bus (A04 or A06) this Surveillance Requirement may be satisfied by performing both a manual transfer and an auto-transfer from the normal offsite power source to at least one of the alternate offsite power sources. The tested source may then be credited as the required alternate offsite power source per LCO 3.8.1. This Surveillance may be satisfied for the remaining alternate offsite power source by performing a circuit functional test in addition to the transfer test above. This functional test shall be performed such that all components that are required to function for a successful manual or auto-transfer that were not included in the transfer tests above, are tested. This testing may include any series of sequential, overlapping, or total steps so that the entire manual and auto-transfer capability of the source is verified.

1

INSERT 17

Since SONGS specific analyses demonstrate the acceptability of overlapping load groups (i.e., adjacent load groups that start at the same time due to load sequence timer tolerance), the use of 80% of load sequence interval for voltage recovery is consistent with the requirements of Regulatory Guide 1.9 (Ref. 3)

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INSERT 18

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~--~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

three

This SR is modified by ~~two~~ Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. Note 2 INSERT 19 ensure~~s~~ that the DG is tested under load conditions that are as close to design basis conditions as possible~~.~~ INSERT 20 ~~When synchronized with offsite power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 2 allows the Surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close as practicable to [0.9] without exceeding the DG excitation limits.~~ 3

INSERT 21 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~ 4

~~a. Performance of the SR will not render any safety system or component inoperable,~~

3 **INSERT 19**

requires the DG to operate within the power factor limit when synchronized with offsite power. However, this limit is not required to be met if the grid conditions do not permit, but the power factor must be maintained as close to the limit as practicable. In order to

3 **INSERT 20**

, testing is performed by rejecting an inductive load with kW and kVAR greater than or equal to the single largest post-accident load (683 kW, 369 kVAR). These test conditions are consistent with the power factor requirements of Regulatory Guide 1.9 (Ref. 3) and the recommendations of Information Notice 91-13 (Ref. 12).

3 **INSERT 21**

The Automatic Voltage Regulator (AVR) is discussed in Note 3. The AVR is an integral part of the DG; however, each DG has 2 AVRs that are 100% redundant to each other. Only one AVR is required to be OPERABLE and can be in service at any one time. To ensure OPERABILITY, each AVR must be in service during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 each Surveillance interval. Based on the design of the AVR, its intended function and the maintenance history, the above specified Surveillances will assure the AVRs are capable of performing their intended function.

BASES

SURVEILLANCE REQUIREMENTS (continued)

b. ~~Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems, and~~

c. ~~Performance of the SR or failure of the SR will not cause or result in an AOO with attendant challenge to plant safety systems.~~

4

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 load response under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG will not trip upon loss of the load. These acceptance criteria provide 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.

equal to 90% to 100% of its continuous rating

1

INSERT 22

~~The [18 month] Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with expected fuel cycle lengths.~~

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three

This SR is modified by ~~two~~ Notes. The reason for Note 1 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, unit safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the

3

TSTF-425-A

INSERT 22

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewers Note --
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR. Note 2 ~~ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 2 allows the Surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close as practicable to [0.9] without exceeding the DG excitation limits.~~

INSERT 23

3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~

~~a. Performance of the SR will not render any safety system or component inoperable,~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems, and~~

~~c. Performance of the SR or failure of the SR will not cause or result in an AOO with attendant challenge to plant safety systems.~~
~~---~~

4

3 **INSERT 23**

requires the DG to operate within the power factor limit when synchronized with offsite power. However, this limit is not required to be met if the grid conditions do not permit, but the power factor must be maintained as close to the limit as practicable. The DG is tested under inductive load conditions that are as close to design basis conditions as possible. Testing is performed with DG kVAR output that offsite power system conditions permit during testing without exceeding equipment ratings (i.e., without creating an overvoltage condition on the ESF buses, over excitation condition in the generator, or overloading the DG main feeder). The kVAR loading requirement during the test is met, and the equipment ratings are not exceeded, when the DG kVAR output is increased such that:

a. kVAR is ≥ 3000 and ≤ 3200;
b. the excitation current is ≥ 3.8 A and ≤ 4.0 A for all EDGs except 3G003 and ≥ 5.1 A and ≤ 5.5 A for EDG 3G003;
c. the ESF bus voltage is ≥ 4530 V and ≤ 4550 V; or
d. DG feeder current is ≥ 730 A and ≤ 750 A.

This method of establishing kVAR loading ensures that, in addition to verifying the full load rejection capability (kW) of the diesel engine, the reactive power rejection capability (kVAR) of the generator is verified to the extent practicable, consistent with the recommendations of Regulatory Guide 1.9 (Ref. 3) and Information Notice 91-13 (Ref. 12).

The Automatic Voltage Regulator (AVR) is discussed in Note 3. The AVR an integral part of the DG; however, each DG has 2 AVRs that are 100% redundant to each other. Only one AVR is required to be OPERABLE and can be in service at any one time. To ensure OPERABILITY, each AVR must be in service during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 each Surveillance interval. Based on the design of the AVR, its intended function and the maintenance history, the above specified Surveillances will assure the AVRs are capable of performing their intended function.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.11

9 3

As required by Regulatory Guide 1.~~108~~ (Ref. ~~9~~), ~~paragraph 2.a.(1),~~ this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions encountered from the loss of offsite power, including shedding of the ~~nonessential~~ loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time. 1

selected

and undervoltage relay logic reset

The DG auto-start time of ~~[~~10~~]~~ seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved. 1 2

The requirement to verify the connection and power supply of permanent ~~and auto-connected~~ loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, high pressure injection systems are not capable of being operated at full flow, or shutdown cooling (SDC) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. 3

INSERT 24

~~The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~ TSTF-425-A

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained

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INSERT 24

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewers Note --
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

consistent with manufacturer recommendations. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1, 2, 3, or ~~2~~ 4 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1, 2, 3, or ~~2~~ 4. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR. 10

~~[~~ SR 3.8.1.12

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (~~[10]~~ 9.4 seconds) from ~~the design basis~~ a safety injection actuation signal ~~(LOCA signal)~~ and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability. ~~SR 3.8.1.12.d and SR 3.8.1.12.e ensure that permanently connected loads and emergency loads are energized from the offsite electrical power system on an ESF signal without loss of offsite power.~~ 3 1 3

~~The requirement to verify the connection of permanent and autoconnected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, high pressure injection systems are not capable of being operated at full flow, or SDC systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration~~ 3

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.~~ 3

INSERT 25

~~The Frequency of [18 months] takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~ TSTF-425-A

a the

This SR is modified by ~~two~~ Note~~s~~. The reason for Note ~~1~~ is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. ~~The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or . Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR.]~~ 3 3

TSTF-425-A

INSERT 25

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewers Note --
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13

This Surveillance demonstrates that DG noncritical protective functions (e.g., high jacket water temperature) are bypassed on ~~a loss of voltage signal concurrent with~~ an ESF actuation test signal. Noncritical automatic trips are all automatic trips except: 3

a. Engine overspeed;

b. Generator differential current;

-low

~~[~~c. Low lube oil pressure~~;~~ . 2

~~d. High crankcase pressure;~~ and 2

~~e. Start failure relay.]~~

The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

INSERT 26

~~The [18 month] Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the [18 month] Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.~~ TSTF-425-A

~~The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service. This restriction from normally performing the Surveillance in MODE or is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or~~ 3

TSTF-425-A

INSERT 26

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~--~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.~~ 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~ 4

~~a. Performance of the SR will not render any safety system or component inoperable,~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems, and~~

~~c. Performance of the SR or failure of the SR will not cause or result in an AOO with attendant challenge to plant safety systems.~~
~~--~~

SR 3.8.1.14

Regulatory Guide 1.~~108~~ 9 (Ref. ~~9~~ 3), ~~paragraph 2.a.(3),~~ requires demonstration ~~once per 18 months~~ that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours, ≥ ~~[~~2~~]~~ hours of which is at a load equivalent to 105% to 110% of the continuous duty rating and the remainder of the time at a load equivalent to 90% to 100% of the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR. 1 TSTF-425-A 2 1 1

The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

INSERT 27

~~The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 7), paragraph 2.a.(3), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.~~ TSTF-425-A

TSTF-425-A

INSERT 27

The Frequency is controlled under the Surveillance Frequency Control Program. 6

--- Reviewers Note ---
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

two

This Surveillance is modified by ~~three~~ Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test. ~~The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. This restriction from normally performing the Surveillance in MODE or is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE or . Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.~~ ~~Note 3 ensures that the DG is tested under load conditions that are as close to design basis conditions as possible. When synchronized with offsite power, testing should be performed at a power factor of ≤ [0.9]. This power factor is representative of the actual inductive loading a DG would see under design basis accident conditions. Under certain conditions, however, Note 3 allows the Surveillance to be conducted at a power factor other than ≤ [0.9]. These conditions occur when grid voltage is high, and the additional field excitation needed to get the power factor to ≤ [0.9] results in voltages on the emergency busses that are too high. Under these conditions, the power factor should be maintained as close as practicable to [0.9] while still maintaining acceptable voltage limits on the emergency busses. In other circumstances, the grid voltage may be such that the DG excitation levels needed to obtain a power factor of [0.9] may not cause unacceptable voltages on the emergency busses, but the excitation levels are in excess of those recommended for the DG. In such cases, the power factor shall be maintained as close practicable to [0.9] without exceeding the DG excitation limits.~~

INSERT 28

3

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11

3

3 **INSERT 28**

Note 2 requires the DG to operate within the power factor limit when synchronized with offsite power. However, this limit is not required to be met if the grid conditions do not permit, but the power factor must be maintained as close to the limit as practicable. The DG is tested under inductive load conditions that are as close to design conditions as possible. Testing is performed with DG kVAR output that offsite power system conditions permit during testing without exceeding equipment ratings (i.e., without creating an overvoltage condition on the ESF buses, over excitation condition in the generator, or overloading the DG main feeder). The kVAR loading requirement during the test is met, and the equipment ratings are not exceeded, when the DG kVAR output is increased such that:

a. kVAR is ≥ 3000 and ≤ 3200;
b. the excitation current is ≥ 3.8 A and ≤ 4.0 A for all EDGs except 3G003 and ≥ 5.1 A and ≤ 5.5 A for EDG 3G003;
c. the ESF bus voltage is ≥ 4530 V and ≤ 4550 V; or
d. DG feeder current is ≥ 730 A and ≤ 750 A.

This method of establishing kVAR loading ensures that, in addition to verifying the load carrying capability (kW) of the diesel engine, the reactive power (kVAR) and voltage regulation capability of the generator is verified to the extent practicable, consistent with the recommendations of Regulatory Guide 1.9 (Ref. 3) and Information Notice 91-13 (Ref. 12).

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 9.4 ~~[10]~~ seconds. The 9.4 ~~[10]~~ second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. 3

INSERT 29 ~~The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5).~~ TSTF-425-A

This SR is modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. The requirement that the diesel has operated for at least ~~[~~2~~]~~ hours at full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing. 2

SR 3.8.1.16

As required by Regulatory Guide 1.9 ~~108~~ (Ref. 3 ~~9~~), ~~paragraph 2.a.(6),~~ this Surveillance ensures that the manual synchronization and ~~automatic~~ load transfer from the DG to the offsite source can be made and that the DG can be returned to ready to load status when offsite power is restored. It also ensures that the auto-start logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready to load status when the DG is within steady state frequency (≥ 59.7 Hz and ≤ 61.2 Hz) and voltage (≥ 4161 V and ≤ 4576 V) limits ~~at rated speed and voltage~~, the output breaker is open and can receive an~~d~~ autoclose signal on bus undervoltage, and the load sequence timers are reset. 1 1 11

INSERT 29 ~~The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), and takes into consideration unit conditions required to perform the Surveillance.~~ TSTF-425-A

TSTF-425-A

INSERT 29

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

, 2, 3,

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or ~~2~~ 4 10 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or

, 2, 3, 4 10

enhanced when the Surveillance is performed in MODE 1 or ~~2~~. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

~~[~~ SR 3.8.1.17

safety injection

Demonstration of the test mode override ensures that the DG availability under accident conditions will not be compromised as the result of testing and the DG will automatically reset to ready to load operation if a ~~LOCA~~ actuation signal is received during operation in the test mode. Ready to load operation is defined as the DG running ~~at rated speed and voltage~~ with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 13), paragraph 6.2.6(2). 1

within the steady state frequency (≥ 59.7 Hz and ≤ 61.2 Hz) and voltage (≥ 4161 V and ≤ 4576 V) limits

The requirement to automatically energize the emergency loads with offsite power is essentially identical to that of SR 3.8.1.12. The intent in the requirement associated with SR 3.8.1.17.b is to show that the emergency loading was not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

INSERT 30

~~The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration unit conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.~~ TSTF-425-A

TSTF-425-A

INSERT 30

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---~~

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would ~~remove a required offsite circuit from service,~~ perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE , 2, 3, 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE , 2, 3, 1 or 2 4. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR. ~~]~~

12 10 4 10 2

SR 3.8.1.18

Under accident ~~[and loss of offsite power]~~ conditions loads are sequentially connected to the bus by the ~~[automatic load sequencer]~~ programmed time interval load sequence. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. The ~~[10]%~~ ± 10% or ± 2.5 seconds (- 0.5, +2.5 seconds for the 5 second load group) load sequence start time ~~interval~~ tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference ~~1~~ 2 provides a summary of the automatic loading of ESF buses.

3 3 1

INSERT 31

~~The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2); takes into consideration unit conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.~~

TSTF-425-A

TSTF-425-A

INSERT 31

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewers Note --
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed Surveillance, a successful Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when the Surveillance is performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.~~ 3

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The above MODE restrictions may be deleted if it can be demonstrated to the staff, on a plant specific basis, that performing the SR with the reactor in any of the restricted MODES can satisfy the following criteria, as applicable:~~ 4

~~a. Performance of the SR will not render any safety system or component inoperable,~~

~~b. Performance of the SR will not cause perturbations to any of the electrical distribution systems that could result in a challenge to steady state operation or to plant safety systems, and~~

~~c. Performance of the SR or failure of the SR will not cause or result in an AOO with attendant challenge to plant safety systems.~~
~~--~~

SR 3.8.1.19

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

BASES

SURVEILLANCE REQUIREMENTS (continued)

actual or simulated

actual or simulated

This Surveillance demonstrates the DG operation, as discussed in the Bases for SR 3.8.1.11, during ~~a~~ loss of offsite power actuation test signal in conjunction with an ESF actuation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. an 3

INSERT 32

~~The Frequency of [18 months] takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of [18 months].~~ TSTF-425-A

three

This SR is modified by ~~two~~ Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations for DGs. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or ~~2~~ is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or ~~2~~. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR. 3

, 2, 3, 4 10

, 2, 3, 4 10

INSERT 33 3

TSTF-425-A

INSERT 32

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 4
~~---~~

3

INSERT 33

The Automatic Voltage Regulator (AVR) is discussed in Note 3. The AVR is an integral part of the DG; however, each DG has 2 AVRs that are 100% redundant to each other. Only one AVR is required to be OPERABLE and can be in service at any one time. To ensure OPERABILITY, each AVR must be in service during the performance of either SR 3.8.1.9, SR 3.8.1.10, or SR 3.8.1.19 each surveillance interval. Based on the design of the AVR, its intended function and the maintenance history, the above specified Surveillances will assure the AVRs are capable of performing their intended function.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.20

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously.

INSERT 34 ~~The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).~~ TSTF-425-A

This SR is modified by a Note. The reason for the Note is to minimize wear on the DG during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated, and temperature maintained consistent with manufacturer recommendations.

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.

2. FSAR, Chapter [8]. 1

3. Regulatory Guide 1.9, Rev. [3].

4. FSAR, Chapter [6]. 1

5. FSAR, Chapter [15]. 1

6. Regulatory Guide 1.93, Rev. [ ], [date]. 0

7. Generic Letter 84-15.

8. 10 CFR 50, Appendix A, GDC 18. 2

9. Regulatory Guide 1.108, Rev. [1], [August 1977].

10. Regulatory Guide 1.137, Rev. [ ], [date]. 1

11. ANSI C84.1-1982.

12. ~~ASME Code for Operation and Maintenance of Nuclear Power Plants.~~ Information Notice 91-13, "Inadequate Testing of Emergency Diesel Generators (EDGs)" 09/16/91. 1

13. IEEE Standard 308-[1978]. 1

14. CE NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required End States for CEOG PWRs, October, 2001 TSTF-422-A

15. ANSI N195-1976.

U

TSTF-425-A

INSERT 34

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~--~~ 4

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1 BASES, AC SOURCES-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes are made to be consistent with changes made to the Specification.

4. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

5. SR 3.8.1.2 was added to the ISTS SR 3.8.1.2 and SR 3.8.1.7 Bases to identify the SR 3.8.1.2 Note is being discussed.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk is not always true for each of the Frequencies. In addition, for SR 3.8.1.2 and SR 3.8.1.7, the phrase has been changed to "...Frequencies for each..." since the two SRs will always have a different Frequency in the program.

7. ISTS 3.8.1 Required Actions A.2 and C.1 have been modified to state, "These redundant required features are those that are assumed to function to mitigate an accident, coincident with a loss of offsite power, in the safety analyses, such as the Emergency Core Cooling System and Auxiliary Feedwater System. These redundant required features do not include monitoring requirements, such as Post Accident Monitoring and Remote Shutdown." ISTS 3.8.1 Required Action B.2 has been modified to state, "Required Action B.2 is intended to provide assurance that a loss of offsite power …, does not result in a complete loss of safety function of critical redundant required features." The purpose of Required Action A.2, B.2, and C.1 is to ensure that a complete loss of safety function does not occur should a loss of offsite power occur. Therefore, a "required feature" must have a safety function to provide in the event of an accident and mitigation of an accident, since safety functions fall into two categories: initial condition of an accident and mitigation of an accident. The Required Actions are, by definition, not consistent with initial conditions of the accident analyses. The initial conditions of the accident analyses are represented in the LCOs, and the Required Actions only apply when an LCO is not met. Therefore, Required Actions A.2, B.2, and C.1 are concerned with verifying that the safety function of accident mitigation can be performed. This is only a concern if the safety function is assumed to be performed during an accident coincident with a loss of offsite power. This is appropriate because without a loss of offsite power coincident with the accident, the existing electrical power configuration would persist and a full train of emergency power would be available. Lastly, systems which do not perform a

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.1 BASES, AC SOURCES-OPERATING

function assumed in the safety analysis, such as Power Accident Monitoring and Remote Shutdown, are not considered "required feature(s)" consistent with the existing statements in the Bases. These changes will eliminate confusion surrounding what is considered a "required feature."

8. The statement "It also allows for voltage drops to motors and other equipment down through the 120 V level where operating voltage is also usually specified as 80% of the name plate rating" has been changed to "This minimum voltage requirement also ensures that adequate voltage is provided to motors and other equipment down through the 120 V level." SONGS uses a detailed Electrical Transient Analyzer Program (ETAP) power system analysis and design software to verify that adequate voltage is provided to motors and other equipment for different alignments and loading conditions.

9. ISTS Bases for SR 3.8.1.3 contains the statement "Although no power factor requirements are established by this SR, the DG is normally operated at a power factor between [0.8 lagging] and [1.0]. The 0.8 value is the design rating of the machine, while [1.0] is an operational limit [to ensure circulating currents are minimized]." SONGS performs testing of DGs at a power factor that is representative of the actual inductive loading a DG would see under design accident conditions, while assuring it is compatible with the grid conditions. Therefore, the statement was changed to indicate that the Surveillance is performed using inductive loading. This change is acceptable because it is consistent with the recommendations of Regulatory Guide 1.9.

10. Changes are made to be consistent with the actual Specification.

11. Typographical/grammatical error corrected.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.1, AC SOURCES-SHUTDOWN

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 2

ITS 3.8.2, AC SOURCES-SHUTDOWN

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources — Shutdown

LCO 3.8.2

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems Shutdown"; and

b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

L01 A02

ACTIONS

------------ NOTES ------------
1. LCO 3.0.3 is not applicable.
2. LCO 3.0.4.b is not applicable for DGs.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ------------------------------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
		(continued)

ACTION A

L02

ITS

A01

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME	
A. (continued)	A.2.~~2~~1 Suspend movement of irradiated fuel assemblies.	Immediately	L02
	AND A.2.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	L02
	AND A.2.~~4~~3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately	L02
ACTION B B. One required DG inoperable.	~~B.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~	L02
	~~AND~~ B.~~2~~1 Suspend movement of irradiated fuel assemblies.	Immediately	L02
	AND B.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	L02
	AND B.~~4~~3 Initiate action to restore required DG to OPERABLE status.	Immediately	L02

ITS

A01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.2.1 SR 3.8.2.1	--------------------NOTE------------------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.~~8~~ 9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and SR 3.8.1.18~~, and SR 3.8.1.19~~. --- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources — Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

L03

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ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources — Shutdown

LCO 3.8.2

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems Shutdown"; and

b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution subsystem(s) required by LCO 3.8.10.

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

L01 A02

ACTIONS

------------- NOTES -------------
1. LCO 3.0.3 is not applicable.
2. LCO 3.0.4.b is not applicable for DGs.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	------------NOTE------------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ------------------------------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
		(continued)

L02

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ITS

A01

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME	
A. (continued)	A.2.~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately	L02
	AND A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	L02
	AND A.2.~~4~~ 3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately	L02
ACTION B B. One required DG inoperable.	~~B.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~	L02
	~~AND~~ B.~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately	L02
	AND B.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	L02
	AND B.~~4~~ 3 Initiate action to restore required DG to OPERABLE status.	Immediately	L02

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1 SR 3.8.2.1	-------------------NOTE------------------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.~~8~~ 9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and SR 3.8.1.18~~, and SR 3.8.1.19~~. -- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources — Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17 , SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

L03

DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES-SHUTDOWN

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 ITS 3.8.2 ACTIONS include a Note (Note 2) that states LCO 3.0.4.b is not applicable to the DGs. CTS 3.8.2 does not include this Note. This changes the CTS by including the ACTIONS Note (Note 2) excluding the use of LCO 3.0.4.b for the DGs.

The purpose of the ITS 3.8.2 ACTIONS Note 2 is to prohibit entry into the Applicability of LCO 3.8.2 with an inoperable DG. Currently, CTS 3.8.2 and LCO 3.0.4 preclude entering MODE 5 when an AC electrical source is inoperable. However, CTS LCO 3.0.4 has been modified as described in the Discussion of Changes for ITS Section 3.0. ITS LCO 3.0.4 allows entry into a MODE or other specified condition in the Applicability under certain conditions when a Technical Specification required component is inoperable. ITS LCO 3.0.4.b allows entry into a MODE or other specified condition in the Applicability of a Specification if a risk assessment is performed and determines it is acceptable to enter the Applicability, and appropriate risk management actions are established. This addition of this restriction (LCO 3.0.4.b is not applicable to the DGs) is acceptable because there is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG, and therefore the provisions of LCO 3.0.4.b should not be applied in this circumstance. The change is acceptable because CTS 3.8.2 and LCO 3.0.4 do not currently allow this option (i.e., MODES changes are not allowed while in the ACTIONS of this Specification). This change is considered administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES-SHUTDOWN

LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* ITS 3.8.2 ACTIONS are modified by a Note (Note 1) that states LCO 3.0.3 is not applicable. CTS 3.8.2 ACTIONS do not contain this Note. This changes the CTS by adding a Note (Note 1) to the ACTIONS stating LCO 3.0.3 is not applicable.

The purpose of CTS 3.8.2 is to ensure sufficient AC sources are available to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents). The proposed change to CTS 3.8.2 adds a Note that modifies the ACTIONS by stating that LCO 3.0.3 is not applicable. This change is acceptable because when moving irradiated fuel assemblies while in MODES 5 and 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODES 1, 2, 3, or 4, the fuel movement is independent of reactor operations. This clarification is necessary because defaulting to LCO 3.0.3 (during irradiated fuel assembly movement in MODE 1, 2, 3, or 4) would require the reactor to be shutdown unnecessarily. This change is designated as less restrictive because a Note which relaxes the Required Actions is included in the ITS that is not currently included in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.8.2 ACTIONS A and B specify compensatory actions when one required offsite circuit or one required DG, respectively, are inoperable. One of the compensatory actions is to suspend CORE ALTERATIONS. Under similar conditions, ITS 3.8.2 ACTIONS do not require suspension of CORE ALTERATIONS. This changes the CTS by deleting the requirement to suspend CORE ALTERATIONS when one required offsite circuit or one required DG is inoperable. Additionally, subsequent Required Actions have been renumbered.

The purpose of CTS LCO 3.8.2 is to ensure sufficient AC sources are available to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents). When the required offsite circuit or DG is not OPERABLE, CTS 3.8.2 ACTIONS suspend CORE ALTERATIONS to preclude an event that could result in not meeting the SHUTDOWN MARGIN limit. CORE ALTERATIONS is defined in CTS 1.1, in part, as "the movement or manipulation of any fuel, reactivity control components, sources, or other components…affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel." There are two evolutions encompassed under the term CORE ALTERATIONS that could affect the SHUTDOWN MARGIN: addition of fuel to the reactor vessel and withdrawal of control rods. However, ITS 3.8.2 Required Actions A.2.1 and B.1 require immediate suspension of movement of irradiated fuel assemblies and ITS Required Actions A.2.2 and B.2 require suspension of operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. This would include both the addition of fuel to the reactor vessel and the withdrawal of control rods. Furthermore, another accident considered in MODE 6 that could affect SHUTDOWN MARGIN is the boron dilution event. A boron dilution accident is initiated by a dilution source which results in the boron concentration dropping below that required to maintain the SHUTDOWN MARGIN. A boron dilution accident is mitigated by stopping the dilution. Suspension of CORE ALTERATIONS has no affect on the mitigation of a boron

DISCUSSION OF CHANGES
ITS 3.8.2, AC SOURCES-SHUTDOWN

dilution accident. In summary, with the exception of suspending movement of fuel assemblies, there are no DBAs or transients that are initiated by, or mitigation affected by, suspension of CORE ALTERATIONS. Therefore, if all Required Actions that require suspension of CORE ALTERATIONS also require suspension of movement of fuel, suspension of CORE ALTERATIONS provides no safety benefit. Thus, the deletion of the requirement to suspend CORE ALTERATIONS is acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied to the ITS than were applied in the CTS.

L03 *(Category 5 – Deletion of Surveillance Requirement)* CTS SR 3.8.2.1 states that for the AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources-Operating," except SR 3.8.1.17 and SR 3.8.1.20, are applicable. CTS SR 3.8.2.1 is modified by a Note which states the following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19. ITS SR 3.8.2.1 states that for the AC sources required to be OPERABLE, the SRs of Specification 3.8.1, “AC Sources-Operating,” except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable. ITS SR 3.8.2.1 is modified by a Note which states the following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and SR 3.8.1.18. This changes the CTS by adding SR 3.8.1.8, SR 3.8.1.12, and SR 3.8.1.19 to the SRs that are exempted from being performed to satisfy SR 3.8.2.1.

