TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS		
a. Steam Generator Water Level--Low-Low	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2% of narrow range instrument span each steam generator
b. 4 kV Bus Loss of Voltage	3241 volts with a time delay of 2 seconds	$\geq$ 3195 volts and $\leq$ 3280 volts with a time delay of 2 ± 0 2 seconds
c. Safety Injection	Not Applicable	Not Applicable
d. Loss of Main Feedwater Pumps	Not Applicable	Not Applicable
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS		
a. Steam Generator Water Level - - Low-Low	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2% of narrow range instrument span each steam generator
b. Reactor Coolant Pump Bus Undervoltage	Greater than or equal to 2750 Volts -- each bus	Greater than or equal to 2725 Volts -- each bus
8. LOSS OF POWER		
a. 4 kV Bus Loss of Voltage	3241 volts with a time delay of 2 seconds	$\geq$ 3195 volts and $\leq$ 3280 volts with a time delay of 2 ± 0.2 seconds
b. 4 kV Bus Degraded Voltage	3959 volts with a time delay of 9 seconds when a steam generator water level low-low or a safety injection signal is present	$\geq$ 3910 volts and $\leq$ 4000 volts with a time delay of 9 ± 0.25 seconds when a steam generator water level low-low or a safety injection signal is present

3/4.3.1 and 3/4.3.2 PROTECTIVE AND ENGINEERED SAFETY FEATURES (ESF) INSTRUMENTATION

The OPERABILITY of the protective and ESF instrumentation systems and interlocks ensure that 1) the associated ESF action and/or reactor trip will be initiated when the parameter monitored by each channel or combination thereof exceeds its setpoint, 2) the specified coincidence logic is maintained, 3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance, and 4) sufficient system functional capability is available for protective and ESF purposes from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundance and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses.

Protection has been provided for main feedwater system malfunctions in MODES 3 and 4. This protection is required when main feedpumps are aligned to feed steam generators in MODES 3 and 4. The availability of feedwater isolation on high-high steam generator level terminates the addition of cold water to the steam generators in any main feedwater system malfunction. The total volume that can be added to the steam generators by the main feedwater system in MODES 3 and 4 is limited by this safeguards actuation and the fact that feedwater isolation on low T_{avg} setpoint coincident with reactor trip can only be cleared above the low-low steam generator level trip setpoint.

The restrictions associated with bypassing ESF trip functions below either P-11 or P-12 provide protection against an increase in steam flow transient and are consistent with assumptions made in the safety analysis.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

REACTOR TRIP SYSTEM RESPONSE TIME testing is only required for those functional units specified in UFSAR Table 7.2-6, "Reactor Trip System Instrumentation Response Times." ENGINEERED SAFETY FEATURES RESPONSE TIME testing is only required for those functional units specified in UFSAR Table 7.2-7, "Engineered Safety Features Response Times." These response time limits were previously included in the Technical Specifications but were relocated to the UFSAR by license amendments 202 (U1) and 187 (U2).

The 9-second time delay associated with the 4kv bus degraded voltage trip setpoints and allowable values in Functional Unit 8.b of Technical Specification Table 3.3-4 is set short enough to allow safety-related equipment to operate within the assumptions of the safety analysis, but long enough to prevent spurious operation of the degraded voltage relays. A longer degraded voltage time delay applies when neither a steam generator water level low-low nor a safety injection signal is present, but it is defined in an owner-controlled document. This is consistent with NUREG-1431, "Standard Technical Specifications Westinghouse Plants," Revision 2, and its Bases.