ATTACHMENT THREE

PROPOSED TECHNICAL SPECIFICATION REVISIONS

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. Auxiliary Feedwater (Continued)					
d. Steam Generator Water Level Low-Low (Continued)					
2) Start Turbine-Driven Pump (Continued)					
d) Containment Pressure-Environmental Allowance Modifier	4	2	3	1, 2, 3	37*
e. Safety Injection Start Motor-Driven Pumps	See Item 1 above for all Safety Injection initiating functions and requirements.				
f. ~~Loss of Offsite Power - Start Turbine-Driven Pump~~ INSERT 3/4 3-18(a)	~~2~~	~~1~~	~~2~~	~~1, 2, 3~~	~~22~~
g. Trip of all Main Feedwater Pumps -Start Motor-Driven Pumps	4-(2/pump)**	2-(1/pump in same separation)	3	1, 2###	19***
h. Auxiliary Feedwater Pump Suction Pressure-Low (Transfer to ESW)	3	2	2	1, 2, 3	15*
7. Automatic Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays (SSPS)	2	1	2	1, 2, 3, 4	14
b. RWST Level - Low-Low Coincident With Safety Injection	4	2	3	1, 2, 3, 4	32
	See Item 1 above for Safety Injection initiating functions and requirements.				

INSERT 3/4 3-18(a)

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
f. Loss of Offsite Power - Start Turbine-Driven Pump					
1) 4 kV Bus Undervoltage - Loss of Voltage	4/Bus	2/Bus	3/Bus	1, 2, 3	19*
2) Automatic Actuation Logic and Actuation Relays (LSELS and BOP ESFAS)	2	1	2	1, 2, 3	39

TSI 62

TABLE 3.3-3 (Continued)

ACTION STATEMENTS (Continued)

ACTION 36 - With the number of OPERABLE channels less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided that the Containment Pressure-Environmental Allowance Modifier channels in the affected protection sets are placed in the tripped condition within 6 hours.

ACTION 37 - With the number of OPERABLE channels less than the Total Number of Channels, operation may continue provided the inoperable channels are placed in the tripped condition within 6 hours.

(NOTE: ACTION STATEMENT 38 IS LOCATED ON TABLE 3.3-6.)

ACTION 39 - INSERT 3/4 3-21(b)

INSERT 3/4 3-21(b)

ACTION 39 - With the number of OPERABLE channels less than the Total Number of Channels, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
6. Auxiliary Feedwater (Continued)					
e. Safety Injection-Start Motor-Driven Pumps	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values.				
f. ~~Loss-of-Offsite Power-Start Turbine-Driven Pump~~ INSERT 3/4 3-26	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~N.A.~~
g. Trip of All Main Feedwater Pumps-Start Motor-Driven Pumps	N.A.	N.A.	N.A.	N.A.	N.A.
h. Auxiliary Feedwater Pump Suction Pressure-Low (Transfer to ESW)	N.A.	N.A.	N.A.	≥21.71 psia	≥20.64 psia
7. Automatic Switchover to Containment Sump					
a. Automatic Actuation Logic and Actuation Relays (SSPS)	N.A.	N.A.	N.A.	N.A.	N.A.
b. RWST Level-Low-Low Coincident with Safety Injection	3.4	1.21	2.0	≥36%	≥35.2%
	See Item 1. above for Safety Injection Trip Setpoints and Allowable Values.				
8. Loss of Power					
a. 4 kV Undervoltage -Loss of Voltage	N.A	N.A.	N.A.	83V (120V Bus) w/1s delay	83+0,-8.3V (120V Bus) w/1+0.2,-0.5s delay