The purpose of CTS SR 3.8.2.1 is to require performance of SRs from CTS 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in MODES 5 and 6, and during movement of fuel assemblies. The proposed change to CTS SR 3.8.2.1 adds three additional SRs (SR 3.8.1.8, SR 3.8.1.12, and SR 3.8.1.19) that are not applicable in MODES 5 and 6, and during movement of fuel assemblies. This change is acceptable because SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE and SRs 3.8.1.12 and 3.8.1.19 are not required to be met because the ESF actuation signal is not required to be OPERABLE in MODES 5 and 6 or during movement of fuel assemblies, as shown in CTS 3.3.5. SR 3.8.1.8 requires verifying the capability of automatic and manual transfer of AC power sources from the normal offsite circuit to each alternate required offsite circuit. With only one offsite circuit required to be OPERABLE, SR 3.8.1.8 is not necessary (since there is no technical reason to demonstrate transfer capability). SR 3.8.1.12 and SR 3.8.1.19 both require ESF signals for the SR to be performed. The applicable ESF signals are not required to be OPERABLE in MODES 5 and 6 or during movement of fuel assemblies; therefore, the SRs are not required to be performed. This change is designated as less restrictive, because SRs that were "required to be performed" or "required to be met" for the CTS will not be required for the ITS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources - Shutdown

LCO 3.8.2

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E AC electrical power distribution ~~subsystem(s)~~ train(s) required by LCO 3.8.10, "Distribution Systems Shutdown" and 4

b. One diesel generator (DG) capable of supplying one train of the onsite Class 1E AC electrical power distribution ~~subsystem(s)~~ train(s) required by LCO 3.8.10. 4

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of ~~[recently]~~ irradiated fuel assemblies. 2

ACTIONS

DOC L01

DOC A02

1.

---NOTE S-- 3

1. LCO 3.0.3 is not applicable.

2. LCO 3.0.4.b is not applicable for DGs.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	-------------------NOTE------------------ Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ---	
	A.1 Declare affected required feature(s) with no offsite power available inoperable. <u>OR</u>	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~	TSTF-471-A
	~~AND~~		
	A.2.~~2~~ 1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately	TSTF-471-A 2
	AND		
	A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in a loss of required SDM or boron concentration.	Immediately	TSTF-471-A
	AND		
	A.2.~~4~~ 3 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately	TSTF-471-A
ACTION B B. One required DG inoperable.	~~B.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~	TSTF-471-A
	~~AND~~		
	B.~~2~~ 1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately	TSTF-471-A 2
	AND		
	B.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	TSTF-471-A
	AND		

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B. ~~4~~ 3 Initiate action to restore required DG to OPERABLE status.	Immediately

TSTF-471-A

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1 SR 3.8.2.1	-----------------------------NOTE----------------------------- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, and ~~[~~SR 3.8.1.18~~]~~. ---	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources - Operating," except SR 3.8.1.8, SR 3.8.1.12, SR 3.8.1.17, SR 3.8.1.19, and SR 3.8.1.20, are applicable.	In accordance with applicable SRs

2

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.2, AC SOURCES-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. A second Note has been added to the ITS 3.8.2 ACTIONS which states that LCO 3.0.4.b is not applicable for DGs. This type of Note was added throughout NUREG 1432 when TSTF-359 modified ISTS LCO 3.0.4 and the TSTF wanted to preclude the use of LCO 3.0.4.b in the changing MODES in an inoperable component or subsystem. The model safety evaluation for TSTF-359 states that LCO 3.0.4.b cannot be used for the DGs in any MODE. However, the Note was not added to NUREG-1432 for ISTS 3.8.2. Without the addition of the Note, SCE believes that certain conditions could arise when the DGs become inoperable in MODE 6, and the Note would not preclude changing MODES to MODE 5. Thus the Note would not preclude the use of LCO 3.0.4.b to perform this MODE change. This would have to be precluded administratively. In order to preclude a misinterpretation, SCE is adding the Note which states that LCO 3.0.4.b is not applicable for the diesel generators.

4. Changes made to be consistent with changes made to LCO 3.8.10.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources - Shutdown

BASES

BACKGROUND	A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources - Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 5 and 6 and during movement of ~~[recently]~~ irradiated fuel assemblies ensures that: 2

a. The unit can be maintained in the shutdown or refueling condition for extended periods,

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status, and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident ~~[involving handling recently irradiated fuel. Due to radioactive decay, AC electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]~~. 2

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

BASES

APPLICABLE SAFETY ANALYSES (continued)

During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODE 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on:

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODE 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

In the event of an accident during shutdown, this LCO ensures the capability to support systems necessary to avoid immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite diesel generator (DG) power.

The AC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

train(s)

One offsite circuit capable of supplying the onsite Class 1E power distribution ~~subsystem(s)~~ of LCO 3.8.10, "Distribution Systems - Shutdown," ensures that all required loads are powered from offsite power. An OPERABLE DG, associated with a distribution system train required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to provide electrical power support, assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DG ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents ~~[involving handling recently irradiated fuel]~~). 3 2

BASES

LCO (continued)

The qualified offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safety Feature (ESF) bus(es). Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit. 1

U

INSERT 1

~~[Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNBO1, which, in turn, powers the #1 ESF bus through its normal feeder breaker. The second offsite circuit consists of the Startup Transformer, which is normally fed from the Switchyard Bus A, and is fed through breaker PA 0201 powering the ESF transformer, which, in turn, powers the #2 ESF bus through its normal feeder breaker.]~~ 2

The DG must be capable of starting, accelerating to rated speed and voltage, connecting to its respective ESF bus on detection of bus undervoltage, and accepting required loads. This sequence must be accomplished within ~~[~~10~~]~~ seconds. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and must continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot and DG in standby at ambient conditions. 2

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.

INSERT 2

~~[In addition, proper sequencer operation is an integral part of offsite circuit OPERABILITY since its inoperability impacts on the ability to start and maintain energized loads required OPERABLE by LCO 3.8.10.]~~ 2

It is acceptable for trains to be cross tied during shutdown conditions, allowing a single offsite power circuit to supply all required trains.

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of ~~[recently]~~ irradiated fuel assemblies provide assurance that: 3

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies,

2 **INSERT 1**

One source of offsite power (offsite circuit #1) for each unit is normally provided through Reserve Auxiliary Transformers XR1 and XR2 for the specific unit. XR1 feeds one 4.16 kV ESF bus (Train A) A04 and XR2 feeds the other 4.16 kV bus (Train B) A06 of the onsite Class 1E AC distribution system for each unit. The second source of offsite power (offsite circuit #2) is provided by the other unit's Reserve Auxiliary Transformers XR1 and XR2 through the train oriented 4.16 kV ESF bus crossties between the two units. In addition an alternate offsite source of power for each unit would be, with the unit's main generator isophase bus links removed, each unit's Main Transformer and the Unit Auxiliary Transformer XU1.

2 **INSERT 2**

Load sequencing is accomplished through the programmed time load sequence interval utilizing individual timing relays for each load in lieu of a single "automatic load sequencer."

BASES

APPLICABILITY (continued)

b. Systems needed to mitigate a fuel handling accident [involving handling [recently] irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available, 2

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available, and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

The ACTIONS are modified by two Notes.

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by ~~a~~ Note 1 stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily. 3

Note 2 prohibits the application of LCO 3.0.4.b to an inoperable DG. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable DG and the provisions of LCO 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance. 3

A.1

An offsite circuit would be considered inoperable if it were not available to one required ESF train. Although two trains may be required by LCO 3.8.10, the remaining train with offsite power available may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ ~~[recently]~~ irradiated fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS. TSTF-471-A 2

A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ B.1, B.2, ~~B.3,~~ and B.~~4~~ 3 TSTF-471-A

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the

BASES

ACTIONS (continued)

minimum required diversity of AC power sources is not available. It is, therefore, required to suspend ~~CORE ALTERATIONS,~~ movement of ~~[recently]~~ irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM. TSTF-471-A 3

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS are not entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required ESF bus, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit, whether or not a train is de-energized. LCO 3.8.10 provides the appropriate restrictions for the situation involving a de-energized train.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.12 and SR 3.8.1.19 are not required to be met because the ESF actuation signal is not required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG~~(s)~~ is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.20 is excepted because starting independence is not required with DG(s) that are not required to be OPERABLE. 4

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG~~(s)~~ from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 4160 V ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC Sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR. 4

REFERENCES None.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.2 BASES, AC SOURCES-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. Changes are made to be consistent with the actual Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.2, AC SOURCES-SHUTDOWN

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 3

ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

Applicability

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

ACTIONS Note

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A: A. One or more DGs with fuel volume ~~< 48,400 gallons~~ less than a 7 day supply and ~~> 41,800 gallons~~ greater than a 6 day supply in storage tank ~~during MODE 1,2,3 or 4~~.	A.1 Restore fuel oil level to within limits.	48 hours
ACTION B: B. One or more DGs with lube oil inventory ~~< TS min and ≥ TS inop~~ less than a 7 day supply and greater than a 6 day supply.	B.1 Restore lube oil inventory to within limits.	48 hours
ACTION A: ~~C. One required DG with fuel volume in the storage tank < 43,600 gallons and > 37,400 gallons during MODE 5 or 6.~~	~~C.1 Restore fuel oil level to within limits.~~	~~48 hours~~
ACTION C: D. One or more DGs with stored fuel oil total particulates not within limits.	D.1 Restore fuel oil total particulates to within limits.	7 days

LA01 M01 A02 LA01 A02

(continued)

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION D	E. One or more DGs with new fuel oil properties not within limits.	E.1 Restore stored fuel oil properties to within limits.	30 days
ACTION E	F. One or more DGs with starting air receiver pressure < 175 psig and ≥ 136 psig.	F.1 Restore starting air receiver pressure to ≥ 175 psig.	48 hours
ACTION F	G. Required Action and associated Completion Time of Condition A, B, C, D, E or F not met. OR One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, E, or F.	G.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	SR 3.8.3.1 Verify each fuel oil storage tank contains ≥ a 7 day supply of fuel ~~48,400 gallons in MODE 1,2,3 or 4 and ≥ 43,600 gallons in MODE 5 or 6~~.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

LA01 LA02 M01

(continued)

ITS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
SR 3.8.3.2	SR 3.8.3.2	Verify lubricating oil inventory is ≥ ~~TS min limit~~ a 7 day supply.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.8.3.3	SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program	
SR 3.8.3.4	SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ 175 psig.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
SR 3.8.3.5	SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
	~~SR 3.8.3.6~~	~~For each fuel oil storage tank:~~ ~~a. Drain the fuel oil;~~ ~~b. Remove the sediment; and~~ ~~c. Clean the tank.~~	~~10 years~~	LA03

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

Applicability

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

ACTIONS Note

-----NOTE-----
Separate Condition entry is allowed for each DG.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One or more DGs with fuel volume ~~< 48,400 gallons~~ less than a 7 day supply and ~~> 41,800 gallons~~ greater than a 6 day supply in storage tank ~~during MODE 1,2,3 or 4~~.	A.1 Restore fuel oil level to within limits.	48 hours	LA01 M01 A02
ACTION B	B. One or more DGs with lube oil inventory ~~< TS min and ≥ TS inop~~ less than a 7 day supply and greater than a 6 day supply.	B.1 Restore lube oil inventory to within limits.	48 hours	LA01
ACTION A	~~C. One required DG with fuel volume in the storage tank < 43,600 gallons and > 37,400 gallons during MODE 5 or 6.~~	~~C.1 Restore fuel oil level to within limits.~~	~~48 hours~~	A02
ACTION C	D. One or more DGs with stored fuel oil total particulates not within limits.	D.1 Restore fuel oil total particulates to within limits.	7 days	

(continued)

ITS

A01

ACTIONS (continued)

ITS	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION D	E. One or more DGs with new fuel oil properties not within limits.	E.1 Restore stored fuel oil properties to within limits.	30 days
ACTION E	F. One or more DGs with starting air receiver pressure < 175 psig and ≥ 136 psig.	F.1 Restore starting air receiver pressure to ≥ 175 psig.	48 hours
ACTION F	G. Required Action and associated Completion Time of Condition A, B, C, D, E or F not met. <u>OR</u> One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, E, or F.	G.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

ITS	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	SR 3.8.3.1 Verify each fuel oil storage tank contains ≥ a 7 day supply of fuel ~~48,400 gallons in MODE 1,2,3 or 4 and ≥ 43,600 gallons in MODE 5 or 6~~.	~~31 days~~ In accordance with the Surveillance Frequency Control Program

LA01 LA02 M01

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY	
SR 3.8.3.2	SR 3.8.3.2	Verify lubricating oil inventory is ≥ ~~TS min limit~~ a 7 day supply.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01 LA02
SR 3.8.3.3	SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program	
SR 3.8.3.4	SR 3.8.3.4	Verify each DG air start receiver pressure is ≥ 175 psig.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
SR 3.8.3.5	SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA02
	~~SR 3.8.3.6~~	~~For each fuel oil storage tank:~~ ~~a. Drain the fuel oil;~~ ~~b. Remove the sediment; and~~ ~~c. Clean the tank.~~	~~10 years~~	LA03

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.8.3 ACTION A provides the actions when the DG fuel oil storage tank requirements are not met in MODES 1, 2, 3, and 4 and CTS 3.8.3 ACTION C provides the actions when the DG fuel oil storage tank requirements are not met in MODES 5 and 6. ITS 3.8.3 ACTION A provides the actions when the DG fuel oil storage tank requirements are not met at all times when the DGs are required to be OPERABLE. This changes the CTS requirements by combining the fuel oil storage tank actions into a single ACTION. The change related to moving irradiated fuel assemblies is discussed in DOC M01.

The purpose of CTS 3.8.3 ACTIONS A and C is to ensure appropriate action is taken when the DG fuel oil storage tank volume is < a 7 day supply and > a 6 day supply. The proposed change combines the two ACTIONS without affecting the individual actions. This change is designated as administrative because it does not technically alter the Specification.

MORE RESTRICTIVE CHANGES

M01 CTS 3.8.3 requires the stored diesel fuel oil, lube oil, and starting air subsystem to be within limits for each required diesel generator when the associated DG is required to be OPERABLE. Required Actions are provided when the DG fuel oil storage tank is not within limits; however, ACTIONS are only provided for when in MODES 1 through 6. There are no CTS ACTIONS when not in MODES 1, 2, 3, 4, 5, or 6 and irradiated fuel assembly movement is occurring, which is also covered by the Applicability of CTS 3.8.2. Also CTS SR 3.8.3.1 only requires volume in the fuel oil storage tank to be verified in MODES 1 through 6; not during movement of irradiated fuel assemblies. ITS 3.8.3 Condition A contains a Condition when the diesel fuel oil storage tank is not within limits, and covers all MODES and other specified conditions in the Applicability of ITS 3.8.3. In addition, ITS SR 3.8.3.1 also ensures that the volume of fuel oil in the storage tanks is checked in all the MODES and other specified conditions when the DGs are required to be OPERABLE (i.e., it covers MODES 1 through 6 and when moving irradiated fuel assemblies). This changes the CTS by adding an ACTION and SR for the fuel oil storage tank volume when not in MODES 1, 2, 3, 4, 5 or 6 and irradiated fuel assembly movement is occurring.

The purpose of the diesel fuel oil storage tank ACTIONS and SR is to ensure a 7 day supply of fuel oil is available for the DG at all times when the DG is required

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

to be OPERABLE, and if not, to ensure appropriate action is taken when the DG fuel oil storage tank volume is < a 7 day supply and > a 6 day supply. Currently the SONGS CTS do not contain an ACTION or SR when not in MODES 1, 2, 3, 4, 5 or 6 and irradiated fuel assembly movement is occurring. This change is acceptable because the Applicability of CTS and ITS 3.8.2 requires a DG to be OPERABLE during irradiated fuel assembly movement, but no fuel oil volume requirements are specified in CTS 3.8.3. This change corrects this oversight by ensuring the ACTIONS and SR for fuel oil storage tank volume are covered in all MODES or other specified conditions in the Applicability of LCO 3.8.1 and 3.8.2 when the DG is required to be OPERABLE. This change is designated as more restrictive because it adds additional requirements to the ITS that are not currently in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS SR 3.8.3.1 requires verifying that each fuel oil storage tank contains ≥ 48,400 gallons in MODE 1, 2, 3, or 4 and ≥ 43,600 gallons in MODE 5 or 6 every 31 days. When the requirements of CTS SR 3.8.3.1 are not met, CTS 3.8.3 Condition A or 3.8.3 Condition C is entered. CTS 3.8.3 Condition A is for when one or more DGs has a fuel volume < 48,400 gallons and > 41,800 gallons in storage tank during MODE 1, 2, 3, or 4. CTS 3.8.3 Condition C is for when one required DG has a fuel volume in the storage tank < 43,600 gallons and > 37,400 gallons during MODE 5 or 6. CTS SR 3.8.3.2 requires verifying that lubricating oil inventory is ≥ TS min limit every 31 days. When the requirements of CTS SR 3.8.3.2 are not met, CTS 3.8.3 Condition B is entered. CTS 3.8.3 Condition B is for when one or more DGs with lube oil inventory < TS min and ≥ TS inop. ITS 3.8.3 contains similar Surveillance Requirements but does not include the actual fuel volume or lube oil inventory. Instead the Surveillance Requirements verify that the fuel oil volume and lube oil inventory are greater than or equal to a 7 day supply. Furthermore, ITS 3.8.3 Condition A and Condition B are changed so that they are entered when the fuel volume in the storage tank or the lube oil inventory is less than a 7 day supply but greater than a 6 day supply. This changes the CTS by moving the specific values for the fuel volume and lube oil inventory to the Bases.

The removal of these details from the Technical Specifications is acceptable because this type of information is not necessary to provide adequate protection of public health and safety. The purpose of CTS SR 3.8.3.1 and SR 3.8.3.2 is to ensure that the DGs have sufficient fuel and lube oil to perform their safety function when the DGs are required to be OPERABLE. Furthermore, the purpose of CTS 3.8.3 ACTIONS A, B, and C are to specify the appropriate Required Actions and associated Completion Times when the DGs fuel volume and lube oil inventory are less than a 7 day supply but greater than a 6 day supply. ITS SR 3.8.3.1 and SR 3.8.3.2 will continue to ensure that sufficient fuel

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

is contained in the fuel oil storage tank and lube oil is available for the DGs to perform their intended safety function when the DGs are required to be OPERABLE. Additionally, ITS 3.8.3 ACTIONS A and B will continue to specify the appropriate Required Actions and associated Completion Times when the DGs fuel volume and lube oil inventory are less than a 7 day supply but greater than a 6 day supply. Also, this change is acceptable because these types of details will be adequately controlled in the Technical Specification Bases. Changes to the Bases are controlled by the Technical Specification Control Program in Chapter 5. The program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as less restrictive removal of detail change because details are being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.3.1 requires verifying that each fuel oil storage tank contains ≥ 48,400 gallons in MODE 1, 2, 3, or 4 and ≥ 43,600 gallons in MODE 5 or 6 every 31 days. CTS SR 3.8.3.2 requires verifying that lubricating oil inventory is ≥ TS min limit every 31 days. CTS SR 3.8.3.4 requires verifying that each DG air start receiver pressure is ≥ 175 psig every 31 days. CTS SR 3.8.3.5 requires that accumulated water from each fuel oil storage tank is checked for and removed every 31 days. ITS SR 3.8.3.1, SR 3.8.3.2, SR 3.8.3.4, and SR 3.8.3.5 requires similar Surveillances and specifies the periodic Frequencies as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified frequencies for the SRs and the Bases for the frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

- Independence of barriers is not degraded;

- Defenses against human errors are preserved; and

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

DISCUSSION OF CHANGES
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LA03 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS 3.8.3 contains an SR (SR 3.8.3.6) that requires draining the fuel oil, removing the sediment, and cleaning the diesel fuel oil storage tank once per 10 years. ITS 3.8.3 does not contain this SR. This changes the CTS by moving the SR to drain and clean the fuel oil storage tank to the Licensee Controlled Specifications (LCS).

The removal of the requirement to drain and clean the fuel oil storage tank is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. Sediment in the tank, or failure to perform this SR, does not necessarily result in an inoperable storage tank. This SR is preventative maintenance and preventative maintenance SRs generally have been relocated from the TS and allowed to be under licensee control. This is required by other regulatory documents. Regulatory Guide 1.137 requires the fuel oil storage tank to be drained, sediment removed, and cleaned, and the ASME Code, Section XI, requires examination of the tanks. Also, this change is acceptable because this requirement will be adequately controlled in the LCS. Changes to the LCS are controlled via the 10 CFR 50.59 program. This change is designated as a less restrictive removal of detail change because an SR which requires preventative maintenance to be performed on the diesel fuel oil storage tank is being moved from the Technical Specifications to the LCS.

<u>LESS RESTRICTIVE CHANGES</u>

None

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystem shall be within limits for each required diesel generator (DG).

Applicability

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

ACTIONS Note

---NOTE---
Separate Condition entry is allowed for each DG.

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
ACTION A ACTION C	A. One or more DGs with fuel level ~~< [33,000] gal~~ less than a 7 day supply and ~~> [28,285] gal~~ greater than a 6 day supply in storage tank.	A.1	Restore fuel oil level to within limits.	48 hours	TSTF-501-A
ACTION B	B. One or more DGs with lube oil inventory ~~< [500] gal and > [425] gal~~ less than a 7 day supply and greater than a 6 day supply.	B.1	Restore lube oil inventory to within limits.	48 hours	TSTF-501-A
ACTION D	C. One or more DGs with stored fuel oil total particulates not within limits.	C.1	Restore fuel oil total particulates to within limits.	7 days	
ACTION E	D. One or more DGs with new fuel oil properties not within limits.	D.1	Restore stored fuel oil properties to within limits.	30 days	
ACTION F	E. One or more DGs with starting air receiver pressure < ~~[225]~~ 175 psig and ≥ ~~[125]~~ 136 psig.	E.1	Restore starting air receiver pressure to ≥ ~~[225]~~ 175 psig.	48 hours	2

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION G	F. Required Action and associated Completion Time not met. OR One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.	F.1 Declare associated DG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.8.3.1	SR 3.8.3.1 Verify each fuel oil storage tank contains ≥ ~~[33,000] gal~~ a 7 day supply of fuel.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A TSTF-501-A
SR 3.8.3.2	SR 3.8.3.2 Verify lubricating oil inventory is ≥ ~~[500] gal~~ a 7 day supply.	~~31 days~~	TSTF-501-A TSTF-425-A
SR 3.8.3.3	SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program	
SR 3.8.3.4	SR 3.8.3.4 Verify each DG air start receiver pressure is ≥ ~~[225]~~ 175 psig.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A 2
SR 3.8.3.5	SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.	~~[31] days~~	TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that diesel for a period of 7 days, while the DG is supplying maximum post loss of coolant accident (LOCA) load demand as discussed in the U FSAR, Section [9.5.4.2] (Ref. 1) and Regulatory Guide 1.137 (Ref. 2). The maximum load demand is calculated using the assumption that ~~at least two DGs are available~~ the maximum load demand is supplied by one DG. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources. 1 2 TSTF-501-A 1

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve, or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. INSERT 1 ~~Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195-1976 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.~~ 9

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of [7] days of operation. ~~[The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days of continuous operation.]~~ This supply is sufficient supply to allow the operator to replenish lube oil from outside sources. 2 8

Each DG ~~has an~~ is equipped with two air start systems which are independent and redundant. Each air start system ~~with~~ has adequate capacity for five successive start attempts on the DG without recharging the air start receiver(s). 1

9 **INSERT 1**

San Onofre has a Diesel Fuel Oil (DFO) testing program which ensures proper fuel oil quality. The program includes purchasing, receipt testing of new fuel oil, and periodic analyses of the stored fuel. San Onofre is not committed to the fuel analysis portion of Regulatory Guide 1.137 (Ref. 2) or ANSI N195-1976 (Ref. 3); however, these standards were utilized as guidance in the development of the DFO testing program.

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BASES

APPLICABLE SAFETY ANALYSES

U

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 4), and in the FSAR, Chapter [15] (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for LCO Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

U

2

Since diesel fuel oil, lube oil, and the air start subsystems support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of ~~full load operation~~ maximum post LOCA load demand. It is also required to meet specific standards for quality. Additionally, sufficient lubricating oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources - Operating," and LCO 3.8.2, "AC Sources - Shutdown."

1

The starting air system is required to have a minimum capacity for five successive DG start attempts without recharging the air start receivers. Since each DG has two air start systems, and each air start system has a five start capacity, only one of the two air start systems is required to be OPERABLE.

1

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil, lube oil, and starting air subsystems support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil, lube oil and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

BASES

ACTIONS (continued)

A.1

The fuel oil level equivalent to a [6] day supply is [28,285] gallons.

41,800 gallons when in MODE 1, 2, 3, and 4 and 37,400 gallons when not in MODE 1, 2, 3, or 4

In this Condition, the 7 day fuel oil supply for a DG is not available. However, the Condition is restricted to fuel oil level reductions, that maintain at least a 6 day supply. These circumstances may be caused by events such as full load operation required after an inadvertent start while at minimum required level; or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on remaining capacity (> ~~≥~~ 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

2 TSTF-501-A

10

B.1

In this condition, the [7] day

i.e.,

~~With~~ lube oil inventory ~~< 500 gal~~, sufficient lubricating oil to support 7 days of continuous DG operation at full load conditions is ~~may~~ not ~~be~~ available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time to obtain the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

2 TSTF-501-A

The lube oil inventory equivalent to a [6] day supply is [425] gallons.

347.5 gallons for the 16 cylinder diesel engine and 386.2 gallons for the 20 cylinder diesel engine.

2

C.1

This Condition is entered as a result of a failure to meet the acceptance criterion of SR 3.8.3.3 ~~5~~. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change

10

BASES

ACTIONS (continued)

significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

D.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.~~4~~ 3 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the DG would still be capable of performing its intended function. 4

E.1

With starting air receiver pressure < ~~[225]~~ 175 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is ~~>~~ ≥ ~~[125]~~ 136 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period. 10 3

F.1

With a Required Action and associated Completion Time not met, or one or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than addressed by Conditions A through E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

maximum post LOCA load demand

1

INSERT 2

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at ~~full load~~. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

TSTF-501-A

INSERT 3

~~The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.~~

TSTF-425-A

SR 3.8.3.2

The lube oil inventory equivalent to a ~~[7]~~ day supply is ~~[500] gallons~~ and

INSERT 4

are

This Surveillance ensures that sufficient lube oil inventory is available to support at least 7 days of full load operation for each DG. ~~The [500] gal requirement~~ ~~is~~ based on the DG manufacturer consumption values for the run time of the DG. ~~Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, when the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer recommended minimum level.~~

2 1 TSTF-501-A

8

INSERT 3

~~A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the unit staff.~~

TSTF-425-A

SR 3.8.3.3

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

81

a. Sample the new fuel oil in accordance with ASTM D4057-~~[ ]~~ (Ref. 6), 2

TSTF-501-A

INSERT 2

≥ 48,400 gallons in MODES 1, 2, 3, or 4 and ≥ 43,600 gallons when not in MODES 1, 2, 3, or 4

The fuel oil level equivalent to a [7] day supply is ~~[33,000] gallons~~ when calculated in accordance with References 2 and 3. The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using the known correlation of diesel fuel oil absolute specific gravity or API gravity to energy content, the required diesel generator output, the corresponding fuel consumption rate, the onsite fuel storage volume required for [7] days of operation can be determined. SR 3.8.3.3 requires new fuel to be tested to verify that the absolute specific gravity or API gravity is within the range assumed in the diesel fuel oil consumption calculations. 2

2

TSTF-425-A

INSERT 3

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--~~

3

INSERT 4

412.1 gal for the 20 cylinder diesel engine and 369.4 gal for the 16 cylinder diesel engine

BASES

SURVEILLANCE REQUIREMENTS (continued)

81

b. Verify in accordance with the tests specified in ASTM D975-~~[ ]~~ (Ref. 6) that the sample has ~~an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89, or an API gravity at 60°F of ≥ 27° and ≤ 39° when tested in accordance with ASTM D1298-[ ] (Ref. 6),~~ a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point ≥ 125°F, and 2 9 9

a water and sediment content of ≤ 0.05% by volume,

INSERT 5

c. ~~Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-[ ] or a water and sediment content within limits when tested in accordance with [ASTM D2709-[ ]] (Ref. 6).~~ 9

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks.

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-~~[ ]~~ (Ref. 7) are met for new fuel oil when tested in accordance with ASTM D975-~~[ ]~~ (Ref. ~~6~~), except that the analysis for sulfur may be performed in accordance with ~~ASTM D1552-[ ], ASTM D2622-[ ], or ASTM D4294-[ ]~~ (Ref. 6). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs. 2 1 2

7

81

INSERT 6

Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

D6217-10, as recommended by EPRI Guideline 1015061, Rev.3

Particulate concentrations should be determined in accordance with ASTM ~~D5452-[ ]~~ (Ref. 6). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. ~~[For those designs in which the total stored fuel oil volume is contained in two or more interconnected tanks, each tank must be considered and tested separately.]~~ 2 7

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

9 **INSERT 5**

Verify in accordance with ASTM D287-82, D1298-99, and D4052-09 that the sample has an API gravity at 60°F of ≥ 30° and ≤ 42°.

2 **INSERT 6**

ASTM D1266-91, D1552-90, D2622-92, D3120-96, D5453-09 or D4294-90 and a calculated cetane index may be determined in accordance with ASTM D976-91.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

The start cycle air usage has been determined by actual testing.

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of ~~[~~five~~]~~ engine start cycles without recharging. ~~[A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds or cranking) or engine cranking speed.]~~ The pressure specified in this SR is intended to reflect the lowest value at which the ~~[~~five~~]~~ starts can be accomplished. 2

INSERT 7

~~The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.~~ TSTF-425-A

SR 3.8.3.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel storage tanks ~~once every [31] days~~ eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, and contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 2).~~ This SR is for preventative maintenance. The presence of water does not necessarily represent failure of this SR provided the accumulated water is removed during performance of the Surveillance. TSTF-425-A TSTF-425-A

INSERT 7

REFERENCES

U

1. FSAR, Section ~~[~~9.5.4.2~~]~~. 1 2
2. Regulatory Guide 1.137.
3. ANSI N195-1976~~, Appendix B~~. TSTF-501-A
4. FSAR, Chapter ~~[~~6~~]~~. 1 2

TSTF-425-A

INSERT 7

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---~~ 5

BASES

REFERENCES (continued)

U

5. FSAR, Chapter [15]. 1 2

6. ASTM Standards: D4057-[ ]; D975-[ ]; D1298-[ ]; D4176-[ ]; [D2709-[ ];] D1552-[ ]; D2622-[ ]; D4294-[ ]; D5452-[ ]. 1 2

81

7. ASTM Standards, D975-[ ], Table 1. 2

D4057-81; D975-81; D1266-91; D1298-99; D1552-90; D2622-92, D3120-96; D4294-90; D4052-09; D976-91; D6217-10; D5453-09.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.3 BASES, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. ISTS 3.8.3 Bases ACTION D.1 references SR 3.8.3.4 for fuel oil properties. SR 3.8.3.4 is the SR for starting air and SR 3.8.3.3 is the SR for fuel oil properties; therefore the reference is being changed to SR 3.8.3.3.

5. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

7. The bracketed information that discusses fuel oil contained in two or more interconnected tanks is being deleted from ISTS SR 3.8.3.3 Bases. SONGS does not store DG fuel oil in two or more interconnected tanks.

8. The discussion in ISTS 3.8.3 Bases (Background and SR 3.8.3.2 Sections) discussing an additional storage location for lube oil due to the lube oil sump being insufficient to hold 7 days of lube oil and stating that implicit in the SR (SR 3.8.3.2) is a requirement to verify the capability to transfer lube oil from the storage location to the DG is being deleted in the Background and in the SR 3.8.3.2 Sections for the SONGS ITS Bases. As stated this discussion is for those units whose lube oil sump does not hold adequate inventory for 7 days full load.

9. Changes are being made regarding testing of the diesel fuel oil throughout the ISTS to be consistent with the SONGS testing program. San Onofre has a Diesel Fuel Oil (DFO) testing program which ensures proper fuel oil quality. The program includes purchasing, receipt testing of new fuel oil, and periodic analyses of the stored fuel. San Onofre is not committed to the fuel analysis portion of Regulatory Guide 1.137 or ANSI N195-1976; however, these standards were utilized as guidance in the development of the DFO testing program.

10. Changes are made to be consistent with the actual Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.3, DIESEL FUEL OIL, LUBE OIL, AND STARTING AIR

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 4

ITS 3.8.4, DC SOURCES – OPERATING

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

Applicability

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

ACTIONS

ACTION A

A02

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~---------NOTE--------~~ ~~Only applicable to 1800 amp-hour rated batteries.~~ ~~--------------------~~ One or two required battery charger(s) on one train inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND	
	A.2 Verify battery float current ≤ 1.50 amps.	Once per 12 hours
	AND	
	A.3.1 Restore required battery charger(s) to OPERABLE status.	72 hours
	OR	
	A.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.	72 hours
	AND	
	A.3.2.2 Restore required battery charger(s) to OPERABLE status.	7 days

(continued)

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ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B.~~ ~~---------NOTE--------~~ ~~Only applicable to 1260 amp-hour rated batteries.~~ ~~--------------------~~ ~~One or two required battery charger(s) on one train inoperable.~~	~~B.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.~~ ~~AND~~ ~~B.2 Verify battery float current ≤ 0.75 amp.~~ ~~AND~~ ~~B.3.1 Restore required battery charger(s) to OPERABLE status.~~ ~~OR~~ ~~B.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.~~ ~~AND~~ ~~B.3.2.2 Restore required battery charger(s) to OPERABLE status.~~	~~2 hours~~ ~~Once per 12 hours~~ ~~72 hours~~ ~~72 hours~~ ~~7 days~~
~~C~~ B. OR Required Action and associated Completion Time of Condition A ~~or B~~ not met.	~~C.1 Declare associated battery inoperable.~~	~~Immediately~~

A02

ACTION B

A06

A02

A06

(continued)

ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION B	~~D~~ B. One DC electrical train power ~~subsystem~~ inoperable for reasons other than Condition A ~~or B~~.	~~D~~ B.1 Restore DC electrical train power ~~subsystem~~ to OPERABLE status.	2 hours	A02 L01
		OR		
		~~D~~ B.2 .1 Cross connect with OPERABLE same train DC subsystem ~~(1800 amp-hour rated battery required).~~	2 hours	A02 A03 L01 A02
		AND		
		B.2.2		
ACTION B	~~E. DC Subsystem Buses cross connected (1800 amp-hour rated battery required).~~	~~E.1~~ Restore DC ~~Subsystem Buses to non-cross-connected configuration~~ electrical power train to OPERABLE status.	-----NOTE----- Completion Time is 14 days when cross connected for battery replacement. -------------- 4 days	A03 L01 A02
ACTION C	~~F~~ C. Required Action and Associated Completion Time of Condition ~~D or E~~ B not met.	~~F~~ C.1 Be in MODE 3.	6 hours	A02 L02
		AND		
		-------------------NOTE------------------- LCO 3.0.4.a is not applicable when entering MODE 4. --		
		~~F~~ C.2 Be in MODE ~~5~~ 4.	~~36~~ 12 hours	

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.4.1	SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.4.2	SR 3.8.4.2	~~NOTES~~ ~~1. The dedicated battery charger is rated at 300 amps.~~ ~~2. The swing battery charger is rated at 400 amps.~~ Verify each required battery charger supplies ~~≥ rated amps at ≥~~ ≥ 300 amps for the dedicated battery chargers and ≥ 400 amps for the swing battery chargers at greater than or equal to the minimum established float voltage for ≥ 8 hours.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	A04 LA01
SR 3.8.4.3	SR 3.8.4.3	~~NOTE~~ ~~The battery performance discharge test in SR 3.8.6.7 may be performed in lieu of SR 3.8.4.3 once per 48 months for batteries rated at 1260 amp-hours.~~ ~~Verify capacity of the 1260 amp-hour rated battery is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.~~ Not Used.	~~24 months~~	A02
SR 3.8.4.4	SR 3.8.4.4	~~NOTES~~ ~~1. The modified performance discharge test in SR 3.8.6.7 will be performed for batteries rated at 1800 amp-hours.~~ ~~2. Completed service tests and performance discharge tests remain valid until the new modified performance discharge test is performed at its required frequency.~~ Verify battery capacity ~~of the 1800 amp-hour rated battery~~ is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a modified performance discharge test.	~~30 months~~ In accordance with the Surveillance Frequency Control Program	A05 A02 LA01

A01

This page intentionally deleted.

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3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4 — LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

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

ACTIONS

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~--------NOTE--------~~ ~~Only applicable to 1800 amp-hour rated batteries.~~ ~~--------------------~~ One or two required battery charger(s) on one train inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND	
	A.2 Verify battery float current ≤ 1.50 amps.	Once per 12 hours
	AND	
	A.3.1 Restore required battery charger(s) to OPERABLE status.	72 hours
	OR	
	A.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.	72 hours
	AND	
	A.3.2.2 Restore required battery charger(s) to OPERABLE status.	7 days

A02

(continued)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. ---------NOTE--------~~ ~~Only applicable to 1260 amp-hour rated batteries.~~ ~~-------------------~~ ~~One or two required battery charger(s) on one train inoperable.~~	~~B.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.~~ ~~AND~~ ~~B.2 Verify battery float current ≤ 0.75 amp.~~ ~~AND~~ ~~B.3.1 Restore required battery charger(s) to OPERABLE status.~~ ~~OR~~ ~~B.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.~~ ~~AND~~ ~~B.3.2.2 Restore required battery charger(s) to OPERABLE status.~~	~~2 hours~~ ~~Once per 12 hours~~ ~~72 hours~~ ~~72 hours~~ ~~7 days~~
~~C~~ B. Required Action and associated Completion Time of Condition A ~~or B~~ not met. OR	~~C.1 Declare associated battery inoperable.~~	~~Immediately~~

A02

ACTION B

A06

A02

A06

(continued)

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION B	~~D~~ B. One DC electrical train power ~~subsystem~~ inoperable for reasons other than Condition A ~~or B~~.	~~D~~ B.1 Restore DC electrical train power ~~subsystem~~ to OPERABLE status.	2 hours	A02 L01
		OR		
	AND B.2.2	~~D~~ B.2.1 Cross connect with OPERABLE same train DC subsystem ~~(1800 amp-hour rated battery required).~~	2 hours	A02 A03 L01 A02
ACTION B	~~E. DC Subsystem Buses cross connected (1800 amp-hour rated battery required).~~	~~E.1~~ Restore DC electrical power train to OPERABLE status ~~Subsystem Buses to non-cross-connected configuration~~.	-----NOTE----- Completion Time is 14 days when cross connected for battery replacement. -------------- 4 days	A03 L01 A02
ACTION C	~~F~~ C. Required Action and Associated Completion Time of Condition ~~D or E~~ B not met.	~~F~~ C.1 Be in MODE 3.	6 hours	A02 L02
		AND		
		------------------NOTE------------------ LCO 3.0.4.a is not applicable when entering MODE 4. --		
		~~F~~ C.2 Be in MODE ~~5~~ 4.	~~36~~ 12 hours	

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.4.1	SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.4.2	SR 3.8.4.2	~~-------------------NOTES-------------------~~ ~~1. The dedicated battery charger is rated at 300 amps.~~ ~~2. The swing battery charger is rated at 400 amps.~~ ~~---~~ Verify each required battery charger supplies ~~≥ rated amps at ≥~~ ≥ 300 amps for the dedicated battery chargers and ≥ 400 amps for the swing battery chargers at greater than or equal to the minimum established float voltage for ≥ 8 hours.	~~24 months~~ In accordance with the Surveillance Frequency Control Program	A04 LA01
SR 3.8.4.3	SR 3.8.4.3	~~-------------------NOTE-------------------~~ ~~The battery performance discharge test in SR 3.8.6.7 may be performed in lieu of SR 3.8.4.3 once per 48 months for batteries rated at 1260 amp-hours.~~ ~~---~~ ~~Verify capacity of the 1260 amp-hour rated battery is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.~~ Not Used.	~~24 months~~	A02
SR 3.8.4.4	SR 3.8.4.4	~~-------------------NOTES-------------------~~ ~~1. The modified performance discharge test in SR 3.8.6.7 will be performed for batteries rated at 1800 amp-hours.~~ ~~2. Completed service tests and performance discharge tests remain valid until the new modified performance discharge test is performed at its required frequency.~~ ~~---~~ Verify battery capacity ~~of the 1800 amp-hour rated battery~~ is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a modified performance discharge test.	~~30 months~~ In accordance with the Surveillance Frequency Control Program	A05 A02 LA01

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A01

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ITS 3.8.4, DC SOURCES – OPERATING

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications-Combustion Engineering Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.8.4 contains ACTIONS and Surveillance Requirements for two groups of batteries. One group of batteries is 1800 amp-hour rated and the other group is 1260 amp-hour rated. ITS 3.8.4 contains requirements for 1800 amp-hour rated batteries only. Thus, there are no Note or parenthetical descriptions that an ACTION or SR is for the 1800 amp hour batteries. This changes the CTS by deleting the requirements of the 1260 amp-hour rated batteries and renumbering the remaining ACTIONS.

This change is acceptable because SONGS no longer has 1260 amp-hour rated batteries. SONGS started upgrading the DC system in November 2007 to replace the 1260 amp-hour batteries with larger 1800 amp-hour rated batteries. During the process, it was necessary to include in the Technical Specification requirements for the two types of batteries that were being used. Since the 1260 amp-hour rated batteries have now been completely replaced, there is no need to maintain the requirements for them in the Technical Specifications. However, the requirements for the 1800 amp-hour rated batteries have been maintained in the Technical Specifications. This change is designated as an administrative change since the change does not result in a technical change to the CTS.

A03 CTS 3.8.4 ACTION D states that with one DC electrical power subsystem inoperable for reasons other than Condition A or B, to restore the DC electrical power subsystem to OPERABLE status within 2 hours (Required Action D.1) or to cross connect the same train DC subsystem (1800 amp-hour rated battery required) within 2 hours (Required Action D.2). CTS 3.8.4 ACTION E states that with the DC subsystem buses cross connected, which occurs if Required Action D.2 is followed, (1800 amp-hour rated battery required) to restore the DC subsystem buses to non-connected configuration in 4 days, unless it is cross connected for battery replacement, then 14 days is allowed (Required Action E.1). ITS 3.8.4 ACTION B is also for one DC electrical power subsystem inoperable and requires the restoration of the DC electrical power subsystem to OPERABLE status within 2 hours (Required Action B.1) or to cross connect the same train DC subsystem within 2 hours (Required Action B.2.1) and to restore the DC electrical power train to OPERABLE status in 4 days (Required Action B.2.2), unless it is cross connected for battery replacement, then 14 days is allowed. This changes the CTS by combining Required Action and Completion Time of E.1 with the Required Action and Completion Time of D.2 and changing the words of Required Action E.1 to require restoration of the DC electrical power

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train to OPERABLE status. The change related to the description of the type of battery (1800 amp hour) is discussed in DOC A02.

This change is acceptable because in the CTS when the DC subsystem buses have been cross connected, 4 days are provided to restore the DC subsystem buses to the non-cross-connected configuration (i.e., restore them to OPERABLE status with each subsystem being powered from a separate battery), unless they are cross-connected for battery replacement, in which case 14 days is provided. In the CTS, this is accomplished by two separate ACTIONS. In the ITS, this is accomplished by one ACTION with two specific Required Actions (Required Actions B.2.1 and B.2.2). ITS 3.8.4 will still require the restoration of the DC subsystem buses to OPERABLE status within the same specified time, when they are cross connected. This change is designated as administrative since the change does not result in a technical change to the CTS.

A04 CTS SR 3.8.4.2 requires verification that each battery charger supplies greater than or equal to rated amps at greater than or equal to the minimum established float voltage for greater than or equal to 8 hours. Additionally, it is modified by two Notes that state that the dedicated battery charger is rated at 300 amps and the swing battery charger is rated at 400 amps. ITS SR 3.8.4.2 requires the same verification but includes the information provided in the two Notes in the Surveillance. This changes the CTS by moving the information contained in the Notes into the Surveillance.

This change is acceptable because the same testing requirements are included the ITS SR 3.8.4.2. The battery charger will continue to be tested to verify that it can supply greater than or equal to the rated amps (either 300 amps or 400 amps) at greater than or equal to the minimum established float voltage for greater than or equal to 8 hours. This change is considered administrative because the information is being moved from the two Notes into the Surveillance Requirement and it does not result in a technical change to the CTS.

A05 CTS SR 3.8.4.4 requires the performance of a modified performance discharge test for the 1800 amp-hour batteries to verify the capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle. The SR is modified by two Notes. Note 1 states that the modified performance discharge test in SR 3.8.6.7 will be performed for batteries rated at 1800 amp-hours, and Note 2 states that the completed service tests and performance discharge tests remain valid until the new modified performance discharge test is performed at its required frequency. ITS SR 3.8.4.4 includes a similar performance discharge test requirement, but does not include the two Notes. This changes the CTS by deleting the two Notes to CTS SR 3.8.4.4.

CTS SR 3.8.6.7 requires a battery to be subjected to either a performance discharge test or a modified performance discharge test. This CTS SR is applicable to both the 1260 amp-hour rated batteries and the 1800 amp-hour rated batteries. The purpose of Note 1 is to ensure that the 1800 amp-hour rated batteries are always subjected to a modified performance discharge test. The deletion of this Note is acceptable because ITS SR 3.8.6.7 only allows a modified performance discharge test. The 1260 amp-hour rated batteries have all been replaced with 1800 amp-hour rated batteries, as described in DOC A02,

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therefore, the performance discharge test is not needed in CTS SR 3.8.6.7 anymore. This is described in the Discussion of Changes for ITS 3.8.6. Thus, there is no reason to maintain this specific Note in CTS SR 3.8.4.4. The purpose of Note 2 is to allow the previous service test and performance discharge test to remain valid until the modified performance test, required by both this SR and CTS SR 3.8.6.7, have been performed for a newly installed, 1800 amp-hour rated battery. At this time, all 1800 amp-hour rated batteries have completed a modified performance discharge test. Thus the Note allowance is no longer necessary. This change is designated as administrative since it does not result in any technical changes.

A06 CTS 3.8.4 ACTION C states that when the Required Action and associated Completion Time of Condition A is not met, then to declare the associated battery inoperable immediately. Following declaration of inoperability, CTS 3.8.4 ACTION D would be entered. ITS 3.8.4 does not contain a similar ACTION. In lieu of including a specific ACTION to declare the battery inoperable immediately, the Condition (Required Action and associated Completion Time of Condition A not met) has been added to ITS 3.8.4 Condition B with an <u>OR</u> logical connector. ITS 3.8.4 ACTION B provides similar ACTIONS as CTS 3.8.4 ACTION D. This changes the CTS by deleting the intermediate step of declaring the battery inoperable.

The purpose of CTS 3.8.4 ACTION C is to ensure that the appropriate ACTIONS are taken for an inoperable battery. This is accomplished by requiring that the associated battery be immediately declared inoperable. When the battery is declared inoperable, CTS 3.8.4 ACTION D is then entered. CTS 3.8.4 ACTION D requires, in part, that DC electrical power subsystem be restored within 2 hours. ITS 3.8.4 does not contain a specific step to declare the battery inoperable, but instead just requires the restoration of the DC electrical power subsystem within 2 hours. Since the ultimate goal is to restore the DC electrical power subsystem, there is no difference between the CTS and the ITS. Furthermore, the ITS simplifies the rules by not requiring the operator to enter an additional ACTION (CTS 3.8.4 ACTION C) to get to the final Condition that provides the ACTIONS to be taken. This change is considered administrative since it does not result in a technical change to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

None

<u>RELOCATED SPECIFICATIONS</u>

None

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REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS Requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.4.1 requires verification that the battery terminal voltage is greater than or equal to the minimum established float voltage every 7 days. CTS SR 3.8.4.2 requires verification that each battery charger supplies ≥ rated amps at ≥ the minimum established float voltage for ≥ 8 hours every 24 months. CTS 3.8.4.4 requires verification that the capacity of the 1800 amp-hour rated battery is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a modified performance discharge test. ITS SR 3.8.4.1, SR 3.8.4.2, and SR 3.8.4.4 require similar Surveillances, but specify the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

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ITS 3.8.4, DC SOURCES – OPERATING

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

   - Independence of barriers is not degraded;

   - Defenses against human errors are preserved; and

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- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

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LESS RESTRICTIVE CHANGES

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.8.4 ACTION D provides the requirements when one DC electrical power subsystem is inoperable. The ACTIONS requires either the inoperable subsystem be restored to OPERABLE status within 2 hours (Required Action D.1), or requires the inoperable DC subsystem to be cross-connected with the same train DC subsystem within 2 hours (Required Action D.2), and once cross-connected, the two DC electrical power subsystems must be restored to the non-cross-connected configuration (i.e., restored to OPERABLE status) within 4 days as required by CTS 3.8.4 ACTION E. When more than one DC electrical power subsystems are inoperable, the CTS does not provide any explicit requirements, thus LCO 3.0.3 (which requires a unit shutdown) must be entered. ITS 3.8.4 ACTION B provides similar requirements when one DC electrical power subsystem is inoperable, but ITS 3.8.4 Condition B has also been written to cover the case of when the entire DC electrical power train is inoperable; that is, when both DC electrical power subsystems in one train are inoperable. In this condition, ITS 3.8.4 will allow 2 hours to restore the train to OPERABLE status, in lieu of requiring an LCO 3.0.3 entry. Due to this change, the Required Action to allow cross-connection of subsystems within the same train (ITS 3.8.4 Required Action B.2.1) has been modified to clarify that the cross-connection is between one inoperable subsystem and an OPERABLE subsystem within the train. Furthermore, the Required Action to restore the buses to a non-cross-connected configuration (ITS 3.8.4 Required Action B.2.2) has been modified to use the word "train" instead of "subsystem." This changes the CTS by allowing the entire DC electrical power train to be inoperable for 2 hours prior to requiring a unit shutdown, in lieu of the current requirement to shut the unit down with no restoration time specified.

The purpose of CTS 3.8.4 is to ensure the availability of necessary DC electrical power to ESF systems. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change allows a short time period, 2 hours, to restore an inoperable DC electrical power train to OPERABLE status. This is acceptable because the remaining DC electrical power train is available and capable of ensuring the safety function of the required plant systems is still met. The plant safety function can be met using one train of DC electrical power. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.8.4 ACTION F provides the actions when the Required Action and associated Completion Time of Condition E is not met. It requires the unit to be in MODE 3 within 6 hours and MODE 5 within 36 hours. ITS 3.8.4 ACTION C provides the actions to be taken under the same conditions. However, it requires the unit to be in MODE 3 in 6 hours and MODE 4 in 12 hours. Furthermore, the Required Action to be in MODE 4 is

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modified by a Note which states LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by eliminating the requirement for the unit to be in MODE 5 within 36 hours and only requires the unit to be in MODE 4 within 12 hours.

The purpose of CTS 3.8.4 ACTION F is to place the unit in a condition where the LCO is not applicable. The proposed change, which is consistent with TSTF-422, allows the plant end state to conclude at MODE 4 within 12 hours versus MODE 5 within 36 hours. This change is based on a topical report, CE NPSD-01186 (approved by NRC on July 17, 2001), which justified a modified end state for some TS allowed outage time requirements of which the AC electrical sources is one. The topical report demonstrates through probabilistic and deterministic safety evaluations that the proposed end states represent a condition of equal or lower risk than the original end states. Preventing plant challenges during shutdown conditions has been, and continues to be, an important aspect of ensuring safe operation of the plant. Past events demonstrate that risk of core damage associated with entry into, and operation in, shutdown cooling is not negligible and should be considered when a plant is required to shutdown. Therefore, the Technical Specifications should encourage plant operation in the steam generator heat removal mode whenever practical, and require reliance on shutdown cooling only when it is a risk beneficial alternative to other actions.

The Note which modifies ITS 3.8.4 Required Action C.2 prohibits entry into the end state Mode of Applicability during startup using the provisions of LCO 3.0.4.a. The purpose of this Note is to provide assurance that entry into the end state Mode of Applicability during startup is not made without the appropriate risk assessment. Entry into the end state Mode of Applicability during startup will still be allowed under the provisions of LCO 3.0.4.b. This is acceptable because LCO 3.0.4.b allows entry only after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate. Details of the risk assessment are provided in the Bases for LCO 3.0.4.b.

SONGS will adopt the end states proposed in TSTF-422 and will perform a risk assessment in accordance with 10 CFR 50.65(a)(4) when using the end states regardless of whether maintenance is being performed. The risk assessment will follow Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," which endorses NUMARC 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 11 guidance for implementation of 10 CFR 50.65(a)(4). SONGS will also follow the industry-developed implementation guidance, WCAP-16364-NP, Revision 0, "Implementation Guidance for Risk Informed Modification to Selected Required Action End States at Combustion Engineering NSSS Plants (TSTF-422)," November 2004.

This change is designated as less restrictive because it relaxes the end state from MODE 5 to MODE 4.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources - Operating

LCO 3.8.4

LCO 3.8.4 The Train A and Train B DC electrical power subsystems shall be OPERABLE.

Applicability

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
ACTION A A. One [or two] battery charger[s on one train] inoperable. required INSERT 1	A.1	Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours (1) (2)
	AND		
	A.2	Verify battery float current ≤ [2] amps. 1.50	Once per [12] hours (1)
	AND		
	A.3 .1	Restore battery charger[s] to OPERABLE status. required ( )	7 days 72 hours (2) (1) (3)
B. One [or two] batter[y][ies on one train] inoperable.	B.1	Restore batter[y][ies] to OPERABLE status.	[2] hours] (9)
ACTION C, ACTION D, ACTION E C. B One DC electrical power subsystem inoperable for reasons other than Condition A [or B]. train INSERT 2	C.1 B	Restore DC electrical power subsystem to OPERABLE status. INSERT 3	[2] hours (9) (10) (1) (3)
ACTION F D. C Required Action and Associated Completion Time of Condition B not met.	D.1 C	Be in MODE 3.	6 hours (9)
	AND		(3)
	D.2 C	INSERT 4 Be in MODE 5. 4	36 12 hours (9) TSTF-422

3 **INSERT 1**

OR	
A.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.	72 hours
AND	
A.3.2.2 Restore required battery charger(s) to OPERABLE status.	7 days

3 **INSERT 2**

Required Action and associated Completion Time of Condition A not met.

OR

3 **INSERT 3**

OR	
B.2.1 Cross connect with OPERABLE same train DC subsystem.	2 hours
AND	
B.2.2 Restore DC electrical power train to OPERABLE status.	---------- NOTE---------- Completion Time is 14 days when cross connected for battery replacement. ---------------------------- 4 days

INSERT 4

---------------NOTE---------------
LCO 3.0.4.a is not applicable when entering MODE 4.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.8.4.1	SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A
SR 3.8.4.2	SR 3.8.4.2 Verify each required battery charger supplies ≥ ~~[400]~~ 300 amps for the dedicated battery chargers and ≥ 400 amps for the swing battery chargers at greater than or equal to the minimum established float voltage for ≥ ~~[~~8~~]~~ hours. ~~OR~~ ~~Verify each battery charger can recharge the battery to the fully charged state within [24] hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.~~ INSERT 5	~~[18] months~~ In accordance with the Surveillance Frequency Control Program	2 1 TSTF-425-A 1 5 6
SR 3.8.4.4	SR 3.8.4.~~3~~ 4 ~~NOTES 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3.~~ ~~2. This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.~~ Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a ~~battery service~~ modified performance discharge test.	~~[18] months~~ In accordance with the Surveillance Frequency Control Program	6 7 8 TSTF-425-A 7

5 **INSERT 5**

SR 3.8.4.3

SR 3.8.4.3	Not used.	