Amendment No. 86
Correction Letter of 9/21/94

INSERT 3/4 3-26

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
f. Loss of Offsite Power - Start Turbine-Driven Pump					
1) 4 kV Bus Undervoltage - Loss of Voltage	See Item 8.a below for Trip Setpoints and Allowable Values.				
2) Automatic Actuation Logic and Actuation Relays (LSELS and BOP ESFAS)	N.A.	N.A.	N.A.	N.A.	N.A.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
6. Auxiliary Feedwater (Continued)								
f. ~~Loss of Offsite Power~~ INSERT 3/4 3-36a	~~N.A.~~	~~R~~	~~N.A.~~	~~M~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~1, 2, 3~~
g. Trip of All Main Feedwater Pumps	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2
h. Auxiliary Feedwater Pump Suction Pressure-Low	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
7. Automatic Switchover to Containment Sump								
a. Automatic Actuation Logic and Actuation Relays (SSPS)	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q(3)	1, 2, 3, 4
b. RWST Level - Low-Low Coincident With Safety Injection	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
	See Item 1 above for all Safety Injection Surveillance Requirements.							
8. Loss of Power								
a. 4 kV Undervoltage-Loss of Voltage	N.A.	R	N.A.	M	N.A.	N.A.	N.A.	1, 2, 3, 4, 5++, 6++
b. 4 kV Undervoltage-Grid Degraded Voltage	W(4)	R	N.A.	M	N.A.	N.A.	N.A.	1, 2, 3, 4, 5++, 6++

INSERT 3/4 3-36a

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
f. Loss of Offsite Power - Start Turbine-Driven Pump								
1) 4 kV Bus Undervoltage - Loss of Voltage	N.A.	R	N.A.	M	N.A.	N.A.	N.A.	1, 2, 3
2) Automatic Actuation Logic and Actuation Relays (LSELS and BOP ESFAS)	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3

ATTACHMENT FOUR

CHANGES TO ULNRC-3578 ATTACHMENT 19

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
R. One train inoperable.	R.1 ----------NOTE--- -------- One train may be bypassed for up to 2 hours for surveillance testing provided the other train is OPERABLE. ----------	
	Be in MODE 3.	6 hours
	AND	
	R.2 Be in MODE 4.	12 hours
S. One or both train(s) inoperable.	S.1 Restore train(s) to OPERABLE status.	48 hours
	OR	
	S.2.1 Be in MODE 3.	54 hours
	AND	
	S.2.2 Be in MODE 4.	60 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Refer to Table 3.3.2-1 to determine which SRs, other than Response Time Verification, apply for each ESFAS Function. Response Time Verification is addressed under SR 3.3.2.10.

	SURVEILLANCE	FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TESTS BASIS
SR 3.3.2.3	----------NOTE---------- The continuity check may be excluded. ---------- Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.5	Perform COT.	92 days
SR 3.3.2.6	Perform SLAVE RELAY TEST.	92 days
SR 3.3.2.7	Perform TADOT.	~~31 days~~ 18 months

(continued)

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

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE[a]
6. Auxiliary Feedwater (continued)					
(3) Vessel ΔT Equivalent and Trip Time Delay	1, 2	4	M	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9	
(a) Vessel ΔT Equivalent ≤ 10% RTP Vessel ΔT (Power-1)					≤ Vessel ΔT Equivalent to 13.9% RTP[k]
(b) 10% RTP < Vessel ΔT Equivalent ≤ 20% RTP Vessel ΔT (Power-2)					≤ Vessel ΔT Equivalent to 23.9% RTP[l]
(4) Containment Pressure - Environmental Allowance Modifier	1, 2, 3	4	O	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9	≤ 2.0 psig
e. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.				
f. Loss of Offsite Power	1,2,3	2 trains	S	SR 3.3.2.7 SR 3.3.2.9	NA
g. Trip of all Main Feedwater Pumps	1,2[n]	2 per pump	J	SR 3.3.2.8	NA
h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	3	P	SR 3.3.2.1 SR 3.3.2.9 SR 3.3.2.12	≥ 20.64 psia

(continued)

(a) The Allowable Value defines the limiting safety system setting. See the Bases for the Trip Setpoints.
(k) With a time delay ≤ 240 seconds.
(l) With a time delay ≤ 130 seconds.
(n) Trip function may be blocked just before shutdown of the last operating main feedwater pump and restored just after the first main feedwater pump is put into service following performance of its startup trip test.

ATTACHMENT FIVE

CHANGES TO ULNRC-3578 ATTACHMENT 20

BASES

BACKGROUND

Solid State Protection System (continued)

are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases.