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JUSTIFICATION FOR DEVIATIONS
ITS 3.8.4, DC SOURCES – OPERATING

1. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

2. The term "required" has been added since each DC subsystem has two dedicated battery chargers and a swing battery charger, but only two are required to be OPERABLE in each DC subsystem.

3. ISTS 3.8.4 ACTIONS A and B have been modified to match CTS 3.8.4 ACTIONS A, C, D, and E. CTS 3.8.4 ACTIONS A, C, D, and E were approved by the NRC in the Safety Evaluation for License Amendments 218 and 211 (Unit 2 and Unit 3, respectively), Adams Accession Number ML083330097. Therefore, San Onofre Nuclear Generating Station (SONGS) will maintain the current licensing requirements for these ACTIONS. Note that changes were made in the formatting of the CTS ACTIONS to be consistent with the intent and format of the ISTS. Changes were also made to the actual ACTIONS due to changes in plant design (i.e., removal of the 1260 amp-hour batteries). These changes are described in the Discussion of Changes for the CTS.

4. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

5. ISTS 3.8.4.2 requires verification of the design capacity of the battery chargers. The SR provides two options for this verification. The second option requires verification that the battery charger can recharge the battery to a fully charged state within 24 hours while supplying the largest combined demands of the steady state loads after a battery discharge. This SR has been changed to not include the second option. This change is acceptable since the second option is not included in the current Technical Specifications for SONGS.

6. The SR number has been changed to be consistent to be consistent with the SR number in the SONGS CTS. SCE has decided not to renumber the CTS to be consistent with the ISTS because by doing so would result in the unnecessary administrative burden of changing TS numbers in plant procedures. For this reason, "Not used" SR numbers are also maintained in the ITS.

7. ISTS SR 3.8.4.3 requires performance of a battery service test to verify the battery capacity. Additionally, it contains a Note (Note 1) which states that the modified performance test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. SONGS does not perform a battery service test for batteries. In ITS SR 3.8.4.4, the service test requirement has been replaced with a modified performance discharge test requirement. This Surveillance was approved by the NRC in the Safety Evaluation for License Amendments 218 and 211 (Unit 2 and Unit 3, respectively), Adams Accession Number ML083330097. Therefore, SONGS will maintain the current licensing requirements for this Surveillance. Since the SR now requires a modified performance discharge test, the ISTS Note is not necessary and has also been deleted.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.8.4, DC SOURCES – OPERATING

8. The ISTS contains a Note (Note 2) for SR 3.8.4.3, which states, "This Surveillance shall not normally be performed in MODE 1, 2, 3, or 4. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR." This Note is not being adopted for the SONGS ITS because the SONGS CTS does not currently preclude this test from being performed in these MODES. This SR can be performed in MODES 1, 2, 3, and 4 since SONGS has a cross-connection capability between batteries in the same train, and each 1800 amp-hour battery can provide the necessary power for both of the DC buses in the train. Therefore, it is being deleted from the ISTS for SONGS ITS.

9. ISTS 3.8.4 ACTION B contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. This specific ACTION is not incorporated into the SONGS ITS. This is acceptable since the information/value is changed to reflect the current licensing basis. Additionally, since this ACTION is not included in the ITS, the subsequent ACTIONS have been renumbered.

10. The term "subsystem" in ISTS 3.8.4 Condition C and Required Action C.1 has been changed to "train" in ITS 3.8.4 Condition B and Required Action B.1. The ISTS is written for plants that have two trains, with each train being a subsystem. This is described in the ISTS Bases. The SONGS design includes two trains, but each train has two subsystems, not one. Therefore, to be consistent with the intent of the ISTS, which provides actions when one complete train is inoperable, the term has been changed to "train". Also note that ISTS 3.8.4 Condition A and B both use the term "train," not subsystem when referring to battery chargers and batteries in one train.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources - Operating

BASES

BACKGROUND

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred AC vital bus power (via inverters). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the recommendations of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

trains

train consists of two subsystems (Subsystems A and C for Train A and Subsystems B and D for Train B), and each

The ~~[~~125~~/250]~~ VDC electrical power system consists of two independent and redundant safety related Class 1E DC electrical power ~~subsystems~~ (~~[~~Train A and Train B~~]~~). Each subsystem consists of ~~[two]~~ 125 VDC ~~batteries~~ ~~[(each battery [50]% capacity)]~~, the associated battery charger~~(s) for each battery~~, and all the associated control equipment and interconnecting cabling. 1 6 2 6

one

battery

~~[The 250 VDC source is obtained by use of the two 125 VDC batteries connected in series. Additionally there is [one] spare battery charger per subsystem, which provides backup service in the event that the preferred battery charger is out of service. If the spare battery charger is substituted for one of the preferred battery chargers, then the requirements of independence and redundancy between subsystems are maintained.]~~ 1

During normal operation, the ~~[~~125~~/250]~~ VDC load is powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC load is automatically powered from the station batteries. 1

The ~~[~~Train A and Train B~~]~~ DC electrical power subsystems provide the control power for its associated Class 1E AC power load group, ~~[~~4.16~~]~~ kV switchgear, and ~~[~~480~~]~~ V load centers. The DC electrical power subsystems also provide DC electrical power to the inverters, which in turn power the AC vital buses. 1

The DC power distribution system is described in more detail in the Bases for LCO 3.8.9, "Distributions System Operating," and for LCO 3.8.10, "Distribution Systems - Shutdown." 2

-

BASES

BACKGROUND (continued)

Each 125/250 VDC battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystem to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E subsystems, such as batteries, battery chargers, or distribution panels. 2 buses s 6

Each battery has adequate storage capacity to meet the duty cycle(s) discussed in the FSAR, Chapter [8] (Ref 4). The battery is designed with additional capacity above that required by the design duty cycle to allow for temperature variations and other factors. U . 1 2 4

The batteries for Train A and Train B DC electrical power subsystems are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The minimum design voltage limit is 105/210 V. at the supplied load (inverter) 105.414 Ref. 11 2

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for a [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to ~~2.25]~~ Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge. The nominal float voltage of ~~[2.22]~~ Vpc corresponds to a total float voltage output of ~~[128.8]~~ V for a [58] cell battery ~~as discussed in the FSAR, Chapter [8] (Ref. 4)~~. 2.28 2.267 131.5 1 3

Each Train A and Train B DC electrical power subsystem battery charger has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient excess capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads discussed in the FSAR, Chapter [8] (Ref. 4). U 2 1

INSERT 1 2

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2 **INSERT 1**

Each subsystem has a dedicated battery charger that is rated at 300 amps. Each train has a 400 amp rated swing battery charger that meets all the performance requirements of the dedicated charger and can be manually aligned to either subsystem. The swing charger breakers and interconnecting cables allow alignment to either subsystem within a train. Key interlocks limit swing charger alignment to one subsystem at a time. The Train B swing charger can also be aligned to non-1E 125 VDC Battery Bus D5. Electrical isolation and independence between subsystems required by Regulatory Guide 1.75 is maintained by the isolation capability of the battery charger itself and the key interlocked output circuit breakers. If the swing battery charger is substituted for one of the dedicated battery chargers, the requirements of independence and redundancy between subsystems are maintained.

The swing battery charger and the dedicated battery charger are equally qualified. When required, the swing battery charger can replace the dedicated battery charger using the provided circuit breakers. The swing battery charger can stay in service indefinitely, and there are no restrictions on swing battery charger use. The swing and dedicated battery chargers are designed to operate in parallel in any combination. The swing battery charger is powered from its respective Train's common MCC which is diesel generator backed as required by LCO 3.8.1, "AC Sources – Operating," or LCO 3.8.2, "AC Sources – Shutdown."

BASES

BACKGROUND (continued)

The battery charger is normally in the float-charge mode. Float-charge is the condition in which the charger is supplying the connected loads and the battery cells are receiving adequate current to optimally charge the battery. This assures the internal losses of a battery are overcome and the battery is maintained in a fully charged state.

When desired, the charger can be placed in the equalize mode. The equalize mode is at a higher voltage than the float mode and charging current is correspondingly higher. The battery charger is operated in the equalize mode after a battery discharge or for routine maintenance. Following a battery discharge, the battery recharge characteristic accepts current at the current limit of the battery charger (if the discharge was significant, e.g., following a battery service test) until the battery terminal voltage approaches the charger voltage setpoint. Charging current then reduces exponentially during the remainder of the recharge cycle. Lead-calcium batteries have recharge efficiencies of greater than 95%, so once at least 105% of the ampere-hours discharged have been returned, the battery capacity would be restored to the same condition as it was prior to the discharge. This can be monitored by direct observation of the exponentially decaying charging current or by evaluating the amp-hours discharged from the battery and amp-hours returned to the battery.

APPLICABLE SAFETY ANALYSES

U The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 5) and Chapter [15] (Ref. 6), assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation. 2 1

The OPERABILITY of the DC sources is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining the DC sources OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power ~~and~~ ; 4

b. A worst-case single failure.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

train consists of two subsystems, and

a s one

LCO

Each ~~The~~ DC electrical power ~~subsystems,~~ each subsystem consist~~ing~~ of ~~[two]~~ 1 6

battery ~~batteries,~~ battery charger ~~[for each battery]~~ and the corresponding control

dedicated or swing

equipment and interconnecting cabling supplying power to the associated bus within the train are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any train DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

train

required

An OPERABLE DC electrical power ~~subsystem~~ requires all ~~required~~ batteries and ~~respective~~ chargers to be operating and connected to the associated DC bus~~(es)~~. 6

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure safe unit operation and to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients ; and 4

b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 5 and 6 are addressed in the Bases for LCO 3.8.5, "DC Sources - Shutdown."

ACTIONS

A.1, A.2, ~~and~~ A.3 .1, A.3.2.1, and A.3.2.2 6

Condition A represents one train with one ~~[~~or two~~]~~ battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within ~~[~~12~~]~~ hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability. 1

BASES

ACTIONS (continued)

~~-----REVIEWER'S NOTE-----~~
~~A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).~~
~~----------~~ 5

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within ~~[~~12~~]~~ hours, avoiding a premature shutdown with its own attendant risk.

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours , that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within ~~[~~12~~]~~ hours (Required Action A.2). 4

Required Action A.2 requires that the battery float current be verified as less than or equal to 1.50 ~~[2]~~ amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it ~~has~~ is now ~~been~~ fully INSERT 2 ~~recharged~~. If at the expiration of the initial ~~[~~12~~]~~ hour period the battery float current is not less than or equal to 1.50 ~~[2]~~ amps this indicates there may be additional battery problems and the battery must be declared inoperable. 1 2

2 **INSERT 2**

capable to supply the maximum expected load requirement. The battery manufacturer certified that at 1.50 amps the battery is at least 98% charged. A 2% capacity margin (correction factor) has been used in the battery sizing calculation (Ref. 12) which ensures that the battery has sufficient capacity to meet the maximum expected load demand. If at the expiration of the initial 12 hour period the battery float current is not less than or equal to 1.50 amps this indicates there may be additional battery problems and the battery must be declared inoperable.

BASES

ACTIONS (continued)

s

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status. 6

INSERT 3

~~B.1~~

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~The 2 hour Completion Times of Required Actions B.1 and C.1 are in brackets. Any licensee wishing to request a longer Completion Time will need to demonstrate that the longer Completion Time is appropriate for the plant in accordance with the guidance in Regulatory Guide (RG) 1.177, "An Approach for Plant-Specific, Risk-Informed Decision Making: Technical Specifications."~~
~~---~~ 5

~~Condition B represents one train with one [or two] batter[y][ies] inoperable. With one [or two] batter[y][ies] inoperable, the DC bus is being supplied by the OPERABLE battery charger[s]. Any event that results in a loss of the AC bus supporting the battery charger[s] will also result in loss of DC to that train. Recovery of the AC bus, especially if it is due to a loss of offsite power, will be hampered by the fact that many of the components necessary for the recovery (e.g., diesel generator control and field flash, AC load shed and diesel generator output circuit breakers, etc.) likely rely upon the batter[y][ies]. In addition the energization transients of any DC loads that are beyond the capability of the battery charger[s] and normally require the assistance of the batter[y][ies] will not be able to be brought online. The [2] hour limit allows sufficient time to effect restoration of an inoperable battery given that the majority of the conditions that lead to battery inoperability (e.g., loss of battery charger, battery cell voltage less than [2.07] V, etc.) are identified in Specifications 3.8.4, 3.8.5, and 3.8.6 together with additional specific completion times.~~ 6

6 **INSERT 3**

A.3.1 or A.3.2.1 and A.3.2.2 are applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E spare battery charger).

Required Action A.3.1 limits the restoration time for the required battery charger to 72 hours if a non-1E charger with a non-1E power source is used. The restoration time for the required battery charger can be extended to 7 days (Required Action A.3.2.2) if the ability to power the spare battery charger from a diesel-backed source has been established within 72 hours (Required Action A.3.2.1). All preparations to accomplish the ability to power the spare battery charger must be complete within 72 hours. The purpose of this provision is to facilitate connection of the spare battery charger to a diesel-backed source in ≤ 4 hours if non-1E power is lost. The 4-hour charger connection time is required because 4 hours after the loss of non-1E power, the battery may not supply the minimum required voltage at the loads.

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BASES

ACTIONS (continued)

B ~~C~~.1 , B.2.1, and B.2.2

6

Condition B ~~C~~ represents one train with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected train. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system train.

If one of the required DC electrical power trains ~~subsystems~~ is inoperable for reasons other than Condition A ~~or B~~ or the Required Actions and associated Completion Times of Condition A are not met (e.g., inoperable battery charger and associated inoperable battery), or both batteries in a train inoperable, the remaining DC electrical power train ~~subsystem~~ has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems to mitigate a worst case accident, continued power operation should not exceed 2 hours. The 2 hour Completion Time of Required Action B.1 is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to cross connect with OPERABLE same train DC subsystem or assess unit status as a function of the inoperable DC electrical power train ~~subsystem~~ and, if the DC electrical power train ~~subsystem~~ is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown. INSERT 4

6 2 2

C ~~D~~.1 and C ~~D~~.2

6 6

If the inoperable DC electrical power train ~~subsystem~~ cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is minimized ~~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 4 ~~5~~ within 12 ~~36~~ hours. INSERT 5 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. ~~The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 7).~~

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6

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a

6

INSERT 4

Either Required Action B.1 or B.2.2 will restore the DC train to OPERABLE status which, if Required Action B.2.1 is met, includes restoring the two cross-connected subsystems to their normal configuration. Required Action B.2.1 includes a requirement to ensure the battery aligned to the cross-tied subsystem buses has adequate capacity within 2 hours. This includes ensuring the battery charger(s) are properly aligned for the cross-connected configuration. When the buses are cross-connected, either the swing charger must be aligned (with or without another dedicated charger) or both dedicated chargers must be aligned. The two hour time limit is consistent with the 2 hour limit of Required Action B.1.

The Required Action B.2.1 alignment will allow both subsystems in the train to remain energized with the battery charger(s) providing normal power and a battery providing emergency power. The 4-day Completion Time allowed by Required Action B.2.2 is adequate for routine maintenance activities such as performance of battery discharge testing (online) in MODES 1 through 4. The 14-day Completion Time allows for battery replacement projects. The 4-day Completion Time includes a NOTE to allow an extension to 14 days for battery replacement.

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INSERT 5

Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 8). In MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state.

C

Required Action ~~D~~.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. 6

BASES

SURVEILLANCE REQUIREMENTS (continued)

(129 V with instrument uncertainties)

INSERT 6

fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer ([2.20] Vpc or [127.6] V at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years). The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 8). 1 2 TSTF-425-A

SR 3.8.4.2

10

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensure that these requirements can be satisfied. TSTF-422-A

for the dedicated battery chargers and ≥ 400 amps for the swing battery charger

≥ 300

This SR provides two options. One option requires that each battery charger be capable of supplying [400] amps at the minimum established float voltage for [8] hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least [2] hours. 6 1 1

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not normally be available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is ≤ [2] amps. 6

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INSERT 6

The Frequency is controlled under the Surveillance Frequency Control Program. 7

-- Reviewer's Note --
Plants controlling Surveillance Frequencies under the Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.

BASES

SURVEILLANCE REQUIREMENTS (continued)

INSERT 7

~~The Surveillance Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger performance during these [18 month] intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.~~ TSTF-425-A

INSERT 8 6

SR 3.8.4.~~3~~ 4 6

INSERT 9

~~A battery service test is a special test of the battery capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length should correspond to the design duty cycle requirements as specified in Reference 4.~~ 6

INSERT 7

~~The Surveillance Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.32 (Ref. 9) and Regulatory Guide 1.129 (Ref. 10), which state that the battery service test should be performed during refueling operations, or at some other outage, with intervals between tests not to exceed [18 months].~~ TSTF-425-A

~~This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test.~~ 6

~~The reason for Note 2 is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR.~~ 6

TSTF-425-A

INSERT 7

The Frequency is controlled under the Surveillance Frequency Control Program. 7

~~--- Reviewer's Note ---~~
~~Plants controlling Surveillance Frequencies under the Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---~~

6

INSERT 8

SR 3.8.4.3

Not used.

6

INSERT 9

A modified performance test is comprised of performing a service test, in as-found condition, to satisfy the battery duty cycle followed immediately by a 4-hour rate constant current discharge until 1.75 Vpc is reached (Ref. 9, Annex I.3).

The modified performance discharge test will use the combined duty cycle of the cross-connected subsystem.

BASES

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE-308-[1978]. (1)
4. FSAR, Chapter [8]. (2) (1)

U

5. FSAR, Chapter [6]. (2) (1)

U

6. FSAR, Chapter [15]. (2) (1)
7. Regulatory Guide 1.93, December 1974.

8. CE NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required End States for CEOG PWRs, October, 2001.

9 ~~8~~. IEEE-450-~~[1995]~~ 2002. (1)

10 ~~9~~. Regulatory Guide 1.32, February 1977. (TSTF-422-A)

11 ~~10~~. Regulatory Guide 1.129, ~~December 1974~~ Rev. 2, February 2007. (2)

12. SCE Calculation E4C-017. (2)

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.4 BASES, DC SOURCES – OPERATING

1. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. SONGS UFSAR Chapter 8 does not contain the nominal float voltage or the total float voltage. Therefore, the ISTS 3.8.4 reference to "FSAR Chapter 8 (Ref. 4)" has been deleted. Subsequent to the deletion, the remaining references have been renumbered.

4. Correct punctuation is used and is consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Reviewers Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal.

6. Changes made to be consistent with changes made to the Specification.

7. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.4, DC SOURCES – OPERATING

There are no specific NSHC discussions for this Specification.

ATTACHMENT 5

ITS 3.8.5, DC SOURCES – SHUTDOWN

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5

LCO 3.8.5 ~~The~~ DC electrical power subsystem (s) shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

A02

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

------------------------------------NOTE------------------------------------

ACTIONS Note

LCO 3.0.3 is not applicable.

ACTION A

A03

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~----------NOTE----------~~ ~~Only applicable to 1800 amp-hour rated batteries.~~ ~~------------------------~~ One or two required battery charger(s) on one train inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND	
	A.2 Verify battery float current ≤ 1.50 amps.	Once per 12 hours
	AND	
	A.3.1 Restore required battery charger(s) to OPERABLE status.	72 hours
	OR	
	A.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.	72 hours
	AND	
	A.3.2.2 Restore required battery charger(s) to OPERABLE status.	7 days

(continued)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. ----------NOTE----------~~ ~~Only applicable to 1260 amp-hour rated batteries.~~ ~~----------------------~~ ~~One or two required battery charger(s) on one train inoperable.~~	~~B.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.~~ ~~AND~~ ~~B.2 Verify battery float current ≤ 0.75 amp.~~ ~~AND~~ ~~B.3.1 Restore required battery charger(s) to OPERABLE status.~~ ~~OR~~ ~~B.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.~~ ~~AND~~ ~~B.3.2.2 Restore required battery charger(s) to OPERABLE status.~~	~~2 hours~~ ~~Once per 12 hours~~ ~~72 hours~~ ~~72 hours~~ ~~7 days~~
OR ~~C.~~ B. Required Action and associated Completion Time of Condition A ~~or B~~ not met.	~~C.1 Declare associated battery inoperable.~~	~~Immediately~~

A03

ACTION B

A04

A03

(continued)

ITS

A01

ACTION C

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~D~~ B. One or more required DC electrical power subsystem(s) inoperable for reasons other than Condition A ~~or B~~.	~~D~~ B.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~D.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	~~D~~ B.2. ~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	~~D~~ B.2. ~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	~~D~~ B.2. ~~4~~ 3 Initiate action to restore required DC electrical power subsystem(s) to OPERABLE status.	Immediately

A03

A03 L01

A03 L01

A03 L01

A03 L01

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.5.1 SR 3.8.5.1	--------------------NOTE------------------- The following SRs are not required to be performed: SR 3.8.4.2~~, SR 3.8.4.3,~~ and SR 3.8.4.4. -- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1, SR 3.8.4.2, ~~SR 3.8.4.3,~~ and SR 3.8.4.4.	In accordance with applicable SRs

A03

A03

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

(s)

LCO 3.8.5 — LCO 3.8.5 ~~The~~ DC electrical power subsystem shall be OPERABLE to support the DC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."

A02

Applicability — APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

--------------------------------------NOTE--------------------------------------

ACTIONS Note — LCO 3.0.3 is not applicable.

ACTION A

A03

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~----------NOTE----------~~ ~~Only applicable to 1800 amp-hour rated batteries.~~ ~~------------------------~~ One or two required battery charger(s) on one train inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND	
	A.2 Verify battery float current ≤ 1.50 amps.	Once per 12 hours
	AND	
	A.3.1 Restore required battery charger(s) to OPERABLE status.	72 hours
	OR	
	A.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.	72 hours
	AND	
	A.3.2.2 Restore required battery charger(s) to OPERABLE status.	7 days

(continued)

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ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~B. ----------NOTE----------~~ ~~Only applicable to 1260 amp-hour rated batteries.~~ ~~------------------------~~ ~~One or two required battery charger(s) on one train inoperable.~~	~~B.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.~~ ~~AND~~ ~~B.2 Verify battery float current ≤ 0.75 amp.~~ ~~AND~~ ~~B.3.1 Restore required battery charger(s) to OPERABLE status.~~ ~~OR~~ ~~B.3.2.1 Provide ability to power the spare battery charger from a diesel-backed source.~~ ~~AND~~ ~~B.3.2.2 Restore required battery charger(s) to OPERABLE status.~~	~~2 hours~~ ~~Once per 12 hours~~ ~~72 hours~~ ~~72 hours~~ ~~7 days~~
OR ACTION B ~~C~~. B Required Action and associated Completion Time of Condition A ~~or B~~ not met.	~~C.1 Declare associated battery inoperable.~~	~~Immediately~~

A03

A04

A03

(continued)

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ITS

A01

ACTIONS (continued)

ACTION C

CONDITION	REQUIRED ACTION		COMPLETION TIME	
~~D~~ B. One or more required DC electrical power subsystem(s) inoperable for reasons other than Condition A ~~or B~~.	~~D~~ B.1	Declare affected required feature(s) inoperable.	Immediately	A03
	OR			
	~~D.2.1~~	~~Suspend CORE ALTERATIONS.~~	~~Immediately~~	A03 L01
	~~AND~~			
	~~D~~ B.2.~~2~~ 1	Suspend movement of irradiated fuel assemblies.	Immediately	A03 L01
	AND			
	~~D~~ B.2.~~3~~ 2	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	A03 L01
	AND			
	~~D~~ B.2.~~4~~ 3	Initiate action to restore required DC electrical power subsystem(s) to OPERABLE status.	Immediately	A03 L01

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.5.1	SR 3.8.5.1 --------------------NOTE-------------------- The following SRs are not required to be performed: SR 3.8.4.2~~, SR 3.8.4.3,~~ and SR 3.8.4.4. -- A03 For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1, SR 3.8.4.2, ~~SR 3.8.4.3,~~ and SR 3.8.4.4. A03	In accordance with applicable SRs

DISCUSSION OF CHANGES
ITS 3.8.5, DC SOURCES – SHUTDOWN

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications-Combustion Engineering Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS LCO 3.8.5 requires the DC electrical power subsystem to be OPERABLE when required by LCO 3.8.10, "Distribution Systems – Shutdown." ITS LCO 3.8.5 requires DC electrical power subsystem(s) to be OPERABLE when required by LCO 3.8.10, "Distribution Systems – Shutdown." This changes the CTS by indicating that there may be more than one DC electrical power subsystem required to be OPERABLE by LCO 3.8.10.

This change is acceptable because SONGS CTS and ITS could require more than one subsystem be OPERABLE at a time per LCO 3.8.10. The change is a grammatical correction only. This change is designated as an administrative change since the change does not result in a technical change to the CTS.

A03 CTS 3.8.5 contains ACTIONS and Surveillance Requirements for two groups of batteries. One group of batteries is 1800 amp-hour rated and the other group is 1260 amp-hour rated. ITS 3.8.5 contains requirements for 1800 amp-hour rated batteries only. Thus, there are no parenthetical descriptions or Notes that an ACTION or SR is for the 1800 amp hour batteries. This changes the CTS by deleting the requirements of the 1260 amp-hour rated batteries and renumbering the remaining ACTIONS.

This change is acceptable because SONGS no longer has 1260 amp-hour rated batteries. SONGS started upgrading the DC system in November 2007 to replace the 1260 amp-hour batteries with larger 1800 amp-hour rated batteries. During the process, it was necessary to include in the Technical Specification requirements for the two types of batteries that were being used. Since the 1260 amp-hour rated batteries have now been completely replaced, there is no need to maintain the requirements for them in the Technical Specifications. However, the requirements for the 1800 amp-hour rated batteries have been maintained in the Technical Specifications. This change is designated as an administrative change since the change does not result in a technical change to the CTS.

A04 CTS 3.8.5 ACTION C requires that when the Required Action and associated Completion Time of Condition A is not met, then to declare the associated battery inoperable immediately. ITS 3.8.5 does not contain a separate ACTION for when the Completion Time of Condition A is not met. Therefore, instead of immediately declaring the associated battery inoperable and then entering the ACTION for one battery inoperable (ISTS ACTION B) this requirement has been added to ITS 3.8.5 Condition B with an OR logical connector. This changes the

DISCUSSION OF CHANGES
ITS 3.8.5, DC SOURCES – SHUTDOWN

CTS by specifically requiring restoration of the battery instead of declaring the battery inoperable.

The purpose of CTS 3.8.5 ACTION C is to ensure that the appropriate ACTIONS are taken for an inoperable battery. This is accomplished by requiring that the associated battery be immediately declared inoperable. When the battery is declared inoperable, CTS 3.8.5 ACTION D is then entered. CTS 3.8.5 ACTION D requires, in part, that DC electrical power subsystem be restored within 2 hours. ITS 3.8.5 does not contain a separate step to declare the battery inoperable, but instead just requires the restoration of the battery within 2 hours. Since the ultimate goal is to restore the battery, there is no difference between the CTS and the ITS. Furthermore, the ITS simplifies the rules by not requiring the operator to enter an additional ACTION (CTS 3.8.5 ACTION C) to restore the battery. This change is considered administrative since it does not result in a technical change to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

None

<u>RELOCATED SPECIFICATIONS</u>

None

<u>REMOVED DETAIL CHANGES</u>

None

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.8.5 ACTION D specifies compensatory actions when one or more required DC electrical power subsystems are inoperable. One of the compensatory actions (CTS 3.8.5 Required Action D.2.1) is to suspend CORE ALTERATIONS. Under similar conditions, ITS 3.8.5 ACTION B, which provides the compensatory actions when one or more required DC electrical power subsystems are inoperable, does not require suspension of CORE ALTERATIONS. This changes the CTS by deleting the requirement to suspend CORE ALTERATIONS when one or more required DC electrical power subsystems are inoperable.

The purpose of CTS LCO 3.8.5 is to ensure the necessary portions of the DC electrical power subsystems are available to support the DC electrical power subsystems required by LCO 3.8.10, "Distribution System – Shutdown." When one or more required DC electrical power subsystems are inoperable, CTS 3.8.5 ACTION D.2.1 requires suspension of CORE ALTERATIONS to preclude an event that could result in not meeting the SHUTDOWN MARGIN limit. CORE ALTERATIONS is defined in CTS 1.1, in part, as "the movement of any fuel,

DISCUSSION OF CHANGES
ITS 3.8.5, DC SOURCES – SHUTDOWN

sources, or reactivity control components or other components… affecting reactivity, within the reactor vessel with the vessel head removed and fuel in the vessel." There are two evolutions encompassed under the term CORE ALTERATIONS that could affect the SHUTDOWN MARGIN: addition of fuel to the reactor vessel and withdrawal of control rods. However, ITS 3.8.5 Required Action B.2.1 requires immediate suspension of movement of irradiated fuel assemblies and ITS 3.8.5 Required Action B.2.2 requires the suspension of operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. This would include both the addition of fuel to the reactor vessel and the withdrawal of control rods. Furthermore, another accident considered in MODE 6 that could affect SHUTDOWN MARGIN is the boron dilution. A boron dilution accident is initiated by a dilution source which results in boron concentration dropping below that required to main the SHUTDOWN MARGIN. A boron dilution accident is mitigated by stopping the dilution. In summary, with the exception of suspending movement of irradiated fuel assemblies, there are no DBAs or transients that are initiated by, or mitigation affected by, suspension of CORE ALTERATIONS. Therefore, if all Required Actions that require suspension of CORE ALTERATIONS also require suspension of movement of irradiated fuel, suspension of CORE ALTERATIONS provides no safety benefit. ITS Required Action B.2.1 and B.2.2 require the suspension of movement of irradiated fuel assemblies and the suspension of positive reactivity additions, respectively, thus the deletion of the requirement to suspend CORE ALTERATIONS is acceptable. This change is designated as less restrictive since less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5

LCO 3.8.5 [DC electrical power subsystem (s) shall be OPERABLE to support the DC electrical power distribution train(s) ~~subsystem(s)~~ required by LCO 3.8.10, "Distribution Systems - Shutdown."] 8 7

~~[One DC electrical power subsystem shall be OPERABLE.]~~

~~-----REVIEWER'S NOTE----- This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only one DC electrical power subsystem to be OPERABLE. Action A and the bracketed optional wording in Condition B are also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem support as is required for power operating conditions.~~ 2

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of ~~[recently]~~ irradiated fuel assemblies. 1

ACTIONS

ACTIONS Note

------------------------------NOTE------------------------------
LCO 3.0.3 is not applicable.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] required battery charger[s on one train] inoperable. ~~AND~~ ~~The redundant train battery and charger[s] OPERABLE.~~	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND A.2 Verify battery float current ≤ ~~[2]~~ 1.50 amps. AND	2 hours Once per [12] hours

4 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	INSERT 1 A.3 .2.2 Restore required battery charger[s] (s) to OPERABLE status.	7 days]
ACTION D B. One [or more] required DC electrical power subsystem[s] inoperable [for reasons other than Condition A. OR Required Action and associated Completion Time of Condition A not met].	B.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~B.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	B.2.~~2~~ 1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately
	AND	
	B.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
	B.2.~~4~~ 3 Initiate action to restore required DC electrical power ~~subsystems~~ subsystem(s) to OPERABLE status.	Immediately

1 4 1 TSTF-471-A TSTF-471-A TSTF-471-A 7

4 **INSERT 1**

ACTION A	A.3.1	Restore required battery charger(s) to OPERABLE status. OR	72 hours
	A.3.2.1	Provide ability to power the spare battery charger from a diesel-backed source. AND	72 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
SR 3.8.5.1	SR 3.8.5.1	------------------------------NOTE------------------------------ The following SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.~~3~~. 4 --- For DC sources required to be OPERABLE, the following SRs are applicable: SR 3.8.4.1 , SR 3.8.4.2 , and SR 3.8.4.~~3~~ 4	In accordance with applicable SRs

5

6

5

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JUSTIFICATION FOR DEVIATIONS
ITS 3.8.5, DC SOURCES – SHUTDOWN

1. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

2. The Reviewers Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal.

3. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

4. ISTS 3.8.5 ACTION A (ITS 3.8.5 ACTION A) has been modified to match CTS 3.8.5 ACTION A. CTS 3.8.5 ACTIONS A and C were approved by the NRC in the Safety Evaluation for License Amendments 218 and 211 (Unit 2 and Unit 3, respectively), Adams Accession Number ML083330097. Therefore, San Onofre Nuclear Generating Station (SONGS) will maintain the current licensing requirements for these ACTIONS. Additionally, subsequent Conditions and Required Actions were re-numbered.

5. ISTS SR 3.8.5.1 has been changed to reflect changes made in ITS 3.8.4.

6. Typographical/grammatical error corrected.

7. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. SONGS design includes two subsystems per train; therefore, there may be a need for both subsystems to be required. The ISTS was changed to reflect the SONGS design.

8. Changes made to be consistent with changes made to LCO 3.8.10.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources - Shutdown

BASES

BACKGROUND

A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources - Operating."

APPLICABLE SAFETY ANALYSES

U

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation. 1 2

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum DC electrical power sources during MODES 5 and 6 and during movement of ~~[recently]~~ irradiated fuel assemblies ensures that: 2

a. The unit can be maintained in the shutdown or refueling condition for extended periods~~,~~ ; 4

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status~~,~~ ; and 4

c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident ~~[involving handling recently irradiated fuel. Due to radioactive decay, DC electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]~~. 2

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many DBAs that are

BASES

APPLICABLE SAFETY ANALYSES (continued)

analyzed in MODES [1, 2, 3, and 4] have no specific analyses in MODES [5 and 6] because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems. 2

The shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst case DBAs which are analyzed for operating MODES are generally viewed not to be a significant concern during shutdown MODES due to the lower energies involved. The Technical Specifications therefore require a lesser complement of electrical equipment to be available during shutdown than is required during operating MODES. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the Technical Specifications, the industry has adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," as an Industry initiative to manage shutdown tasks and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown Technical Specifications.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The DC electrical power subsystems, [each required] ~~[the required]~~ (dedicated or swing) 2 1 3 subsystem consisting of one battery ~~two batteries~~, one battery charger ~~per battery~~, and the corresponding control equipment and interconnecting cabling ~~within the train~~, [are] ~~[is]~~ required to be OPERABLE to support [required] ~~[one]~~ train[s] of distribution systems required [OPERABLE by LCO 3.8.10, "Distribution Systems - Shutdown."] This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents ~~[involving handling recently irradiated fuel]~~). In addition, the two subsystems within a train are allowed to share a battery (i.e., be cross-connected), provided the swing charger (with or without one of the dedicated chargers) or both dedicated chargers are aligned. 2 2 6

BASES

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 5 and 6, and during movement of [recently] irradiated fuel assemblies provide assurance that: 2

a. Required features needed to mitigate a fuel handling [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] accident are available; 2 4

b. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and 4

c. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.4.

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A.3.1, A.3.2.1, .2.2

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

-----------------------------------REVIEWER'S NOTE-----------------------------------
ACTION A is included only when plant-specific implementation of LCO 3.8.5 includes the potential to require both trains of the DC System to be OPERABLE. If plant-specific implementation results in LCO 3.8.5 requiring only one train of the DC System to be OPERABLE, then ACTION A is omitted and ACTION B is renumbered as ACTION A. 5
----

required

Condition A represents one train with one [or two] battery chargers inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring a fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or 2 1

BASES

ACTIONS (continued)

≥ 129.0 V

equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within [12] hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability. 1 2

~~-----REVIEWER'S NOTE-----~~
~~A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).~~ 5
~~-----~~

A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a ~~premature~~ shutdown ~~with its own attendant risk~~ of refueling activities. 2 1

If established battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting modes, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide assurance that it can revert to and operate properly in the current limit modes that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours, that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action A.2). 4 2

BASES

ACTIONS (continued)

1.50 Required Action A.2 requires that the battery float current be verified as less than or equal to [2] amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now is been fully recharged. If at the expiration of the initial [12] hour period the battery float current is not less than or equal to [2] amps this indicates there may be additional battery problems and the battery must be declared inoperable. 2 2

INSERT 1

1.50

INSERT 2 Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status. 3

3

B.1, B.2.1, B.2.2, B.2.3, and B.2.4 TSTF-471

[If two trains are required by LCO 3.8.10, the remaining train with DC power available may be capable of supporting sufficient systems to allow continuation of CORE ALTERATIONS and [recently] irradiated fuel movement]. By allowing the option to declare required features inoperable with the associated DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. In many instances this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of [recently] irradiated fuel assemblies, and operations involving positive reactivity additions) that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safety operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM. 2 2 TSTF-471 2 TSTF-471

3 **INSERT 1**

capable of supplying the maximum expected load requirement. The battery manufacturer certified that at 1.50 amps the battery is at least 98% charged. A 2% capacity margin (correction factor) has been used in the battery sizing calculation (Ref. 3) which ensures that the battery has sufficient capacity to meet the maximum expected load demand.

3 **INSERT 2**

Required Actions A.3.1 or A.3.2.1 and A.3.2.2 are applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E spare battery charger).

Required Action A.3.1 limits the restoration time for the required battery charger to 72 hours if a non-1E charger with a non-1E power source is used. The restoration time for the battery charger can be extended to 7 days (required Action A.3.2.2) if the ability to power the spare battery charger from a diesel-backed source has been established within 72 hours (Required Action A.3.2.1). All preparations to accomplish the ability to power the spare battery charger must be complete within 72 hours. The purpose of this provision is to facilitate connection of the spare battery charger to a diesel-backed source in ≤ 4 hours if non-1E power is lost. The 4-hour charger connection time is required because 4 hours after the loss of non-1E power, the battery may not supply the minimum required voltage at the loads.

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BASES

ACTIONS (continued)

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystem[s] and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the unit safety systems. 2

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 states that Surveillances required by SR 3.8.4.1 through SR 3.8.4.~~3~~ 4 are applicable in these MODES. See the corresponding Bases for LCO 3.8.4 for a discussion of each SR. 3

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.

REFERENCES

1. FSAR, Chapter [6]. 1 2
U
2. FSAR, Chapter [15]. 1 2
3. SCE Calculation E4C-017. 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.5 BASES, DC SOURCES – SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. Correct punctuation is used and is consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Reviewers Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal.

6. Currently, SONGS is able to cross-connect two same train subsystems. The ITS 3.8.5 LCO Bases has been changed to reflect the current licensing configuration with respect to the alignment of the battery chargers during the time that the two same train subsystems are cross-connected (as approved by the NRC in the Safety Evaluation for SONGS Units 2 and 3 License Amendments 218 and 211, respectively, dated November 28, 2008 (ADAMS Accession No. ML083330097)).

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.5, DC SOURCES – SHUTDOWN

There are no specific NSHC discussions for this Specification.

ATTACHMENT 6

ITS 3.8.6, BATTERY PARAMETERS

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6

LCO 3.8.6 Battery parameters for the Train A and Train B batteries shall be within limits.

Applicability

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

ACTIONS Note

---NOTE---
Separate Condition entry is allowed for each battery.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One or two batteries on one train with one or more battery cells with float voltage <2.07 V.	A.1 Perform SR 3.8.4.1. AND A.2~~.1~~ Perform SR 3.8.6.1. ~~OR~~ ~~A.2.2 Perform SR 3.8.6.2.~~ AND A.3 Restore affected cell voltage ≥ 2.07 V.	2 hours 2 hours ~~2 hours~~ 24 hours	A02
ACTION B	B. ~~---NOTE--- Only applicable to 1800 amp-hour rated batteries. ---~~ One or two batteries on one train with float current > 1.50 amps.	B.1 Perform SR 3.8.4.1. AND B.2 Restore battery float current to ≤ 1.50 amps.	2 hours 12 hours	A02
	~~C. ---NOTE--- Only applicable to 1260 amp-hour rated batteries. ---~~ ~~One or two batteries on one train with float current > 0.75 amp.~~	~~C.1 Perform SR 3.8.4.1.~~ ~~AND~~ ~~C.2 Restore battery float current to ≤ 0.75 amp.~~	~~2 hours~~ ~~12 hours~~	A02

(continued)

ACTIONS (Continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION C	~~D~~ C. One or two batteries on one train with one or more cells with electrolyte level less than minimum established design limits.	------------NOTES------------ 1. Required Actions ~~D~~ C.1 and ~~D~~ C.2 are only applicable if electrolyte level is below the top of the plates. 2. Required Action ~~D~~ C.2 shall be completed if electrolyte level was below the top of the plates. -----------------------------		A02 A03 A02
		~~D~~ C.1 Restore electrolyte level to above the top of the plates.	8 hours	A02
		AND		
		~~D~~ C.2 Verify no evidence of leakage.	12 hours	A02
		AND		
		~~D~~ C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	31 days	A02
ACTION D	~~E~~ D. One or two batteries on one train with pilot cell electrolyte temperature less than minimum established design limits.	~~E~~ D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours	A02
ACTION E	~~F~~ E. One or more batteries in redundant trains with battery parameters not within limits.	~~F~~ E.1 Restore battery parameters for batteries in one train to within limits.	2 hours	A02

(continued)

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ITS

A01

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~G~~ F. ~~--------NOTE---------~~ ~~Only applicable to 1800 amp-hour rated batteries.~~ ~~----------------------~~ Required Action and associated Completion Time of Condition A, B, ~~D~~ C, ~~E~~ D, or ~~F~~ E not met. OR One or two batteries on one train with one or more battery cells with float voltage < 2.07 V and float current > 1.50 amps. OR One or more batteries with battery capacity not within limit.	~~G~~ F.1 Declare associated battery inoperable.	Immediately
~~H. --------NOTE---------~~ ~~Only applicable to 1260 amp-hour rated batteries.~~ ~~----------------------~~ ~~Required Action and associated Completion Time of Condition A, C, D, E, or F not met.~~ ~~OR~~ ~~One or two batteries on one train with one or more battery cells with float voltage < 2.07 V and float current > 0.75 amp.~~	~~H.1 Declare associated battery inoperable.~~	~~Immediately~~

ACTION F

A02

A02

A05

A02

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY	
SR 3.8.6.1	SR 3.8.6.1 ------------NOTE------------------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. ----------------------------------- Verify each battery float current is ≤ 1.50 amps ~~for batteries rated at 1800 amp-hours~~.	In accordance with the Surveillance Frequency Control Program ~~7 days~~	LA01 A02
SR 3.8.6.2	Not used. SR 3.8.6.2 ~~------------NOTE------------------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----------------------------------~~ ~~Verify each battery float current is ≤ 0.75 amp for batteries rated at 1260 amp-hours.~~	~~7 days~~	A02

(continued)

ITS

A01

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.6.3	SR 3.8.6.3 Verify each battery pilot cell voltage is ≥ 2.07 V.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.4	SR 3.8.6.4 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.5	SR 3.8.6.5 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.6	SR 3.8.6.6 Verify each battery connected cell voltage is ≥ 2.07 V.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.7	SR 3.8.6.7 Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a ~~performance discharge test or a~~ modified performance discharge test.	~~60 months~~ In accordance with the Surveillance Frequency Control Program AND 12 months when the battery shows degradation or has reached 85% of the expected life with capacity < 100% of the manufacturer's rating AND 24 months when the battery has reached 85% of the expected life with capacity ≥ 100% of the manufacturer's rating	LA01 A04

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6

LCO 3.8.6 Battery parameters for the Train A and Train B batteries shall be within limits.

Applicability

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

ACTIONS Note

------------------------------------NOTE------------------------------------
Separate Condition entry is allowed for each battery.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One or two batteries on one train with one or more battery cells with float voltage <2.07 V.	A.1 Perform SR 3.8.4.1. AND A.2~~.1~~ Perform SR 3.8.6.1. ~~OR~~ ~~A.2.2 Perform SR 3.8.6.2.~~ AND A.3 Restore affected cell voltage ≥ 2.07 V.	2 hours 2 hours ~~2 hours~~ 24 hours	A02
ACTION B	B. ~~---------NOTE--------- Only applicable to 1800 amp-hour rated batteries. ----------------------~~ One or two batteries on one train with float current > 1.50 amps.	B.1 Perform SR 3.8.4.1. AND B.2 Restore battery float current to ≤ 1.50 amps.	2 hours 12 hours	A02
	~~C. ---------NOTE--------- Only applicable to 1260 amp-hour rated batteries. ----------------------~~ ~~One or two batteries on one train with float current > 0.75 amp.~~	~~C.1 Perform SR 3.8.4.1.~~ ~~AND~~ ~~C.2 Restore battery float current to ≤ 0.75 amp.~~	~~2 hours~~ ~~12 hours~~	A02

(continued)

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION C ~~D~~ C. One or two batteries on one train with one or more cells with electrolyte level less than minimum established design limits.	------------NOTES------------ 1. Required Actions ~~D~~ C.1 and ~~D~~ C.2 are only applicable if electrolyte level is below the top of the plates. 2. Required Action ~~D~~ C.2 shall be completed if electrolyte level was below the top of the plates. -----------------------------	A02 A03 A02
	~~D~~ C.1 Restore electrolyte level to above the top of the plates.	8 hours A02
	AND	
	~~D~~ C.2 Verify no evidence of leakage.	12 hours A02
	AND	
	~~D~~ C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	31 days A02
ACTION D ~~E~~ D. One or two batteries on one train with pilot cell electrolyte temperature less than minimum established design limits.	~~E~~ D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours A02
ACTION E ~~F~~ E. One or more batteries in redundant trains with battery parameters not within limits.	~~F~~ E.1 Restore battery parameters for batteries in one train to within limits.	2 hours A02

(continued)

ITS

A01

ACTIONS (Continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION F ~~G~~ F. ~~---------NOTE---------- Only applicable to 1800 amp-hour rated batteries. ----------------------~~ Required Action and associated Completion Time of Condition A, B, ~~D~~ C, ~~E~~ D, or ~~F~~ E not met. OR One or two batteries on one train with one or more battery cells with float voltage < 2.07 V and float current > 1.50 amps. OR One or more batteries with battery capacity not within limit.	~~G~~ F.1 Declare associated battery inoperable.	Immediately
~~H. ---------NOTE---------- Only applicable to 1260 amp-hour rated batteries. ---------------------- Required Action and associated Completion Time of Condition A, C, D, E, or F not met. OR One or two batteries on one train with one or more battery cells with float voltage < 2.07 V and float current > 0.75 amp.~~	~~H.1 Declare associated battery inoperable.~~	~~Immediately~~

A02 A02 A05 A02

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.6.1	SR 3.8.6.1 -------------------NOTE------------------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -- Verify each battery float current is ≤ 1.50 amps ~~for batteries rated at 1800 amp-hours~~.	~~7 days~~ In accordance with the Surveillance Frequency Control Program LA01 A02
SR 3.8.6.2	SR 3.8.6.2 Not used. ~~-------------------NOTE------------------- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -- Verify each battery float current is ≤ 0.75 amp for batteries rated at 1260 amp-hours.~~	~~7 days~~ A02

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.6.3	SR 3.8.6.3 Verify each battery pilot cell voltage is ≥ 2.07 V.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.4	SR 3.8.6.4 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.5	SR 3.8.6.5 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.6	SR 3.8.6.6 Verify each battery connected cell voltage is ≥ 2.07 V.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	LA01
SR 3.8.6.7	SR 3.8.6.7 Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a ~~performance discharge test or a~~ modified performance discharge test.	~~60 months~~ In accordance with the Surveillance Frequency Control Program AND 12 months when the battery shows degradation or has reached 85% of the expected life with capacity < 100% of the manufacturer's rating AND 24 months when the battery has reached 85% of the expected life with capacity ≥ 100% of the manufacturer's rating	LA01 A04

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DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications-Combustion Engineering Plants" (ISTS) and additional Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.8.6 contains ACTIONS and Surveillance Requirements for two groups of batteries. One group of batteries is 1800 amp-hour rated and the other group is 1260 amp-hour rated. ITS 3.8.6 contains requirements for 1800 amp-hour rated batteries only. Thus, there are no Note or parenthetical descriptions that an ACTION or SR is for the 1800 amp hour batteries. This changes the CTS by deleting the requirements of the 1260 amp-hour rated batteries and renumbering subsequent ACTIONS.

This change is acceptable because SONGS no longer has 1260 amp-hour rated batteries. SONGS started upgrading the DC system in November 2007 to replace the 1260 amp-hour batteries with larger 1800 amp-hour rated batteries. During the process, it was necessary to include in the Technical Specification requirements for the two types of batteries that were being used. Since the 1260 amp-hour rated batteries have now been completely replaced, there is no need to maintain the requirements for them in the Technical Specifications. However, the requirements for the 1800 amp-hour rated batteries have been maintained in the Technical Specifications. This change is designated as an administrative change since the change does not result in a technical change to the CTS.

A03 CTS 3.8.6 ACTION D contains a Required Action Note which states that Required Action D.2 shall be completed if electrolyte level was below the top of the plates. ITS 3.8.6 Condition C contains a similar Note. This changes the CTS by moving the Note from the Required Action to the Condition.

This change is acceptable because moving the Note from the Required Action to the Condition does not change the need to complete Required Action D.2. By including the Note in the Condition, it keys the user into the need to complete the Required Action even if the electrolyte level is restored to above the top of the plates within the 8 hour Completion Time of Required Action D.1. This change is designated as administrative because it does not result in a technical change to the CTS.

A04 CTS SR 3.8.6.7 requires a verification that the battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test. ITS SR 3.8.6.7 requires verification that the battery capacity is ≥ 80% of the manufacturer's rating when subjected to a modified performance discharge test. This changes the CTS by limiting the test to a modified performance discharge test only.

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

The purpose of SR 3.8.6.7 is to periodically verify the capacity of the battery to ensure the design lifetime will be met. This test is currently for both the 1260 amp-hour rated batteries and the 1800 amp-hour rated batteries. As described in Discussion of Change A02, the DC batteries covered by this LCO have all been replaced with 1800 amp-hour rated batteries. Furthermore, Note 1 to CTS SR 3.8.4.4 specifically states that a modified performance discharge test must be performed on the 1800 amp-hour rated batteries when performing CTS SR 3.8.6.7. Thus, since SR 3.8.6.7 is now only for the 1800 amp-hour rated batteries, the test requirement has been changed to only specify a modified performance discharge test. Therefore, this change is acceptable and is designated as administrative since it does not result in a technical change.

A05 CTS SR 3.8.6.7 requires verification that the battery capacity is ≥ 80% of the manufacturer's rating. When the Surveillance is not met, the battery is declared inoperable and the appropriate ACTION in LCO 3.8.4 or LCO 3.8.5 is entered. ITS 3.8.6 contains a specific ACTION (ACTION F) which, in part, requires immediately declaring the associated battery inoperable if the battery capacity is less than manufacturer's rating. This changes the CTS by clearly stating to declare the associated battery inoperable when the battery capacity is less than manufacturer's rating.

The purpose of CTS SR 3.8.6.7 is to verify that the battery has the ability to meet the critical period of the load duty cycle. If the battery capacity is below the recommended manufacturer's rating, it is usually recommended that the battery be replaced. When the capacity is equal to 80% it shows that the battery rate of deterioration is increasing. Therefore, the battery must be declared inoperable and the appropriate ACTIONS entered for an inoperable battery. The proposed change is acceptable because it clarifies that LCO 3.8.4 or LCO 3.8.5 ACTIONS are required to be entered for an inoperable battery when the battery capacity is not within limits. Furthermore, the CTS 3.8.6 ACTION for when all the other battery parameters are not met also ultimately requires the unit to declare the associated battery inoperable. This change is designated as administrative because clarifying words are being added to CTS 3.8.6 ACTION G (ITS 3.8.6 ACTION F) without technically changing the intent.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS Requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.6.1 requires verification that each battery float current is ≤ 1.50 amps within 7 days. CTS SR 3.8.6.3 requires verification that each battery pilot cell voltage is ≥ 2.07 V every 31 days. CTS SR 3.8.6.4 requires verification that each battery connected cell electrolyte level is greater than or equal to the minimum established design limits every 31 days. CTS SR 3.8.6.5 requires verification that each battery pilot cell temperature is greater than or equal to the minimum established design limits every 31 days. CTS SR 3.8.6.6 requires verification that each battery connected cell voltage is ≥ 2.07 V every 92 days. CTS SR 3.8.6.7, in part, requires verification that the battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance test every 60 months. ITS SR 3.8.6.1, SR 3.8.6.3, SR 3.8.6.4, SR 3.8.6.5, SR 3.8.6.6, and SR 3.8.6.7 require the same Surveillances (with the exception of the change to SR 3.8.6.7, which is described in DOC A04), but specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified Frequencies for the SRs and the Bases for the frequencies to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;

   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

DISCUSSION OF CHANGES
ITS 3.8.6, BATTERY PARAMETERS

This change is designated as a less restrictive removal of detail change because the Surveillance Frequencies are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

---REVIEWER'S NOTE---
Licensees must implement a program, as specified in Specification 5.5.17, to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."
--- 2

LCO 3.8.6

LCO 3.8.6 Battery parameters for the Train A and Train B batteries shall be within limits.

Applicability

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

ACTIONS Note

--NOTE--
Separate Condition entry is allowed for each battery.

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1.	2 hours	3
		AND		
		A.2 Perform SR 3.8.6.1.	2 hours	
		AND		
		A.3 Restore affected cell voltage ≥ [2.07] V.	24 hours	3
ACTION B	B. One [or two] batter[y][ies on one train] with float current > [2] amps. 1.50	B.1 Perform SR 3.8.4.1.	2 hours	3
		AND		
		B.2 Restore battery float current to ≤ [2] amps. 1.50	[12] hours	3

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
	---------------NOTE-------------- Required Action C.2 shall be completed if electrolyte level was below the top of plates. --------------------------------------	--------------------NOTE------------------- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. --		
ACTION D	C. One [or two] batter[y][ies on one train] with one or more cells electrolyte level less than minimum established design limits.	C.1 Restore electrolyte level to above top of plates. <u>AND</u> C.2 Verify no evidence of leakage. <u>AND</u> C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	8 hours 12 hours 31 days	3
ACTION E	D. One [or two] batter[y][ies on one train] with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours	3
ACTION F	E. One or more batteries in redundant trains with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one train to within limits.	2 hours	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION G F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One [or two] batter[y][ies on one train] with one or more battery cells float voltage < [2.07] V and float current > [2] 1.50 amps. OR One or more batteries with battery capacity not within limit.	F.1 Declare associated battery inoperable.	Immediately

3 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1 SR 3.8.6.1	------------------------------NOTE------------------------------ Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. --- Verify each battery float current is ≤ [2] 1.50 amps. INSERT 1	~~7 days~~ In accordance with the Surveillance Frequency Control Program 3 5 TSTF-425-A
SR 3.8.6.3 SR 3.8.6.~~2~~ 3	Verify each battery pilot cell voltage is ≥ [2.07] V.	~~31 days~~ In accordance with the Surveillance Frequency Control Program 5 3 TSTF-425-A
SR 3.8.6.4 SR 3.8.6.~~3~~ 4	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program 5 TSTF-425-A
SR 3.8.6.5 SR 3.8.6.~~4~~ 5	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	~~31 days~~ In accordance with the Surveillance Frequency Control Program 5 TSTF-425-A

5 **INSERT 1**

SR 3.8.6.2	SR 3.8.6.2	Not used.