Each SSPS train has a built in testing device that can automatically test the decision logic matrix functions and the actuation devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

The actuation of ESF components is accomplished through master and slave relays. The SSPS energizes the master relays appropriate for the condition of the unit. Each master relay then energizes one or more slave relays, which then cause actuation of the end devices. The master and slave relays are routinely tested to ensure operation. The test of the master relays energizes the relay, which then operates the contacts and applies a low voltage to the associated slave relays. The low voltage is not sufficient to actuate the slave relays but only demonstrates signal path continuity. The SLAVE RELAY TEST actuates the devices if their operation will not interfere with continued unit operation. For the latter case, actual component operation is prevented by the SLAVE RELAY TEST circuit, and slave relay contact operation is verified by a continuity check of the circuit containing the slave relay.

Balance of Plant (BOP) ESFAS

The BOP ESFAS processes signals from SSPS, signal processing equipment (e.g., LSELS), and plant radiation monitors to actuate certain ESF equipment. There are two redundant trains of BOP ESFAS (separation groups 1 and 4), and a third separation group (separation group 2) to actuate the Turbine Driven Auxiliary Feedwater pump. ~~The redundant trains provide actuation for Auxiliary Feedwater Actuation (motor driven pumps).~~ Containment Purge Isolation, Control Room Emergency Ventilation, and Emergency Exhaust Actuation functions.

INSERT B 3.3-69

The BOP ESFAS has a built-in automatic test insertion feature (ATI) which continuously tests the system logic. Any fault

(continued)

INSERT B 3.3-69

and reposition automatic valves (turbine steam supply valves, turbine trip and throttle valve) as required. The separation group 2 BOP-ESFAS cabinet is considered to be part of the end device (the Turbine Driven Auxiliary Feedwater pump) and its OPERABILITY is addressed under LCO 3.7.5, "AFW System." The redundant trains provide actuation for the Motor Driven Auxiliary Feedwater pumps (and reposition automatic valves as required, i.e., steam generator blowdown and sample line isolation valves, ESW supply valves, CST supply valves),

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

taken out of the test mode (in which a channel trip was forced on the protection system) and returned to operation. Due to the failed nature of the channel, the channel cannot be considered to be OPERABLE and is, therefore, considered to be in a state of bypass when the channel failure is such that its bistable is not tripped. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. ESFAS protection functions are as follows:

1. Safety Injection

Safety Injection (SI) provides two primary functions:

1. Primary side water addition to ensure maintenance or recovery of reactor vessel water level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F); and

2. Boration to ensure recovery and maintenance of SDM (k_{eff} < 1.0).

These functions are necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The SI signal is also used to initiate other Functions such as:

- Phase A Isolation;
- Reactor Trip;
- Turbine Trip;
- Feedwater Isolation;
- Start of motor driven auxiliary feedwater (AFW) pumps;
- Isolation of SG blowdown and sample lines;

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Safety Injection (continued)

- Enabling automatic switchover of Emergency Core Cooling Systems (ECCS) suction to containment recirculation sumps, coincident with RWST low-low 1 level;
- Emergency DG start;
- Initiaton of LSELS LOCA sequencer;
- Containment Cooling;
- Emergency Exhaust System in the LOCA (SIS) mode; and
- Start of ESW and CCW pumps.

These other functions ensure:

- Isolation of nonessential systems through containment penetrations;
- Trip of the turbine and reactor to limit power generation;
- Isolation of main feedwater (MFW) to limit secondary side mass losses;
- Start of AFW to ensure secondary side cooling capability;
- Isolation of SG blowdown and sample lines to limit uncontrolled SG blowdown;
- Enabling ECCS suction from the refueling water storage tank (RWST) switchover on low-low 1 RWST level to ensure continued cooling via use of the containment recirculation sumps;
- Emergency loads for LOCA are properly sequenced and powered;
- Containment cooling to preserve containment integrity;

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

e. Auxiliary Feedwater - Safety Injection

An SI signal starts the motor driven AFW pumps. The AFW initiation functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

f. Auxiliary Feedwater - Loss of Offsite Power

The loss of offsite power (LOP) is detected by a voltage drop on each ESF bus. The LOP is sensed and processed by the circuitry for LOP DG Start (Load Shedder Emergency Load Sequencer) and fed to BOP-ESFAS by relay actuation. Loss of power to either ESF bus will start the turbine-driven AFW pump, to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip. In addition, once the diesel generators are started and up to speed, the motor driven AFW pumps will be sequentially loaded onto the diesel generator buses, and automatically isolate the SG blowdown and sample lines.