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY	
SR 3.8.6.6	SR 3.8.6.~~5~~ 6 Verify each battery connected cell voltage is ≥ [2.07] V.	~~92 days~~ In accordance with the Surveillance Frequency Control Program	5 3 TSTF-425-A
SR 3.8.6.7	SR 3.8.6.~~6~~ 7 ~~-------NOTE------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, portions of this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. -------~~		5 6
	Verify battery capacity is ≥ [80%] of the manufacturer's rating when subjected to a ~~performance discharge test or a~~ modified performance discharge test.	In accordance with the Surveillance Frequency Control Program ~~60 months~~ AND 12 months when battery shows degradation, or has reached [85]% of the expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached [85]% of the expected life with capacity ≥ 100% of manufacturer's rating	3 TSTF-425-A 7 3 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.6, BATTERY PARAMETERS

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Reviewers Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal. The Note was added as part of TSTF-360, which SONGS Units 2 and 3 have already adopted as described in the NRC Safety Evaluation for License Amendments 218 and 211.

3. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

4. ISTS SR 3.8.6.6 requires a battery performance discharge or modified performance discharge test to be performed and provides acceptance criteria. However, no specific ACTION is provided in the ISTS 3.8.6 ACTIONS for when this SR is not met. ISTS 3.8.6 Condition F has been changed to include the condition of one or more batteries with battery capacity not within limit. When this Condition occurs, the associated battery must be declared inoperable (and the ACTIONS of ITS 3.8.4 or ITS 3.8.5, as applicable, must be entered). This prevents the need to enter LCO 3.0.3 whenever SR 3.8.6.6 is not met. This is acceptable because the CTS 3.8.6 ACTION for when all of the other battery parameters are not met also ultimately requires the unit to declare the associated battery inoperable.

5. The SR number has been changed to be consistent with the SR number in the SONGS CTS. SCE has decided not to renumber the CTS to be consistent with the ISTS because by doing so would result in the unnecessary administrative burden of changing TS numbers in plant procedures. For this reason, "Not used" SR numbers are also maintained in the ITS.

6. The ISTS contains a Note for SR 3.8.6.6, which states, "The Surveillance shall not be performed in MODE 1, 2, 3, or 4. However, portions of this Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR." This Note is not being adopted for the SONGS ITS because the SONGS CTS does not currently preclude this test from being performed in these MODES. This SR can be performed in MODES 1, 2, 3, and 4 since SONGS has a cross-connection capability between batteries in the same train, and each 1800 amp-hour battery can provide the necessary power for both DC buses in the train. Therefore, it is being deleted from the ISTS for SONGS ITS.

7. The allowance to perform a performance discharge test as one of the two options has been deleted from ISTS SR 3.8.6.6, consistent with the CTS requirement. For the 1800 amp-hour rated batteries, which are the only batteries currently in use at SONGS Units 2 and 3, only a modified performance discharge test is allowed to meet this Surveillance. This is shown in CTS SR 3.8.4.4, Note 1.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power subsystem batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources - Operating," and LCO 3.8.5, "DC Sources - Shutdown." In addition to the limitations of this Specification, the [licensee controlled program] also implements a program specified in Specification 5.5. 2. 17 for monitoring various battery parameters that is based on the recommendations of IEEE Standard 450- 2002 ~~1995~~, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications" (Ref. 1).

The battery cells are of flooded lead acid construction with a nominal specific gravity of [1.215]. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for [58] cell battery (i.e., cell voltage of [2.065] volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage ≥ [2.065] Vpc, the battery cell will maintain its capacity for [30] days without further charging per manufacturer's instructions. Optimal long term performance however, is obtained by maintaining a float voltage [2.20 to 2.28 ~~2.25]~~ Vpc. This provides adequate over-potential which limits the formation of lead sulfate and self discharge. The nominal float voltage of 2.267 ~~[2.22]~~ Vpc corresponds to a total float voltage output of 131.5 ~~[128.8]~~ V for a [58] cell battery ~~as discussed in the FSAR, Chapter [8] (Ref. 2)~~.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the U FSAR, Chapter [6] (Ref. 2 ~~3~~) and Chapter [15] (Ref. 3 ~~4~~), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining at least one train of DC sources OPERABLE during accident conditions, in the event of:

a. An assumed loss of all offsite AC power or all onsite AC power ; ~~and~~

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BASES

APPLICABLE SAFETY ANALYSES (continued)

b. A worst-case single failure.

Battery parameters satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the ~~[licensee controlled program]~~ Battery Monitoring and Maintenance program is conducted as specified in Specification 5.5.~~17~~ 2. 7

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystems. Therefore, battery parameter limits are only required when the DC power source is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

ACTIONS

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

With one or more cells in one or ~~more~~ two batteries in one train < [2.07] V, the battery cell is degraded. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and of the overall battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries < [2.07] V, and continued operation is permitted for a limited period up to 24 hours. 8 2

2

Since the Required Actions only specify "perform," a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in this Required Action not met. However, if one of the SRs is failed the appropriate Condition(s), depending on the cause of the failures, is entered. If SR 3.8.6.1 is failed then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately.

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BASES

ACTIONS (continued)

B.1 and B.2

two 1.50

One or ~~more~~ batteries in one train with float current > ~~[2]~~ amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. ~~If the terminal voltage is found to be less than the minimum established float voltage there are two possibilities, the battery charger is inoperable or is operating in the current limit mode. Condition A addresses charger inoperability. If the charger is operating in the current limit mode after 2 hours that is an indication that the battery has been substantially discharged and likely cannot perform its required design functions. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within [12] hours (Required Action B.2). The battery must therefore be declared inoperable.~~ 8 2

Since the Required Action only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not being met. However, if the SR is failed, the appropriate Condition(s), depending on the cause of the failure, is entered. 9

If the float voltage is found to be satisfactory but there are one or more battery cells with float voltage less than ~~[~~2.07~~]~~ V, the associated "<u>OR</u>" statement in Condition F is applicable and the battery must be declared inoperable immediately. If float voltage is satisfactory and there are no cells less than ~~[~~2.07~~]~~ V there is good assurance that, within ~~[~~12~~]~~ hours, the battery will be restored to its fully charged condition (Required Action B.2) from any discharge that might have occurred due to a temporary loss of the battery charger. 2 2

~~-----------------------------------REVIEWER'S NOTE-----------------------------------~~
~~A plant that cannot meet the 12 hour Completion Time due to an inherent battery charging characteristic can propose an alternate time equal to 2 hours plus the time experienced to accomplish the exponential charging current portion of the battery charge profile following the service test (SR 3.8.4.3).~~ 5
~~---~~

BASES

ACTIONS (continued)

A discharged battery with float voltage (the charger setpoint) across its terminals indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within [12] hours, avoiding a premature shutdown with its own attendant risk. 2

If the condition is due to one or more cells in a low voltage condition but still greater than [2.07] V and float voltage is found to be satisfactory, this is not indication of a substantially discharged battery and [12] hours is a reasonable time prior to declaring the battery inoperable. 2

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

two

With one or ~~more~~ batteries in one train with one or more cells electrolyte level above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days the minimum established design limits for electrolyte level must be re-established. 8

With electrolyte level below the top of the plates there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.2.17, Battery Monitoring and Maintenance Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.2.17.~~b~~c item to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from Annex D of IEEE Standard 450-~~1995~~2002. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing, the batter[y][ies] may have to be declared inoperable and the affected cell[s] replaced. 7 1 4 2

Furthermore, the Condition is modified by a Note requiring Required Action C.2 to be completed whenever this Condition is entered. The Note emphasizes the need to perform the visual inspection for leakage if electrolyte level was below the top of the plates. Restoration alone per Required Action C.3 is insufficient because there may be an undetected leak from the cell. 8

BASES

ACTIONS (continued)

D.1

With one or more batteries in one train with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of the pilot cell temperature not met.

E.1

With one or more batteries in redundant trains with battery parameters not within limits there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. With redundant batteries involved this potential could result in a total loss of function on multiple systems that rely upon the batteries. The longer Completion Times specified for battery parameters on non-redundant batteries not within limits are therefore not appropriate, and the parameters must be restored to within limits on at least one train within 2 hours.

F.1

or battery capacity not within limit

With one or more batteries with any battery parameter outside the allowances of the Required Actions for Condition A, B, C, D, or E, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery must be declared inoperable. Additionally, discovering one or ~~more~~ two batteries in one train with one or more battery cells float voltage less than [2.07] V and float current greater than ~~[2]~~ 1.50 amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately.

10

8

2

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery is consistent with IEEE-450 (Ref. 1). ~~The 7 day Frequency is consistent with IEEE-450 (Ref. 1).~~ INSERT 1 TSTF-425-A

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained the Required Actions of LCO 3.8.4 ACTION A are being taken, which provide the necessary and appropriate verifications of the battery condition. Furthermore, the float current limit of ~~[2]~~ ≤ 1.50 amps is established based on the nominal float voltage value and is not directly applicable when this voltage is not maintained. 2

SR 3.8.6.2

Not Used 10

SR 3.8.6.~~2~~ 3 and SR 3.8.6.~~5~~ 6 10

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to ~~[130.5]~~ 127.6 V at the battery terminals, or ~~[2.25]~~ 2.20 Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltages in this range or less, but greater than ~~[~~2.07~~]~~ Vpc, are addressed in Specification 5.5.~~1~~2.17. SRs 3.8.6.~~2~~ 3 and 3.8.6.~~5~~ 6 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of ~~[~~2.07~~]~~ V. ~~The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 1).~~ INSERT 1 1 2 7 10 TSTF-425-A

SR 3.8.6.~~3~~ 4 10

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. ~~The Frequency is consistent with IEEE-450 (Ref. 1).~~ INSERT 1 TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 6

-- Reviewer's Note --

~~Plants controlling Surveillance Frequencies under the Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.6.~~4~~ 5 (10)

This Surveillance verifies that the pilot cell temperature is greater than or equal to the minimum established design limit (i.e., ~~[40]°F~~ 50°F normally and 60°F, in accordance with the ACTIONS of LCO 3.8.4). Pilot cell electrolyte temperature is maintained above this temperature to assure the battery can provide the required current and voltage to meet the design requirements. Temperatures lower than assumed in battery sizing calculations act to inhibit or reduce battery capacity. ~~The Frequency is consistent with IEEE-450 (Ref. 1).~~ INSERT 1 (2) (TSTF-425-A)

SR 3.8.6.~~6~~ 7 (10)

~~A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.~~ (10)

~~Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.6.6; however, only the modified performance discharge test may be used to satisfy the battery service test requirements of SR 3.8.4.3.~~

A modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test. (8)

~~It may consist of just two rates; for instance the one minute rate for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test must remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.~~ INSERT 2 (1)

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~-- Reviewer's Note --~~
~~Plants controlling Surveillance Frequencies under the Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--~~

1

INSERT 2

The modified performance discharge test is conducted in accordance with IEEE 450-2002 Annex I.3. The battery terminal voltage for the modified performance discharge test must remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

BASES

SURVEILLANCE REQUIREMENTS (continued)

4 The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 1) and IEEE-485 (Ref. ~~5~~). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements. Furthermore, the battery is sized to meet the assumed duty cycle loads when the battery design capacity reaches this [80]% limit. 3 2

INSERT 3 ~~The Surveillance Frequency for this test is normally 60 months~~. If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's ratings. Degradation is indicated, according to IEEE-450 (Ref. 1), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ [10%] below the manufacturer's rating. These Frequencies are consistent with the recommendations in IEEE-450 (Ref. 1). TSTF-425-A 2

~~This SR is modified by a Note. The reason for the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for the assessment. Credit may be taken for unplanned events that satisfy this SR.~~ 10

INSERT 3

The Frequency is controlled under the Surveillance Frequency Control Program. 6

~~--- Reviewer's Note ---~~
~~Plants controlling Surveillance Frequencies under the Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~---~~

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BASES

REFERENCES

1. IEEE-450-~~[1995]~~ 2002. 2

~~2. FSAR, Chapter [8].~~ 3

2 ~~3~~. U FSAR, Chapter [6]. 3 1 2

3 ~~4~~. U FSAR, Chapter [15]. 3 1 2

4 ~~5~~. IEEE-485-~~[1983], June 1983~~ 1997. 3 2 1

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.6 BASES, BATTERY PARAMETERS

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. SONGS UFSAR Chapter 8 does not contain the nominal float voltage or the total float voltage. Therefore, the ISTS 3.8.6 reference to "FSAR Chapter 8 (Ref. 2)" has been deleted. Subsequent to the deletion, the remaining references have been renumbered.

4. Correct punctuation is used and is consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Reviewers Note has been deleted. This information is for the NRC reviewer to be keyed into what is needed to meet this requirement. This is not meant to be retained in the final version of the plant specific submittal.

6. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

7. The correct Specification number has been provided.

8. Changes have been made to be consistent with the actual Specification.

9. The Bases words have been changed to provide consistency between Required Action A.1 and Required Action B.1 statements in the Bases. The Required Actions only specify "perform." Therefore, Required Action B.1 was changed to state the appropriate ACTIONS to be taken depending on the cause of the failure. In this case, the ACTIONS are the same as the ACTIONS for Required Action A.1.

10. Changes made to be consistent with changes made to the Specification.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.6, BATTERY PARAMETERS

There are no specific NSHC discussions for this Specification.

ATTACHMENT 7

ITS 3.8.7, INVERTERS-OPERATING

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters – Operating

LCO 3.8.7

LCO 3.8.7 The required ~~Channel A, B, C, and D AC~~ Train A and Train B inverters shall be OPERABLE.

LA01

Applicability

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9 with one AC vital bus de-energized. ----------------------------	
A. One required inverter inoperable.	~~A.1 Power AC vital bus from its Class 1E constant voltage source transformer.~~ ~~AND~~ A.2 Restore inverter to OPERABLE status.	~~2 hours~~ 24 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 ------------------NOTE------------------ LCO 3.0.4.a is not applicable when entering MODE 4. -- Be in MODE ~~5~~ 4.	6 hours ~~36~~ 12 hours

ACTION A

A02

ACTION B

L01

ITS

A01

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1	SURVEILLANCE	FREQUENCY
	SR 3.8.7.1 Verify correct inverter voltage and alignment to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

LA02

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A01

ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters — Operating

LCO 3.8.7

LCO 3.8.7 The required ~~Channel A, B, C, and D AC~~ Train A and Train B inverters shall be OPERABLE.

LA01

Applicability

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

ACTIONS

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
		------------NOTE------------ Enter applicable Conditions and Required Actions of LCO 3.8.9 with one AC vital bus de-energized. ----------------------------		
ACTION A	A. One required inverter inoperable.	~~A.1 Power AC vital bus from its Class 1E constant voltage source transformer.~~ ~~AND~~ A.2 Restore inverter to OPERABLE status.	~~2 hours~~ 24 hours	A02
ACTION B	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE ~~5~~ 4. ------------------NOTE------------------ LCO 3.0.4.a is not applicable when entering MODE 4. --	6 hours ~~36~~ 12 hours	L01

ITS

A01

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.7.1 Verify correct inverter voltage and alignment to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.7.1

LA02

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DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 When a required inverter is inoperable, CTS 3.8.7 Required Action A.1 requires the AC vital bus to be powered from its Class 1E constant voltage source transformer within 2 hours and Required Action A.2 requires the inverter to be restored to OPERABLE status within 24 hours. ITS 3.8.7 ACTION A provides the actions when one inverter is inoperable, and includes an action to restore the inoperable inverter to OPERABLE status within 24 hours (ITS 3.8.7 Required Action A.1). However, it does not include an action similar to CTS 3.8.7 Required Action A.1 to power the AC vital bus from its Class 1E constant voltage source transformer within 2 hours. This changes the CTS by deleting the requirement to power the AC vital bus within 2 hours.

The deletion of CTS 3.8.7 Required Action A.1 requirement to power the AC vital bus from its Class 1E constant voltage source transformer within 2 hours is acceptable because the requirement is redundant to the requirements of the Required Action Note which requires the applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," to be entered with one AC vital bus de-energized. When an AC vital bus is de-energized, as would be the case initially if the inverter becomes inoperable, CTS and ITS 3.8.9 Required Action B.1 requires restoration of the AC vital bus to OPERABLE status within 2 hours. An energized AC vital bus is OPERABLE and, as described in the Bases, it must be energized from either the inverter or the Class 1E constant voltage source transformer. Since the inverter is inoperable, the only other power source for the AC vital bus allowed by ITS 3.8.9 is the Class 1E constant voltage source transformer. This change is designated as administrative because no technical changes are being made to the Specification.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

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DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

REMOVED DETAIL CHANGES

LA01 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.8.7 LCO requires Channel A, B, C, and D AC inverters to be OPERABLE. ITS 3.8.7 LCO requires Train A and Train B inverters to be OPERABLE. This changes the CTS by requiring Trains to be OPERABLE versus individual channels and moving the Channels and their association to Trains to the Bases.

The removal of the requirement in CTS LCO 3.8.7 to have channels OPERABLE is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.8.7 still requires the channels to be OPERABLE via replacing the requirement for the channels to be OPERABLE with the requirement for Trains to be OPERABLE. Also, this change is acceptable because these types of details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being moved from the Technical Specifications to the ITS Bases.

LA02 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.7.1 requires verifying correct inverter voltage and alignment to required AC vital buses every 7 days. ITS SR 3.8.7.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified frequency for the SR and the Bases for the frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency.

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DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;

DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;

- Independence of barriers is not degraded;

- Defenses against human errors are preserved; and

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

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DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* CTS 3.8.7 ACTION B provides the actions when the Required Actions and associated Completion Time of ACTION A is not met. It requires the Unit to be in MODE 3 within 6 hours and MODE 5 within 36 hours. ITS 3.8.7 ACTION B provides the actions to be taken under the same conditions. However, it requires the Unit to be in MODE 3 in 6 hours and MODE 4 in 12 hours. Furthermore, the Required Action to be in MODE 4 is modified by a Note which states LCO 3.0.4.a is not applicable when entering MODE 4. This changes the CTS by eliminating the requirement for the Unit to be in MODE 5 within 36 hours and only requires the Unit to be in MODE 4 within 12 hours.

The purpose of CTS 3.8.7 ACTION B is to place the unit in a condition where the LCO is not applicable. The proposed change, which is consistent with TSTF-422, allows the plant end state to conclude at MODE 4 within 12 hours versus MODE 5 within 36 hours. This change is based on a topical report, CE NPSD-01186 (approved by NRC on July 17, 2001), which justified a modified end state for some TS allowed outage time requirements. The topical report demonstrates through probabilistic and deterministic safety evaluations that the proposed end states represent a condition of equal or lower risk than the original end states. Preventing plant challenges during shutdown conditions has been, and continues to be, an important aspect of ensuring safe operation of the plant. Past events demonstrate that risk of core damage associated with entry into, and operation in, shutdown cooling is not negligible and should be considered when a plant is required to shutdown. Therefore, the Technical Specifications should encourage plant operation in the steam generator heat removal mode whenever practical, and require reliance on shutdown cooling only when it is a risk beneficial alternative to other actions.

The Note which modifies Required Action B.2 prohibits entry into the end state Mode of Applicability during startup using the provisions of LCO 3.0.4.a. The purpose of this Note is to provide assurance that entry into the end state Mode of Applicability during startup is not made without the appropriate risk assessment. Entry into the end state Mode of Applicability during startup will still be allowed under the provisions of LCO 3.0.4.b. This is acceptable because LCO 3.0.4.b allows entry only after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the

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DISCUSSION OF CHANGES
ITS 3.8.7, INVERTERS OPERATING

acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate. Details of the risk assessment are provided in the Bases for LCO 3.0.4.b.

SONGS will adopt the end states proposed in TSTF-422 and will perform a risk assessment in accordance with 10 CFR 50.65(a)(4) when using the end states regardless of whether maintenance is being performed. The risk assessment will follow Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," which endorses NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 11 guidance for implementation of 10 CFR 50.65(a)(4). SONGS will also follow the industry-developed implementation guidance, WCAP-16364-NP, Revision 0, "Implementation Guidance for Risk Informed Modification to Selected Required Action End States at Combustion Engineering NSSS Plants (TSTF-422)," November 2004.

This change is designated as less restrictive because it relaxes the end state from MODE 5 to MODE 4.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.7 Inverters - Operating

LCO 3.8.7

LCO 3.8.7 The required Train A and Train B inverters shall be OPERABLE.

--NOTE--
[[One/two] inverter[s] may be disconnected from [its/their] associated DC bus for ≤ 24 hours to perform an equalizing charge on [its/their] associated [common] battery, provided:

a. The associated AC vital bus(es) [is/are] energized from [its/their] [Class 1E constant voltage source transformers] [inverter using internal AC source] and

b. All other AC vital buses are energized from their associated OPERABLE inverters.]

3

Applicability

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. One [required] inverter inoperable.	A.1 ---------------NOTE-------------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," with any vital bus de-energized. ------------------------------------- Restore inverter to OPERABLE status.	2 24 hours
ACTION B B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND INSERT 1 B.2 Be in MODE ~~5~~ 4.	6 hours ~~36~~ 12 hours TSTF-422

TSTF-422

INSERT 1

--------------------NOTE--------------------
LCO 3.0.4.a is not applicable
when entering MODE 4.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.7.1	SR 3.8.7.1	Verify correct inverter voltage~~, [frequency,]~~ and alignment to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	2 TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.7, INVERTERS-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. The ISTS LCO 3.8.7 Note has not been included in ITS LCO 3.8.7. At SONGS, an equalizing charge can be applied to individual cells and the equalizing charge on an entire battery can be performed at < 140 Vdc, and the design of the inverters allows an input of up to 140 Vdc. Thus, SONGS does not need to remove an inverter from the DC bus to perform an equalizing charge.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.7 Inverters - Operating

BASES

BACKGROUND

The inverters are the preferred source of power for the AC vital buses because of the stability and reliability they achieve. The function of the inverter is to provide AC electrical power to the vital buses. The inverters are ~~can be~~ powered from ~~an internal AC source/rectifier or from~~ the station batteries ~~battery~~. The station batteries ~~battery~~ provide~~s~~ an uninterruptible power source for the instrumentation and controls for the Reactor Protective System (RPS) and the Engineered Safety Feature Actuation System (ESFAS). Specific details on inverters and their operating characteristics are found in the U FSAR, Chapter ~~[~~8~~]~~ (Ref. 1). 3 4 1 2

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the U FSAR, Chapter ~~[~~6~~]~~ (Ref. 2) and Chapter ~~[~~15~~]~~ (Ref. 3), assume Engineered Safety Feature systems are OPERABLE. The inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the RPS and ESFAS instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems. 1 2

The OPERABILITY of the inverters is consistent with the initial assumptions of the accident analyses and is based on meeting the design basis of the unit. This includes maintaining required AC vital buses OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC electrical power or all onsite AC electrical power and

b. A worst case single failure.

Inverters are a part of the distribution system and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The inverters ensure the availability of AC electrical power for the systems instrumentation required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA.

BASES

LCO (continued)

- Channels A and C for Train A and Channels B and D for Train B

Maintaining the required inverters OPERABLE ensures that the redundancy incorporated into the design of the RPS and ESFAS instrumentation and controls is maintained. The four inverters [(two per train)] ensure an uninterruptible supply of AC electrical power to the AC vital buses even if the 4.16 kV safety buses are de-energized. 2

OPERABLE inverters require the associated vital bus to be powered by the inverter with output voltage ~~and frequency~~ within tolerances, and power input to the inverter from a [125 VDC] station battery. ~~Alternatively, power supply may be from an internal AC source via rectifier as long as the station battery is available as the uninterruptible power supply.~~ 1 2 3

~~This LCO is modified by a Note that allows [one/two] inverters to be disconnected from a [common] battery for ≤ 24 hours, if the vital bus(es) is powered from a [Class 1E constant voltage transformer or inverter using internal AC source] during the period and all other inverters are operable. This allows an equalizing charge to be placed on one battery. If the inverter(s) were not disconnected, the resulting voltage condition might damage the inverter(s). These provisions minimize the loss of equipment that would occur in the event of a loss of offsite power. The 24 hour time period for the allowance minimizes the time during which a loss of offsite power could result in the loss of equipment energized from the affected AC vital bus while taking into consideration the time required to perform an equalizing charge on the battery bank.~~ 7

~~The intent of this Note is to limit the number of inverters that may be disconnected. Only those inverters associated with the single battery undergoing an equalizing charge may be disconnected. All other inverters must be aligned to their associated batteries, regardless of the number of inverters or unit design.~~

APPLICABILITY

The inverters are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients and

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Inverter requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.8, "Inverters - Shutdown."

BASES

ACTIONS

A.1

With a required inverter inoperable, its associated AC vital bus becomes inoperable until it is [manually] re-energized from its [Class 1E constant voltage source transformer ~~or inverter using internal AC source]~~. 2 3

Required Action A.1 is modified by a Note, which states to enter the applicable conditions and Required Actions of LCO 3.8.9, "Distribution Systems - Operating," when Condition A is entered with one AC vital bus de-energized. This ensures the vital bus is re-energized within 2 hours.

Required Action A.1 allows 24 hours to fix the inoperable inverter and return it to service. The 24 hour limit is based upon engineering judgment, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. This has to be balanced against the risk of an immediate shutdown, along with the potential challenges to safety systems such a shutdown might entail. When the AC vital bus is powered from its constant voltage source, it is relying upon interruptible AC electrical power sources (offsite and onsite). The uninterruptible inverter source to the AC vital buses is the preferred source for powering instrumentation trip setpoint devices.

B.1 and B.2

overall plant risk is minimized

If the inoperable devices or components 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~~ 4 within ~~36~~ 12 hours. INSERT 1 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 unit systems. TSTF-422

SURVEILLANCE REQUIREMENTS

SR 3.8.7.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage ~~and frequency~~ output ensures that the required power is readily available for the instrumentation of the RPS and ESFAS connected to the AC vital buses. INSERT 2 ~~The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.~~ 7 TSTF-425-A

TSTF-422

INSERT 1

Remaining within the Applicability of the LCO is acceptable because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 there are more accident mitigation systems available and there is more redundancy and diversity in core heat removal mechanisms than in MODE 5. However, voluntary entry into MODE 5 may be made as it is also an acceptable low-risk state.

Required Action B.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

TSTF-425-A

INSERT 2

The Frequency is controlled under the Surveillance Frequency Control Program. 5

~~-- Reviewers Note --~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~
~~---~~ 6

BASES

REFERENCES

1. FSAR, Chapter [8].

U

2. FSAR, Chapter [6].

U 15

3. FSAR, Chapter [14].

4. CE-NPSD-1186-A, Technical Justification for the Risk Informed Modification to Selected Required Action End States for CEOG PWRs, October, 2001.

1 2

TSTF-422

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JUSTIFICATION FOR DEVIATIONS
ITS 3.8.7 BASES, INVERTERS-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. ISTS 3.8.7 Bases discusses that the inverters can be powered from an internal AC source/rectifier or from the station battery. This discussion is being deleted and replaced with SONGS specific information. SONGS Units 2 and 3 Inverters are powered from the batteries only.

4. Typographical/grammatical error corrected.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

7. Changes made to be consistent with changes made to the Specification.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.7, INVERTERS-OPERATING

There are no specific No Significant Hazards Considerations for this Specification.

ATTACHMENT 8

ITS 3.8.8, INVERTERS-SHUTDOWN

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters – Shutdown

LCO 3.8.8

LCO 3.8.8 ~~Required~~ inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown." A02

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS NOTE

-----------------NOTE-------------
LCO 3.0.3 is not applicable.

ACTIONS L01

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~ L02
	AND	
	A.2.~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately L02
	AND	
	A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately L02
	AND	
		(continued)

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ITS

A01

ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION A	A. (continued)	A.2.~~4~~ 3 Initiate action to restore required inverters to OPERABLE status.	Immediately	L02

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.8.1	SR 3.8.8.1	Verify correct inverter voltage and alignment to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	LA01

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters — Shutdown

LCO 3.8.8

LCO 3.8.8 ~~Required~~ inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems — Shutdown."

A02

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS NOTE

------------------NOTE--------------
LCO 3.0.3 is not applicable.

L01

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required inverters inoperable.	A.1 Declare affected required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	AND	
	A.2.~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	
		(continued)

ACTION A

L02

L02

L02

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ITS

A01

ACTIONS (continued)

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.~~1~~ 3 Initiate action to restore required inverters to OPERABLE status.	Immediately

L02

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage and alignment to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

LA01

DISCUSSION OF CHANGES
ITS 3.8.8, INVERTERS-SHUTDOWN

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS LCO 3.8.8 states "required" inverters shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems-Shutdown." ITS LCO 3.8.8 is similar except that "required" is not included. This changes the CTS by deleting the word "required" from the LCO.

The purpose of the CTS LCO 3.8.8 is to ensure sufficient inverter power sources are available to power the vital bus. The proposed change deletes the word "required" from the LCO describing inverters. This change is acceptable because the word "required" is not needed in "required inverter" because the LCO stipulates that inverters needed to support the onsite Class 1E AC vital bus electrical power distribution subsystems shall be OPERABLE. This implies that only some of the inverters are OPERABLE. This change is designated as administrative because no technical changes are being made to the Specification.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.8.1 requires verifying that correct inverter voltage and alignment to required AC vital buses every 7 days. ITS SR 3.8.8.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified frequency for the SR and the Bases for the frequency to the Surveillance Frequency Control Program.

DISCUSSION OF CHANGES
ITS 3.8.8, INVERTERS-SHUTDOWN

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The

DISCUSSION OF CHANGES
ITS 3.8.8, INVERTERS-SHUTDOWN

Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

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DISCUSSION OF CHANGES
ITS 3.8.8, INVERTERS-SHUTDOWN

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* ITS 3.8.8 ACTIONS are modified by a Note that states LCO 3.0.3 is not applicable. CTS 3.8.8 ACTIONS do not contain this Note. This changes the CTS by adding a Note to the ACTIONS.

The purpose of the CTS LCO 3.8.8 is to ensure sufficient inverter power sources are available to power the vital bus. The proposed change to CTS 3.8.8 adds a Note that modifies the ACTIONS by stating that LCO 3.0.3 is not applicable. This change is acceptable because when moving irradiated fuel assemblies while in MODES 5 and 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. This clarification is necessary because defaulting to LCO 3.0.3 (during irradiated fuel assembly movement in MODE 1, 2, 3, or 4) would require the reactor to be shutdown unnecessarily. This change is designated as less restrictive because a Note which relaxes the Required Actions are included in the ITS that is not currently included in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.8.8 ACTIONS specify compensatory actions when one or more required inverters are inoperable. One

DISCUSSION OF CHANGES
ITS 3.8.8, INVERTERS-SHUTDOWN

of the compensatory actions (CTS 3.8.8 Required Action A.2.1) is to suspend CORE ALTERATIONS. Under similar conditions, ITS 3.8.8 does not require suspension of CORE ALTERATIONS. This changes the CTS by deleting the requirement to suspend CORE ALTERATIONS when one or more required inverters are inoperable.

The purpose of CTS LCO 3.8.8 is to ensure sufficient inverter power sources are available to power the vital bus. When the required inverters are not OPERABLE, CTS 3.8.8 ACTIONS suspend CORE ALTERATIONS to preclude an event that could result in not meeting the SHUTDOWN MARGIN limit. CORE ALTERATIONS is defined in CTS 1.1, in part, as "the movement or manipulation of any fuel, sources, reactivity control components, or other components…affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel." There are two evolutions encompassed under the term CORE ALTERATIONS that could affect the SHUTDOWN MARGIN: addition of fuel to the reactor vessel and withdrawal of control rods. However, ITS 3.8.8 Required Action A.2.1 requires immediate suspension of movement of irradiated fuel assemblies and ITS Required Action A.2.2 requires suspension of operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. This would include both the addition of irradiated fuel to the reactor vessel and the withdrawal of control rods. Furthermore, another accident considered in MODE 6 that could affect SHUTDOWN MARGIN is the boron dilution event. A boron dilution accident is initiated by a dilution source which results in the boron concentration dropping below that required to maintain the SHUTDOWN MARGIN. A boron dilution accident is mitigated by stopping the dilution. Suspension of CORE ALTERATIONS has no affect on the mitigation of a boron dilution accident. In summary, with the exception of suspending movement of fuel assemblies, there are no DBAs or transients that are initiated by, or mitigation affected by, suspension of CORE ALTERATIONS. Therefore, if all Required Actions that require suspension of CORE ALTERATIONS also require suspension of movement of fuel, suspension of CORE ALTERATIONS provides no safety benefit. CTS 3.8.8 Required Action A.2.2 and ITS 3.8.8 Required Action A.2.1 require the suspension of movement of irradiated fuel assemblies. Thus, the deletion of the requirement to suspend CORE ALTERATIONS is acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied to the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.8 Inverters - Shutdown

LCO 3.8.8

LCO 3.8.8 [Inverter(s) shall be OPERABLE to support the onsite Class 1E AC vital bus electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems - Shutdown."] 5 2

train(s)

~~[One] inverter[s] shall be OPERABLE.]~~

~~------------------------------------REVIEWER'S NOTE------------------------------------~~
~~This second option above applies for plants having a pre-ITS licensing basis (CTS) for electrical power requirements during shutdown conditions that required only [one] inverter to be OPERABLE. The "[or more]" optional wording in Condition A is also eliminated for this case. The first option above is adopted for plants that have a CTS requiring the same level of DC electrical power subsystem/inverter support as is required for power operating conditions.~~
~~---~~ 3

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of ~~[recently]~~ irradiated fuel assemblies. 2

ACTIONS

DOC L01

---------------------------------NOTE---------------------------------
LCO 3.0.3 is not applicable. 4

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or more] [required] inverter[s] inoperable.	A.1 Declare affected required feature(s) inoperable. OR ~~A.2.1 Suspend CORE ALTERATIONS.~~ ~~AND~~	Immediately ~~Immediately~~

2

TSTF-471-A

ACTIONS (continued)

ACTION A

CONDITION	REQUIRED ACTION		COMPLETION TIME
	A.2.~~2~~ 1	Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately TSTF-471-A 2
	AND		
	A.2.~~3~~ 2	Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately TSTF-471-A
	AND		
	A.2.~~4~~ 3	Initiate action to restore required inverters to OPERABLE status.	Immediately TSTF-471-A

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	Verify correct inverter voltage~~, [frequency,]~~ and alignment~~s~~ to required AC vital buses.	~~7 days~~ In accordance with the Surveillance Frequency Control Program 2 TSTF-425-A

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.8, INVERTERS-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. Changes made to be consistent with changes made to LCO 3.8.10.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.8 Inverters - Shutdown

BASES

BACKGROUND

A description of the inverters is provided in the Bases for LCO 3.8.7, "Inverters - Operating."

APPLICABLE SAFETY ANALYSES

U

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter [6] (Ref. 1) and Chapter [15] (Ref. 2), assume Engineered Safety Feature systems are OPERABLE. The DC to AC inverters are designed to provide the required capacity, capability, redundancy, and reliability to ensure the availability of necessary power to the Reactor Protective System and Engineered Safety Features Actuation System instrumentation and controls so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. 1 2

The OPERABILITY of the inverters is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum inverters to each AC vital bus during MODES 5 and 6 ensures that: 6

and during movement of irradiated fuel assemblies

a. The unit can be maintained in the shutdown or refueling condition for extended periods,

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status, and

c. Adequate power is available to mitigate events postulated during shutdown, such as a fuel handling accident ~~[involving handling recently irradiated fuel. Due to radioactive decay, the inverters are only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]~~. 2

In general, when the unit is shut down, the Technical Specification requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many DBAs that are analyzed in MODES [1, 2, 3, and 4] have no specific analyses in MODES [5 and 6] because the energy contained within the reactor 2

BASES

APPLICABLE SAFETY ANALYSES (continued)

pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

The shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst case DBAs which are analyzed for operating MODES are generally viewed not to be a significant concern during shutdown MODES due to the lower energies involved. The Technical Specifications therefore require a lesser complement of electrical equipment to be available during shutdown than is required during operating MODES. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the Technical Specifications, the industry has adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," as an Industry initiative to manage shutdown tasks and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown Technical Specifications.

The inverters were previously identified as part of the distribution system and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The inverter[s] ensure the availability of electrical power for the instrumentation for systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. The battery powered inverter[s] provide~~[s]~~ uninterruptible supply of AC electrical power to the AC vital bus[es] even if the 4.16 kV safety buses are de-energized. OPERABILITY of the inverter[s] requires that the vital bus be powered by the inverter. This ensures the availability of sufficient inverter power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents ~~[involving handling recently irradiated fuel]~~). 2 3

BASES

and

APPLICABILITY

The inverter[s] required to be OPERABLE in MODES 5 and 6 during movement of [recently] irradiated fuel assemblies provide assurance that: 2 7

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core,

b. Systems needed to mitigate a fuel handling accident [involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)] are available, 2

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available, and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

Inverter requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.7.

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

3

A.1, A.2.1, A.2.2, A.2.3, and A.2.4 TSTF-471-A

[If two trains are required by LCO 3.8.10, "Distribution Systems - Shutdown," the remaining OPERABLE inverters may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, [recently] irradiated fuel movement, operations with a potential for draining the reactor vessel, and operations with a potential for positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6).] Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe

2 TSTF-471-A 6 2

BASES

ACTIONS (continued)

operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM. By the allowance of the option to declare required features inoperable with the associated inverter(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of ~~[recently]~~ irradiated fuel assemblies, and operations involving positive reactivity additions). TSTF-471-A

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverter[s] and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the unit safety systems. 2

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverters should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power or powered from a constant voltage source transformer.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage ~~and frequency~~ output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. ~~The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.~~ 3 TSTF-425-A

INSERT 1

REFERENCES

U

1. FSAR, Chapter [6].
2. FSAR, Chapter [15]. 1 2

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 4

~~--- Reviewers Note ---~~
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 5
~~--~~

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.8 BASES, INVERTERS-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

5. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

6. Changes have been made to be consistent with the actual Specification.

7. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.8, INVERTERS-SHUTDOWN

There are no specific No Significant Hazards Considerations for this Specification.

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ATTACHMENT 9

ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems-Operating

LCO 3.8.9

LCO 3.8.9 Train A and Train B AC, ~~Subsystems A, B, C, and D~~ DC, and ~~Channels A, B, C, and D~~ AC vital bus electrical power distribution systems shall be OPERABLE.

LA02

Applicability

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

ACTIONS

or more

INSERT 1

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. One or more AC electrical power distribution ~~system~~ trains inoperable.	A.1 Restore AC electrical train(s) power distribution ~~system~~ to OPERABLE status.	8 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~
ACTION B B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus(es) to OPERABLE status.	2 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~
ACTION C C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~

M01 L01 A02 L02 A02 L02 A02 L02

(continued)

M01

INSERT 1

--------------------NOTE--------------------
Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution systems.

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

ACTION D

INSERT 2

M02

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.9.1

LA01

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ITS

M02

INSERT 2

ACTION E

E. Two or more electrical power distribution systems inoperable that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately

ITS

A01

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems-Operating

LCO 3.8.9

LCO 3.8.9 Train A and Train B AC, ~~Subsystems A, B, C, and D~~ DC, and ~~Channels A, B, C, and D~~ AC vital bus electrical power distribution systems shall be OPERABLE. LA02

Applicability

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

ACTIONS

or more

INSERT 1

	CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A	A. One AC electrical power distribution ~~system~~ trains inoperable.	A.1 Restore AC electrical power distribution ~~system~~ train(s) to OPERABLE status.	8 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~
ACTION B	B. One or more AC vital bus es inoperable.	B.1 Restore AC vital bus (es) to OPERABLE status.	2 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~
ACTION C	C. One or more DC electrical power distribution subsystem s inoperable.	C.1 Restore DC electrical power distribution subsystem (s) to OPERABLE status.	2 hours ~~AND~~ ~~16 hours from discovery of failure to meet LCO~~

M01 L01 A02 L02 A02 L02 A02 L02

(continued)

M01

INSERT 1

---------------------NOTE--------------------
Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution systems.

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

ACTION D

INSERT 2

M02

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.9.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.9.1

LA01

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ITS

M02

INSERT 2

ACTION E

E. Two or more electrical power distribution systems inoperable that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately

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DISCUSSION OF CHANGES
ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.8.9 currently refers to the individual makeup of the Distribution Systems-Operating as Trains, Subsystems, and Channels when referring to the AC, DC and AC vital bus portions of the Distribution System, respectively. This nomenclature is used in the LCO, ACTIONS and SR sections of CTS 3.8.9. ITS 3.8.9 will refer to each portion of the Distribution System as a train (or system), subsystem, or bus, as applicable. This changes the CTS by changing the nomenclature of portions of the Distribution System to train (or system), subsystems, or buses, as applicable. The description of the subsystem is presented in the ITS Bases, as discussed in DOC LA02.

The purpose of CTS 3.8.9 is to ensure the availability of AC, DC, and AC vital bus electrical power for systems required to shutdown the reactor and maintain it in a safe condition after an anticipated operational occurrence. The proposed change to CTS 3.8.9 is acceptable because it editorially changes the CTS to be consistent with ITS format and structure as well as the plant design. The plant design calls each "train" of AC, DC, or AC vital bus a "system." Furthermore, each DC train has two subsystems, and each AC vital bus train has two channels. This is described in the ITS Bases. For clarity and consistency with the ISTS, the AC distribution will be referred to as a train (in ITS 3.8.9 ACTION A), the AC vital bus will remain as "bus" or buses" and the DC train will be referred to as "subsystem." The OPERABILITY requirements, Conditions for entry, Required Actions and Surveillance Requirements remain unchanged. This change is designated as administrative because it does not technically affect the Specification.

MORE RESTRICTIVE CHANGES

M01 CTS 3.8.9 Required Action A.1 requires restoration of the AC electrical power distribution system to OPERABLE status in 8 hours when an AC electrical power distribution system is inoperable. ITS 3.8.9 Required Action A.1 requires similar actions but is modified by a Note that requires entry into the applicable Conditions and Required Actions of LCO 3.8.4, “DC Sources – Operating,” for trains made inoperable by inoperable power distribution systems. This changes the CTS by requiring the ACTIONS for DC Sources to be taken if a DC Source is made inoperable by inoperable power distribution systems.

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DISCUSSION OF CHANGES
ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

The purpose of CTS 3.8.9 ACTION A is to ensure AC electrical power distribution is available to support the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition. The proposed change will add a Note to Required Action A.1 that requires the Required Actions of the DC Sources – Operating to be entered. By requiring entry into the DC Sources Specification, this change can reduce the allowed outage time from 8 hours to 2 hours. This change is acceptable because inoperability of a distribution system can result in loss of charging power to batteries and eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems. Currently, in the event an emergency bus is inoperable such that a Train A or Train B battery charger were inoperable, ITS LCO 3.0.6 would allow taking only the Distribution System - Operating ACTIONS; taking exception to complying with the DC Sources - Operating ACTIONS. Since the Distribution System - Operating ACTIONS may not be sufficiently conservative in this event (i.e., a battery charger may be without power), specific direction to take appropriate ACTIONS for the DC Sources - Operating is added (ITS 3.8.9, Note to Required Action A.1) when there is no power to support the associated required battery charger. This change is designated as more restrictive because it adds additional restrictions in the ITS that are not currently in the CTS.

M02 CTS 3.8.9 ACTIONS A, B, and C contain the Required Actions when electrical power distribution systems are inoperable (AC, AC Vital, and DC). However, there are no limitations to preclude a loss of function due to numerous concurrently inoperable AC and DC buses. ITS 3.8.9 contains similar ACTIONS for electrical power distribution systems and also contains an ACTION (ACTION E), requiring entry into LCO 3.0.3 if the loss of two or more electrical power distribution systems results in a loss of safety function. This changes the CTS by adding an Action when two or more electrical power distribution subsystems result in a loss of safety function.

The purpose of CTS 3.8.9 is to ensure adequate electrical power distribution systems are available to support the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition. CTS 3.8.9 ACTIONS limit the time the unit can operate when electrical power distribution systems are inoperable by specifying the compensatory actions when the electrical distribution systems are inoperable. CTS 3.8.9 does not contain a specific ACTION when a loss of safety function exists. The CTS 3.8.9 ACTIONS are applicable for two or more electrical power distribution systems even if there is a loss of safety function. Certain combinations of inoperable AC and DC electrical power distribution systems/subsystems will result in a loss of safety function (e.g., an inoperable Train A AC electrical power distribution system in combination with an inoperable Train B DC electrical power distribution subsystem). ITS 3.8.9 includes ACTION E, which requires immediate entry into LCO 3.0.3 if the loss of one or more electrical power distribution systems results in a loss of safety function. ITS 3.8.9 Required Action E.1 preserves the intent of ITS LCO 3.0.3 and reflects an additional restriction on plant operation. This change is designated as more restrictive because an explicit action has been added which requires entry into LCO 3.0.3 with any combination of AC and/or DC buses inoperable that result in a loss of safety function.

DISCUSSION OF CHANGES
ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.9.1 requires verifying correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems every 7 days. ITS SR 3.8.9.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the specified frequency for the SR and the Bases for the frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

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Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

   This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

   As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

   - A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
   - Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
   - System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
   - Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
   - Independence of barriers is not degraded;
   - Defenses against human errors are preserved; and

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ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

LA02 *(Type 1 – Removing the Details of System Design and System Description Including Design Limits)* CTS LCO 3.8.9 requires Train A and Train B AC, Subsystems A, B, C, and D DC, and Channels A, B, C, and D AC vital bus

electrical power distribution systems to be OPERABLE. ITS LCO 3.8.9 requires Train A and Train B AC, DC, and vital bus electrical power distribution systems to be OPERABLE. This changes the CTS by requiring Trains to be OPERABLE versus individual (A, B, C, and D) subsystems of DC and individual (A, B, C, and D) Channels of AC vital bus electrical power distribution systems to be OPERABLE, and moving the individual Subsystems and Channels and their association to Trains to the Bases.

The removal of the requirement in CTS LCO 3.8.9 to have individual subsystems/channels OPERABLE is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. ITS 3.8.9 still requires the channels and subsystems to be OPERABLE via replacing the requirement for the channels and subsystems to be OPERABLE with the requirement for Trains to be OPERABLE. Also, this change is acceptable because these types of details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information related to system design is being moved from the Technical Specifications to the ITS Bases.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 3 – Relaxation of Completion Time)* CTS 3.8.9 ACTION A is for one AC electrical power distribution system inoperable. If more than one is inoperable, CTS 3.8.9 requires entry into LCO 3.0.3 which requires a unit shutdown. ITS 3.8.9 ACTION A is for one "or more" AC electrical power distribution trains inoperable. This changes the CTS by adding the words "or more" to Condition A, which will allow an 8 hour Completion Time instead of a unit shutdown.

The purpose of CTS 3.8.9 ACTION A is to ensure AC electrical power distribution is available to support the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition. The proposed change will allow one "or more" Train A and B required AC buses, load centers, or distribution panels (except AC vital buses), in one train to be inoperable for up to 8 hours, provided a loss of safety function has not occurred. If a loss of safety function has occurred, the ITS 3.8.9 Condition E would be entered and it directs entry into LCO 3.0.3. This change is acceptable because while in ITS 3.8.9 Condition A, at least all components required for a complete train of AC electrical power distribution are OPERABLE and capable of supporting the minimum safety functions necessary to shutdown the reactor and maintain it in a safe shutdown condition. This change is designated as less restrictive because it relaxes the Completion Time when more than one AC electrical power distribution system (i.e., train) is inoperable in the ITS than what is currently allowed in the CTS.

L02 *(Category 3 – Relaxation of Completion Time)* CTS 3.8.9 ACTIONS A, B, and C contain a second Completion Time to restore the affected electrical power distribution systems/buses/subsystems within 16 hours from discovery of failure

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ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

to meet the LCO. ITS 3.8.9 ACTIONS A, B, and C provide the actions for the same Conditions as CTS 3.8.9 ACTIONS A, B, and C but do not contain this second Completion Time. This changes the CTS by deleting the second Completion Time that requires restoration of the affected inoperable electrical power distribution systems/buses/subsystems within 16 days from discovery of failure to meet the LCO.

The second Completion Time was included in the SONGS TS and originally in the ISTS for certain Required Actions to establish a limit on the maximum time allowed for any combination of Conditions that result in a single continuous failure to meet the LCO. These Completion Times (henceforth referred to as "second Completion Times") are joined by an "AND" logical connector to the Condition-specific Completion Time and state "X days from discovery of failure to meet the LCO" (where "X" varies by specification). The intent of the second Completion Time was to preclude entry into and out of the ACTIONS for an indefinite period of time without meeting the LCO by providing a limit on the amount of time that the LCO could not be met for various combinations of Conditions.

This change was initiated (in accordance with NUREG-1432 as revised by TSTF-439) due to the problems the second Completion Time presents when Completion Times are extended by risk informed methodology by complicating the presentation of the ITS and complicating the implementation of risk-informed Completion Times. Deleting the second Completion Time is acceptable due to other regulatory requirements that are now present that were not present when the second Completion Time was proposed.

The two regulatory programs in place which provide a strong disincentive to continued operation with concurrent multiple inoperabilities of the type the second Completion Times were designed to prevent are the Maintenance Rule,10 CFR 50.65, and the Reactor Oversight Process, NEI 99-02.

The Maintenance Rule requires each licensee to monitor the performance of System, Structures, and Components (SSCs) against licensee-established goals to ensure that the SSCs are capable of fulfilling their intended functions. This Rule also considers all inoperable risk-significant equipment and not just those in the same system or those governed by the same LCO. The risk assessments performed prior to maintenance activities are governed by Regulatory Guide 1.182. Any issues associated with equipment inoperability is monitored by the NRC Resident Inspector and reported in the Corrective Action Program.

The Reactor Oversight Process: NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," describes the tracking and reporting of performance indicators to support the NRC's Reactor Oversight Process (ROP). The NEI document is endorsed by RIS 2001-11, "Voluntary Submission of Performance Indicator Data." NEI 99-02, Section 2.2, describes the Mitigating Systems Cornerstone. NEI 99-02 specifically addresses emergency AC Sources (which encompasses the AC Sources and Distribution System LCOs), and the Auxiliary feedwater system. Extended unavailability of these systems due to multiple entries into the ACTIONS would affect the NRC's evaluation of the licensee's performance under the ROP.

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ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

In addition to these regulatory programs, a requirement is being added to TS Section 1.3 which requires the licensees to have administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls should consider plant risk and shall limit the maximum contiguous time of failing to meet the LCO. This Technical Specification requirement, when considered with the regulatory processes discussed above, provide an equivalent or superior level of plant safety without the unnecessary complication of the Technical Specifications by second Completion Times on some Specifications.

This change is considered less restrictive because it results in the relaxation of the Completion Time by eliminating the requirement for the system, bus, or subsystem to be restored 16 hours from discovery of failure to meet the LCO.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems - Operating

LCO 3.8.9

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution ~~sub~~systems shall be OPERABLE. 3

Applicability

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. One or more AC electrical power distribution ~~subsystems~~ trains inoperable.	--------------------NOTE------------------- Enter applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," for DC trains made inoperable by inoperable power distribution ~~subsystems~~ trains. --- A.1 Restore AC electrical power distribution ~~subsystem~~ train(s) to OPERABLE status.	8 hours
ACTION B B. One or more AC vital buses inoperable.	B.1 Restore AC vital bus(es) ~~subsystem(s)~~ to OPERABLE status.	2 hours
ACTION C C. One or more DC electrical power distribution subsystems inoperable.	C.1 Restore DC electrical power distribution subsystem(s) to OPERABLE status.	2 hours

3 3 3 3

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION	COMPLETION TIME	
ACTION D	D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours	
DOC M02	E. Two or more electrical power distribution ~~sub~~systems inoperable that result in a loss of safety function.	E.1 Enter LCO 3.0.3.	Immediately	3

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY	
SR 3.8.9.1	SR 3.8.9.1	Verify correct breaker alignments and voltage to ~~[~~required~~]~~ AC, DC, and AC vital bus electrical power distribution ~~sub~~systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program	TSTF-425-A 2 3

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. ISTS LCO 3.8.9 uses the term electrical power distribution "subsystems" when referring to AC, DC, and AC vital bus distribution systems. The SONGS design uses the term "systems," as each train is considered a system. Therefore, the LCO statement has been modified to use the term system. This has also been changed in Condition E and SR 3.8.9.1. The term "subsystems" in ACTION A has been changed to "trains" to preclude any confusion with the LCO and to be consistent with the LCO. Furthermore, for clarity, the ISTS 3.8.9 Required Action B.1 term "subsystem(s)" has been changed to "bus(es)," to be consistent with the term used in the Condition. At SONGS, the AC vital buses are called "channels," not subsystems. To alleviate any confusion, the use of the term "subsystem" will not be used when referring to the AC vital buses.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.9 Distribution Systems - Operating

BASES

BACKGROUND

The onsite Class 1E AC, DC, and AC vital bus electrical power distribution systems are divided ~~by train~~ into ~~[~~two~~]~~ redundant and independent AC, DC, and AC vital bus electrical power distribution trains ~~subsystems~~. 2 1

The AC electrical power ~~sub~~system for each train consists of a 4.16 kV Engineered Safety Feature (ESF) bus, having at least ~~[~~one separate and independent offsite source of power~~]~~ as well as a dedicated onsite diesel generator (DG) source. Each ~~[~~4.16 kV ESF bus~~]~~ is normally connected to a preferred offsite source. After a loss of the preferred offsite power source to a 4.16 kV ESF bus, a transfer to the alternate offsite source is accomplished by utilizing a time delayed bus undervoltage relay. If all offsite sources are unavailable, the onsite emergency DG supplies power to the 4.16 kV ESF bus. Control power for the 4.16 kV breakers is supplied from the Class 1E batteries. Additional description of this system may be found in the Bases for LCO 3.8.1, "AC Sources - Operating," and the Bases for LCO 3.8.4, "DC Sources - Operating." 1 2

The secondary AC electrical power distribution ~~sub~~system for each train includes the safety related load center~~s, motor control centers, and distribution panels~~ shown in Table B 3.8.9-1. 1 1

The 120 VAC vital buses are arranged in two load groups per train (Channels A and C for Train A and Channels B and D for Train B) and are normally powered from the inverters. The alternate power supply for the vital buses are Class 1E constant voltage source transformers powered from the same train as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters - Operating." Each constant voltage source transformer is powered from a Class 1E AC bus. 1

The DC electrical power distribution ~~sub~~system consists of two trains, with two subsystems per train (Subsystems A and C for Train A and Subsystems B and D for Train B). Each subsystem consists of a ~~[~~125~~]~~ V bus~~(es)~~ and a distribution panel~~(s)~~. 2 1

The list of all required DC and vital AC distribution buses ~~[~~and panels~~]~~ is presented in Table B 3.8.9-1. 2

BASES

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the U FSAR, Chapter ~~[~~6~~]~~ (Ref. 1) and Chapter ~~[~~15~~]~~ (Ref. 2), assume ESF systems are OPERABLE. The AC, DC, and AC vital bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems. 1 2

The OPERABILITY of the AC, DC, and AC vital bus electrical power distribution systems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining power distribution systems OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite power or all onsite AC electrical power ; and 4

b. A worst case single failure.

The distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The required power distribution ~~subsystems~~ trains listed in Table B 3.8.9-1 ensure the availability of AC, DC, and AC vital bus electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. The Train A and Train B AC, DC, and AC vital bus electrical power distribution ~~sub~~systems are required to be OPERABLE. 1 3

Maintaining the Train A and Train B AC, DC, and AC vital bus electrical power distribution ~~sub~~systems OPERABLE ensures that the redundancy incorporated into the design of ESF is not defeated. Therefore, a single failure within any ~~system or within the~~ electrical power distribution train ~~subsystems~~ will not prevent safe shutdown of the reactor. 3 1

OPERABLE AC electrical power distribution ~~subsystems~~ trains require the associated buses~~,~~ and load centers~~, motor control centers, and distribution panels~~ to be energized to their proper voltages. OPERABLE DC electrical power distribution subsystems require the associated buses and distribution panels to be energized to their proper voltage from either the associated battery or charger. OPERABLE AC vital bus electrical power distribution ~~subsystems~~ buses require the associated buses to be energized to their proper voltage from the associated ~~[~~inverter via inverted DC voltage~~,~~ ~~inverter using internal AC source,~~ or Class 1E constant voltage transformer~~]~~. 3 1 3 2

BASES

LCO (continued)

~~In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, which could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.~~ 1

APPLICABILITY

The electrical power distribution ~~sub~~systems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that: 3

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients ; and 4

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution ~~sub~~system requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems - Shutdown." 3

ACTIONS

A.1

With one or more Train A and B required AC buses ~~,~~ or load centers, ~~motor control centers, or distribution panels~~ (except AC vital buses) ~~, in one train~~ inoperable and a loss of function has not occurred, the remaining AC electrical power distribution buses and load centers ~~subsystems~~ are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution buses and load centers ~~subsystems~~ could result in the minimum required ESF functions not being supported. Therefore, the required AC buses ~~,~~ and load centers, ~~motor control centers, and distribution panels~~ must be restored to OPERABLE status within 8 hours. 1 1 7 1 1 1

BASES

ACTIONS (continued)

Condition A worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this condition is acceptable because of:

a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train, to the actions associated with taking the unit to shutdown within this time limit ; and 4

b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

Required Action A.1 is modified by a Note that requires the applicable Conditions and Required Actions of LCO 3.8.4, "DC Sources - Operating," to be entered for DC trains made inoperable by inoperable power distribution trains ~~subsystems~~. This is an exception to LCO 3.0.6 and ensures 3
the proper actions are taken for these components. Inoperability of a distribution train ~~system~~ can result in loss of charging power to batteries and 3
eventual loss of DC power. This Note ensures that the appropriate attention is given to restoring charging power to batteries, if necessary, after loss of distribution systems.

B.1

With one or more AC vital buses inoperable, and a loss of function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the ~~[~~required~~]~~ AC vital bus must be restored to OPERABLE status within 2 hours by powering the bus from the associated ~~[~~inverter via inverted DC~~, inverter using internal AC source,~~ or Class 1E constant voltage transformer~~]~~. 2

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ACTIONS (continued)

Condition B represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses, and restoring power to the affected vital bus.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, which would have the Required Action Completion Times shorter than 2 hours if declared inoperable, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue,

b. The potential for decreased safety by requiring entry into numerous Applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

C.1

With one or more DC buses or distribution panels inoperable, and a loss of function has not yet occurred, the remaining DC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the ~~[required]~~ DC buses and distribution panels must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger. 2

BASES

ACTIONS (continued)

Condition C represents one or more DC buses or distribution panels without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining ~~trains~~ and restoring power to the affected ~~train~~. 1

buses and distribution panels

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components which would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue,

b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train, and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

<u>D.1 and D.2</u>

train(s)

If the inoperable distribution ~~subsystem~~ 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 unit systems. 1

BASES

ACTIONS (continued)

E.1

Condition E corresponds to a level of degradation in the electrical distribution system that causes a required safety function to be lost. When more than one inoperable electrical power distribution ~~sub~~system results in the loss of a required function, the plant is in a condition outside the accident analysis. Therefore, no additional time is justified for continued operation. LCO 3.0.3 must be entered immediately to commence a controlled shutdown. s 1

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical ~~divisions~~ trains is maintained, and the appropriate voltage is available to each required bus. 1 The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 7 day Frequency takes into account the redundant capability of the AC, DC, and AC vital bus electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.~~ INSERT 1 TSTF-425-A

REFERENCES

1. FSAR, Chapter ~~[~~6~~]~~. U 1 2

2. FSAR, Chapter ~~[~~15~~]~~. 1 2

3. Regulatory Guide 1.93, December 1974.

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INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 5

-- Reviewers Note --
~~Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement.~~ 6

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	TRAIN A*	TRAIN B*
AC safety buses	[4160 V]	[ESF Bus] [NB01]	[ESF Bus] [NB02]
	[480 V]	Load Centers [NG01, NG03]	Load Centers [NG02, NG04]
	[480 V]	Motor Control Centers [NG01A, NG01I, NG01B, NG03C, NG03I, NG03D]	Motor Control Centers [NG02A, NG02I, NG02B, NG04C, NG04I, NG04D]
	[120 V]	Distribution Panels [NP01, NP03]	Distribution Panels [NP02, NP04]
DC buses	[125 V]	Bus [NK01]	Bus [NK02]
		Bus [NK03]	Bus [NK04]
		Distribution Panels [NK41, NK43, NK51]	Distribution Panels [NK42, NK44, NK52]
AC vital buses	[120 V]	Bus [NN01]	Bus [NN02]
		Bus [NN03]	Bus [NN04]

1

INSERT 2

~~* Each train of the AC and DC electrical power distribution systems is a subsystem.~~

3

1 **INSERT 2**

TYPE	VOLTAGE	TRAIN A	TRAIN B
AC safety buses	4160 V 480 V	ESF Bus A04 Load Center B04 Load Center B24	ESF Bus A06 Load Center B06 Load Center B26(1)
DC buses	125 V	Bus D1 Panel D1P1 Bus D3 Panel D3P1	Bus D2 Panel D2P1 Bus D4 Panel D4P1
AC vital buses	120 V	Bus Y01 Bus Y03	Bus Y02 Bus Y04

(1) Unit 2 only.

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.9 BASES, DISTRIBUTION SYSTEMS-OPERATING

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. Changes are made to use correct punctuation, correct typographical errors or to make corrections consistent with the Writers Guide for the Improved Standard Technical Specifications, TSTF-GG-05-01.

5. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

6. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

7. Changes are made to be consistent with the actual Specification.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.9, DISTRIBUTION SYSTEMS-OPERATING

There are no specific No Significant Hazards Considerations for this Specification.

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ATTACHMENT 10

ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems -Shutdown

LCO 3.8.10

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution ~~systems~~ trains shall be OPERABLE to support equipment required to be OPERABLE. A02

Applicability

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTIONS

---------------NOTE--------------
LCO 3.0.3 is not applicable.
------------------------------------ L01

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME	
A. One or more required AC, DC, or AC vital bus electrical power distribution ~~systems~~ trains inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately	A02
	OR		
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~	L02
	~~AND~~		
	A.2.~~2~~ 1 Suspend movement of irradiated fuel assemblies.	Immediately	L02
	AND		
	A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately	L02
	AND		
		(continued)	

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
ACTION A A. (continued)	A.2.~~4~~ 3 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution ~~system~~ train(s) to OPERABLE status. <u>AND</u> A.2.~~5~~ 4 Declare associated required shutdown cooling sub system(s) inoperable and not in operation.	Immediately L02 A02 Immediately L02 A02

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program LA01

ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems -Shutdown

LCO 3.8.10

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution ~~systems~~ train shall be OPERABLE to support equipment required to be OPERABLE. A02

Applicability

APPLICABILITY: MODES 5 and 6.
During movement of irradiated fuel assemblies.

ACTIONS

---------------NOTE--------------
LCO 3.0.3 is not applicable.
-------------------------------------- L01

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution ~~systems~~ trains inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately A02
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~ L02
	~~AND~~	
	A.2.~~2~~1 Suspend movement of irradiated fuel assemblies.	Immediately L02
	AND	
	A.2.~~3~~2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately L02
	AND	
		(continued)

ITS

A01

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.~~1~~ 3 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution ~~system~~ train(s) to OPERABLE status. AND A.2.~~3~~ 4 Declare associated required shutdown cooling sub system(s) inoperable and not in operation.	Immediately Immediately

ACTION A

L02 A02 L02 A02

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

SR 3.8.10.1

LA01

DISCUSSION OF CHANGES
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

ADMINISTRATIVE CHANGES

A01 In the conversion of the San Onofre Nuclear Generating Station (SONGS) Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1432, Rev. 3.0, "Standard Technical Specifications Combustion Engineering Plants" (ISTS) and additional approved Technical Specification Task Force (TSTF) travelers included in this submittal.

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A02 CTS 3.8.10 LCO, ACTIONS, and SR refer to the makeup of the Distribution System-Shutdown as "systems." ITS 3.8.10 LCO, ACTIONS, and SR refer to the makeup of the Distribution System as "trains." This changes the CTS by changing the nomenclature of portions of the Distribution System to trains.

The purpose of CTS LCO 3.8.10 is to ensure the availability of portions of the electrical distribution trains necessary to support OPERABILITY of required system, equipment and components to operate the unit in a safe manner to mitigate consequences of postulated events during shutdown. The proposed change to CTS 3.8.10 is acceptable because it editorially changes the CTS to be consistent with plant design and consistent with the intent of the ITS. The plant design includes two trains of AC, DC, and AC vital bus distribution systems. The other Specifications may need either one or both trains of distribution. The OPERABILITY requirements, Conditions for entry, Required Actions and Surveillance Requirements remain unchanged. This change is designated as administrative because it does not technically affect the Specification.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA01 *(Type 4 – Removal of LCO, SR, or other TS requirement to the LCS, UFSAR, ODCM, QAP, CLRT Program, IST Program, ISI Program, or Surveillance Frequency Control Program)* CTS SR 3.8.10.1 requires verifying correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution systems every 7 days. ITS SR 3.8.10.1 requires a similar Surveillance and specifies the periodic Frequency as "In accordance with the Surveillance Frequency Control Program." This changes the CTS by moving the

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DISCUSSION OF CHANGES
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

specified frequency for the SR and the Bases for the frequency to the Surveillance Frequency Control Program.

The control of changes to the Surveillance Frequencies will be in accordance with the Surveillance Frequency Control Program. The Program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met. In addition:

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program;

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1; and

c. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

The referenced document, NEI 04-10, provides a detailed description of the process to be followed when considering changes to a Surveillance Frequency. NEI 04-10 will be reviewed and approved by the NRC separately from this Traveler. Therefore, the process is not discussed further here.

The relocation of the specified Surveillance Frequencies to licensee control is consistent with Regulatory Guides 1.174 and 1.177. Regulatory Guide 1.177 provides guidance for changing Surveillance Frequencies and Completion Times. However, for allowable risk changes associated with Surveillance Frequency extensions, it refers to Regulatory Guide 1.174, which provides quantitative risk acceptance guidelines for changes to core damage frequency (CDF) and large early release frequency (LERF). Regulatory Guide 1.174 provides additional guidelines that have been adapted in the risk-informed methodology for controlling changes to Surveillance Frequencies.

Regulatory Guide 1.174 identifies five key safety principles to be met for all risk-informed applications and to be explicitly addressed in risk-informed plant program change applications.

1. **The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.**

   10 CFR 50.36(c) provides that TS will include items in the following categories:

   "(3) *Surveillance requirements*. Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

DISCUSSION OF CHANGES
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

This change proposes to relocate various Frequencies for the performance of the Surveillance Requirements to a licensee-controlled program using an NRC approved methodology for control of the Surveillance Frequencies. The Surveillance Requirements themselves will remain in TS. This is consistent with other NRC approved TS changes in which the Surveillance Frequencies are not under NRC control, such as Surveillances that are performed in accordance with the Inservice Testing Program or the Containment Leakage Rate Testing Program, where the Frequencies vary based on the past performance of the subject components. Thus, this proposed change meets criterion 1 above.

2. **The proposed change is consistent with the defense-in-depth philosophy.**

As described in Position 2.2.1.1 of Regulatory Guide 1.174, consistency with the defense-in-depth philosophy is maintained if:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation;
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided;
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers);
- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed;
- Independence of barriers is not degraded;
- Defenses against human errors are preserved; and
- The intent of the General Design Criteria in 10 CFR Part 50, Appendix A is maintained.

These defense-in-depth objectives apply to all risk-informed applications, and for some of the issues involved (e.g., no over-reliance on programmatic activities and defense against human errors), it is fairly straightforward to apply them to this proposed change. The use of the multiple risk metrics of CDF and LERF and controlling the change resulting from the implementation of this initiative would maintain a balance between prevention of core damage, prevention of containment failure, and consequence mitigation. Redundancy, diversity, and independence of safety systems are considered as part of the risk categorization to ensure that these qualities are not adversely affected. Independence of barriers and defense against common cause failures are also considered in the categorization. The improved understanding of the relative importance of plant components to risk resulting

DISCUSSION OF CHANGES
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

from the development of this program promotes an improved overall understanding of how the SSCs contribute to the plant's defense-in-depth.

3. **The proposed change maintains sufficient safety margins.**

   Conformance with this principle is assured since SSC design, operation, testing methods and acceptance criteria specified in the Codes and Standards or alternatives approved for use by the NRC, will continue to be met as described in the plant licensing basis (e.g., UFSAR, or Technical Specifications Bases). Also, the safety analysis acceptance criteria in the licensing basis (e.g., UFSAR, supporting analyses, etc.) are met with the proposed change.

4. **When proposed changes result in an increase in core damage frequency or risk, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.**

   NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," will require that changes in core damage frequency or risk are small and consistent with the intent of the Commission's Safety Goal Policy.

5. **The impact of the proposed change should be monitored using performance measurement strategies.**

   NEI 04-10 will require that changes in Surveillance Frequencies be monitored using performance management strategies.

Therefore, the proposed change is consistent with the guidance in Regulatory Guide 1.174.

This change is designated as a less restrictive removal of detail change because the Surveillance Frequency is being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L01 *(Category 4 – Relaxation of Required Action)* ITS 3.8.10 ACTIONS are modified by a Note that states LCO 3.0.3 is not applicable. CTS 3.8.10 ACTIONS do not contain this Note. This changes the CTS by adding a Note to the ACTIONS.

The purpose of CTS LCO 3.8.10 is to ensure the necessary portions of the AC, DC, and AC vital bus electrical power distribution systems are available to ensure the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents). The proposed change to CTS 3.8.10 adds a Note that modifies the ACTIONS by stating that LCO 3.0.3 is not applicable. This change is acceptable because when moving irradiated fuel assemblies while in MODE 5 and 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODES 1, 2, 3, or 4, the fuel movement is independent of reactor operations. This clarification is necessary because defaulting to LCO 3.0.3 (during irradiated fuel assembly movement in MODE 1, 2, 3, or 4) would require

DISCUSSION OF CHANGES
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

the reactor to be shutdown unnecessarily. This change is designated as less restrictive because a Note which relaxes the Required Actions are included in the ITS that is not currently included in the CTS.

L02 *(Category 4 – Relaxation of Required Action)* CTS 3.8.10 ACTIONS specify compensatory actions when one or more required AC, DC, or vital AC bus electrical power distribution systems are inoperable. One of the compensatory actions (CTS 3.8.10 Required Action A.2.1) is to suspend CORE ALTERATIONS. Under similar conditions, ITS 3.8.10 does not require suspension of CORE ALTERATIONS. This changes the CTS by deleting the requirement to suspend CORE ALTERATIONS when one or more required electrical power distribution systems are inoperable.

The purpose of CTS LCO 3.8.10 is to ensure the necessary portions of the AC, DC, and AC vital bus electrical power distribution systems are available to ensure the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents). When the required AC, DC, or vital AC bus electrical power distribution systems are not OPERABLE, CTS 3.8.10 ACTIONS suspend CORE ALTERATIONS to preclude an event that could result in not meeting the SHUTDOWN MARGIN limit. CORE ALTERATIONS is defined in CTS 1.1, in part, as "the movement or manipulation of any fuel, sources, reactivity control components or other components…affecting reactivity, within the reactor vessel with the vessel head removed and fuel in the vessel." There are two evolutions encompassed under the term CORE ALTERATIONS that could affect the SHUTDOWN MARGIN: addition of fuel to the reactor vessel and withdrawal of control rods. However, ITS 3.8.10 Required Action A.2.1 requires immediate suspension of movement of irradiated fuel assemblies and ITS 3.8.10 Required Action A.2.2 requires suspension of operations involving positive reactivity additions that could result in loss of required SDM or boron concentration. This would include both the addition of fuel to the reactor vessel and the withdrawal of control rods. Furthermore, another accident considered in MODE 6 that could affect SHUTDOWN MARGIN is the boron dilution event. A boron dilution accident is initiated by a dilution source which results in the boron concentration dropping below that required to maintain the SHUTDOWN MARGIN. A boron dilution accident is mitigated by stopping the dilution. Suspension of CORE ALTERATIONS has no affect on the mitigation of a boron dilution accident. In summary, with the exception of suspending movement of irradiated fuel assemblies, there are no DBAs or transients that are initiated by, or mitigation affected by, suspension of CORE ALTERATIONS. Therefore, if all Required Actions that require suspension of CORE ALTERATIONS also require suspension of movement of irradiated fuel, suspension of CORE ALTERATIONS provides no safety benefit. CTS 3.8.10 Required Action A.2.2 and ITS 3.8.10 Required Action A.2.1 require the suspension of movement of irradiated fuel assemblies. Thus, the deletion of the requirement to suspend CORE ALTERATIONS is acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

3.8 ELECTRICAL POWER SYSTEMS

3.8.10 Distribution Systems - Shutdown

LCO 3.8.10

LCO 3.8.10 The necessary portion of AC, DC, and AC vital bus electrical power distribution ~~subsystems~~ trains shall be OPERABLE to support equipment required to be OPERABLE. 3

Applicability

APPLICABILITY: MODES 5 and 6,
During movement of ~~[recently]~~ irradiated fuel assemblies. 2

ACTIONS

DOC L01

--NOTE--
LCO 3.0.3 is not applicable.

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required AC, DC, or AC vital bus electrical power distribution ~~subsystems~~ trains inoperable.	A.1 Declare associated supported required feature(s) inoperable.	Immediately
	OR	
	~~A.2.1 Suspend CORE ALTERATIONS.~~	~~Immediately~~
	~~AND~~	
	A.2.~~2~~ 1 Suspend movement of ~~[recently]~~ irradiated fuel assemblies.	Immediately
	AND	
	A.2.~~3~~ 2 Suspend operations involving positive reactivity additions that could result in loss of required SDM or boron concentration.	Immediately
	AND	

3

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ACTIONS (continued)

ACTION A

CONDITION	REQUIRED ACTION	COMPLETION TIME
	A.2.~~4~~ 3 Initiate actions to restore required AC, DC, and AC vital bus electrical power distribution ~~subsystems~~ trains to OPERABLE status. AND A.2.~~5~~ 4 Declare associated required shutdown cooling subsystem(s) inoperable and not in operation.	Immediately Immediately

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3
TSTF-471-A

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

SURVEILLANCE	FREQUENCY
SR 3.8.10.1 Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution ~~sub~~systems.	~~7 days~~ In accordance with the Surveillance Frequency Control Program

TSTF-425-A
3

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the ISTS which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. ISTS LCO 3.8.10 uses the term electrical power distribution "subsystems" when referring to AC, DC, and AC vital bus distribution systems. The SONGS design uses the term "systems," as each train is considered a system. Therefore, the LCO statement has been modified to use the term "train" for consistency with LCO 3.8.9, which uses the terms Train A and B. This is also required since each DC train has two subsystems, and using the term subsystem when referring to the DC train is not correct. This has also been changed in ISTS 3.8.10 Condition A, Required Action A.2.4, and SR 3.8.10.1.

Improved Standard Technical Specifications (ISTS) Bases Markup and Bases Justification for Deviations (JFDs)

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.10 Distribution Systems - Shutdown

BASES

BACKGROUND

A description of the AC, DC, and AC vital bus electrical power distribution systems is provided in the Bases for LCO 3.8.9, "Distribution Systems - Operating."

APPLICABLE SAFETY ANALYSES

U

The initial conditions of Design Basis Accident and transient analyses in the FSAR, Chapter ~~[~~6~~]~~ (Ref. 1) and Chapter ~~[~~15~~]~~ (Ref. 2), assume Engineered Safety Feature (ESF) systems are OPERABLE. The AC, DC, and AC vital bus electrical power distribution systems are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System, and containment design limits are not exceeded. 1 2

The OPERABILITY of the AC, DC, and AC vital bus electrical power distribution system is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum AC, DC, and AC vital bus electrical power distribution subsystems during MODES 5 and 6, and during movement of ~~[recently]~~ irradiated fuel assemblies, ensures that: 2

a. The unit can be maintained in the shutdown or refueling condition for extended periods,

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status, and

c. Adequate power is provided to mitigate events postulated during shutdown, such as a fuel handling accident ~~[involving handling recently irradiated fuel. Due to radioactive decay, AC, DC, and AC vital bus electrical power is only required to mitigate fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]~~. 2

, DC, and AC vital bus

The AC ~~and DC~~ electrical power distribution systems satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii). 6

BASES

LCO

Various combinations of subsystems, equipment, and components are required OPERABLE by other LCOs, depending on the specific unit condition. Implicit in those requirements is the required OPERABILITY of necessary support required features. This LCO explicitly requires energization of the portions of the electrical distribution system s necessary to support OPERABILITY of required systems, equipment and components - all specifically addressed in each LCO and implicitly required via the definition of OPERABILITY. 3

Maintaining these portions of the distribution system s energized ensures the availability of sufficient power to operate the unit in a safe manner to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents ~~[involving handling recently irradiated fuel]~~). 3 2

APPLICABILITY

The AC , DC, and AC vital bus ~~and DC~~ electrical power distribution ~~sub~~systems required to be OPERABLE in MODES 5 and 6, and during movement of ~~[recently]~~ irradiated fuel assemblies, provide assurance that: 6 3

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel in the core,

b. Systems needed to mitigate a fuel handling accident ~~[involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [X] days)]~~ are available, 2

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available, and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition and refueling condition.

The AC, DC, and AC vital bus electrical power distribution ~~sub~~system requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.9. 3

ACTIONS

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

BASES

ACTIONS (continued)

4

A.1, A.2.1, A.2.2, A.2.3, ~~A.2.4,~~ and A.2.~~5~~ TSTF-471-A

Although redundant required features may require redundant trains of electrical power distribution ~~sub~~systems to be OPERABLE, one OPERABLE distribution ~~sub~~system train may be capable of supporting sufficient required features to allow continuation of ~~CORE ALTERATIONS and~~ ~~[recently]~~ irradiated fuel movement. By allowing the option to declare required features associated with an inoperable distribution ~~subsystem~~ train inoperable, appropriate restrictions are implemented in accordance with the affected distribution ~~sub~~systems LCO's Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend ~~CORE ALTERATIONS,~~ movement of ~~[recently]~~ irradiated fuel assemblies, and operations involving positive reactivity additions that could result in loss of required SDM (MODE 5) or boron concentration (MODE 6). Suspending positive reactivity additions that could result in failure to meet the minimum SDM or boron concentration limit is required to assure continued safe operation. Introduction of coolant inventory must be from sources that have a boron concentration greater than that what would be required in the RCS for minimum SDM or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive MTC must also be evaluated to ensure they do not result in a loss of required SDM. 3 TSTF-471-A TSTF-471-A

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC ~~and DC~~ , DC, and AC vital bus electrical power distribution ~~sub~~systems and to continue this action until restoration is accomplished in order to provide the necessary power to the unit safety systems. 6 3

Notwithstanding performance of the above conservative Required Actions, a required shutdown cooling (SDC) subsystem may be inoperable. In this case, Required Actions A.2.1 through A.2.~~4~~ 3 do not adequately address the concerns relating to coolant circulation and heat removal. Pursuant to LCO 3.0.6, the SDC ACTIONS would not be entered. Therefore, Required Action A.2.~~5~~ 4 is provided to direct declaring SDC inoperable, which results in taking the appropriate SDC actions. 3 3

BASES

ACTIONS (continued)

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required distribution ~~subsystems~~ trains should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power. 3

SURVEILLANCE REQUIREMENTS

SR 3.8.10.1

This Surveillance verifies that the AC, DC, and AC vital bus electrical power distribution ~~system is~~ train(s) are functioning properly, with all the buses energized. The verification of proper voltage availability on the buses ensures that the required power is readily available for motive as well as control functions for critical system loads connected to these buses. ~~The 7 day Frequency takes into account the redundant capability of the electrical power distribution subsystems, and other indications available in the control room that alert the operator to subsystem malfunctions.~~ INSERT 1 3 TSTF-425-A

REFERENCES

1. U FSAR, Chapter [6].
2. U FSAR, Chapter [15].

1 2

TSTF-425-A

INSERT 1

The Frequency is controlled under the Surveillance Frequency Control Program. 4

--- Reviewers Note ---

Plants controlling Surveillance Frequencies under a Surveillance Frequency Control Program should utilize the appropriate Frequency description, given above, and the appropriate choice of Frequency in the Surveillance Requirement. 5

JUSTIFICATION FOR DEVIATIONS
ITS 3.8.10 BASES, DISTRIBUTION SYSTEMS-SHUTDOWN

1. Changes are made (additions, deletions, and/or changes) to the Improved Standard Technical Specification (ISTS) Bases which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The ISTS Bases contains bracketed information and/or values that are generic to all Combustion Engineering vintage plants. The brackets are removed and the proper plant specific information/value is provided. This is acceptable since the information/value is changed to reflect the current licensing basis.

3. Changes made to be consistent with changes made to the Specification.

4. The Bases words changed by TSTF-425 have been modified to state "The Frequency is controlled under the Surveillance Frequency Control Program." The Surveillance Frequency Control Program provides the details for how to change the Frequencies, thus the TSTF-425 words concerning operating experience, equipment reliability, and plant risk are not always true for each of the Frequencies.

5. This "Reviewers Note" is being deleted. The Reviewers Note is for the NRC reviewer during the NRC review and will not be part of the plant specific SONGS ITS.

6. Changes are made to be consistent with wording used in other portions of the Bases.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.8.10, DISTRIBUTION SYSTEMS-SHUTDOWN

There are no specific No Significant Hazards Considerations for this Specification.

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