Functions 6.a through 6.f must be OPERABLE in MODES 1, 2, and 3 to ensure that the SGs remain the heat sink for the reactor, except Function 6.d.(3) which must be OPERABLE in only MODES 1 and 2. Vessel ΔT is used to limit the allowed trip time delay only when greater than 10% RTP. Below 10% RTP the maximum time delay is permitted; therefore, no OPERABILITY requirements should be imposed on the Vessel ΔT channels in MODE 3. SG Water Level - Low Low in any operating SG will cause the motor driven AFW pumps to start. The system is aligned so that upon a start of the pump, water immediately begins to flow to the SGs. SG Water Level - Low Low in any two operating SGs will cause the turbine driven pump to start. These Functions do not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, AFW actuation does not need to be OPERABLE because either AFW or residual heat removal (RHR) will be available to remove

(continued)

BASES

ACTIONS

E.1, E.2.1, and E.2.2 (continued)

be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 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. In MODE 4, these Functions are no longer required OPERABLE.

The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 4 hours for surveillance testing. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 8.

E.1, E.2.1, and E.2.2

Condition F applies to:

- Manual Initiation of Steam Line Isolation; and
- ~~Loss of Offsite Power; and~~
- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. ~~For the Loss of Offsite Power Function, this action recognizes the lack of manual trip provision for a failed channel.~~ If a train or channel is inoperable, 48 hours ~~is~~ are allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of these Functions, the available

(continued)

BASES

ACTIONS

O.1, O.2.1, and O.2.2 (continued)

Placing an EAM channel in trip automatically enables the SG Water Level-Low Low (Adverse Containment Environment) bistable for that protection channel, with its higher SG level Trip Setpoint. The Completion Time of 6 hours is based on Reference 11. If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where this Function is not required to be OPERABLE. The unit must be placed in MODE 3 within an additional six hours and in MODE 4 within the following six hours.

P.1 and P.2

Condition P applies to the Auxiliary Feedwater Pump Suction Transfer on Low Suction Pressure Function. The Condensate Storage Tank is the highly reliable and preferred suction source for the AFW pumps. This function has a 2 out of 3 trip logic. Therefore, continued operation is allowed with one inoperable channel until the performance of the next monthly COT on one of the other channels, as long as the inoperable channel is placed in trip within 1 hour. Condition P is modified by a Note stating that LCO 3.0.4 is not applicable. MODE changes are permitted with an inoperable channel.

Q.1

Condition Q applies to the Auxiliary Feedwater Manual Initiation Function. With one or more channel(s) inoperable, enter the applicable Condition(s) and Required Action(s) of LCO 3.7.5 for the associated auxiliary feedwater pump(s) rendered inoperable.

R.1 and R.2

Condition R applies to the Auxiliary Feedwater Balance of Plant ESFAS automatic actuation logic and actuation relays. With one train inoperable, the unit must be brought to MODE 3 within 6 hours and MODE 4 within the following 6 hours. The Required Actions are modified by a Note that allows one train to be

(continued)

BASES

ACTIONS

R.1 and R.2 (continued)

bypassed for up to 2 hours for surveillance testing provided the other train is OPERABLE.

INSERT B 3.3-115

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1 and by SR 3.3.2.10.

A Note has been added to clarify that Table 3.3.2-1 and SR 3.3.2.10 determine which SRs apply to which ESFAS Functions.

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when testing channel II, channel III, and channel IV. The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and reliability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

(continued)

INSERT B 3.3-115

S.1, S.2.1, and S.2.2

Condition S applies to the Auxiliary Feedwater Loss of Offsite Power Function. With the inoperability of one or both train(s), 48 hours are allowed to return the train(s) to OPERABLE status. The specified Completion Time is reasonable considering this Function is only associated with the Turbine Driven Auxiliary Feedwater pump (TDAFP), the available redundancy provided by the Motor Driven Auxiliary Feedwater pumps, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and in MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the TDAFP for mitigation.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.6 (continued)

90 days (Reference 12). The 18 month Frequency for these slave relays is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The SLAVE RELAY TEST of relay K620 does not include the circuitry associated with the main feedwater pump trip solenoids since that circuitry serves no required safety function. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.7

SR 3.3.2.7 is the performance of a TADOT every ~~31 days.~~ 18 months. This test is a check of the Loss of Offsite Power Function. The trip actuating devices tested within the scope of SR 3.3.2.7 are the ~~same LOP DG start circuits tested under SR 3.3.5.2.~~ LSELS output relays and BOP-ESFAS separation groups 1 and 4 logic associated with the Turbine Driven Auxiliary Feedwater pump. The Frequency is adequate. It is based on industry operating experience ~~, considering instrument reliability and operating history data.~~ INSERT B 3.3-118

SR 3.3.2.8

SR 3.3.2.8 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and AFW pump start on trip of all MFW pumps. It is performed every 18 months. The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT for manual initiation Functions. The manual initiation Functions have no associated setpoints.

SR 3.3.2.9

SR 3.3.2.9 is the performance of a CHANNEL CALIBRATION.

(continued)

INSERT B 3.3-118

and is consistent with the typical refueling cycle. The trip actuating devices tested have no associated setpoint.

BASES

INSERT B 3.3-154

LCO (continued)

loss of offsite power, the DG powers the motor driven auxiliary feedwater pumps. ~~Failure of these pumps to start would leave only one turbine driven pump,~~ as well as an increased potential for a loss of decay heat removal through the secondary system.

APPLICABILITY

The LOP DG Start Instrumentation Functions are required in MODES 1, 2, 3, and 4 because ESF Functions are designed to provide protection in these MODES. Actuation in MODE 5 or 6 is required whenever the required DG must be OPERABLE so that it can perform its function on an LOP or degraded power to the vital bus.

ACTIONS

In the event a channel's Trip Setpoint is found nonconservative with respect to the Allowable Value, or the channel is found inoperable, then the function that channel provides must be declared inoperable and the LCO Condition entered for the particular protection function affected.

Because the required channels are specified on a per bus basis, the Condition may be entered separately for each bus as appropriate.

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in the LCO. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the LOP DG start Functions with one loss of voltage and/or one degraded voltage channel on one or both buses inoperable.

If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within 6 hours. With a channel in trip, the LOP DG start instrumentation channels are configured to provide a one-out-of-three logic to initiate a trip of the incoming offsite power.

(continued)

INSERT B 3.3-154

which are automatically started after expiration of the appropriate time delay by the LSELS. Failure of these pumps to start would leave only one turbine driven pump, started by the BOP-ESFAS directly upon receipt of a loss of voltage signal from the LSELS output relays,

BASES

ACTIONS

A.1 (continued)

A Note is added to allow bypassing an inoperable channel for up to 4 hours for surveillance testing of other channels. This allowance is made where bypassing the channel does not cause an actuation and where at least two other channels are monitoring that parameter.

The specified Completion Time and time allowed for bypassing one channel are reasonable considering the Function remains fully OPERABLE on every bus and the low probability of an event occurring during these intervals.

B.1

Condition B applies when more than one loss of voltage and/or more than one degraded voltage channel on a single bus are inoperable. Condition B provides the allowance for one or more Functions with two or more channels inoperable on a single ESF bus. Once in this Condition the affected instrument function (loss of voltage and/or degraded voltage) may no longer be single failure proof or may no longer be functional for the affected bus. In this case, operation in the MODE of Applicability must be limited. Condition B allows 12 hours to restore the instrument function to the capability of continued operation in Condition A (i.e., 3 out of 4 channels per Function on each bus OPERABLE). The 12 hour allowance is based on the allowance for an inoperable LSELS in MODES 1-4 (Specification 3.8.1 Condition F). This time is appropriate because the affected instrument channels (loss of voltage and/or degraded voltage) are inputs to the LSELS and rely on LSELS circuits to perform their required actuations. Since the actuation logic and actuation relays for the loss of power instruments ~~(both~~ turbine-driven AFW pump and diesel generator start) are an integral part of the LSELS, an inoperable LSELS may also prevent the loss of power instruments from performing their intended functions.

INSERT B 3.3-155

Required Action B.1 requires restoring all but one channel on the affected bus to OPERABLE status. The 12 hour Completion Time should allow ample time to repair most failures and takes into account the low probability of an event requiring an LOP start occurring during this interval.

(continued)

INSERT B 3.3-155

start via the BOP-ESFAS, motor driven AFW pumps start via the L3ELS,