GENERAL INFORMATION

10. DISTRIBUTED GENERATION INTERCONNECTION REQUIREMENTS (Cont'd)

(120 V rms) for five minutes.

Waveform 5: A 100% of rated voltage (120 V rms) 60 Hz sinusoidal that drops in frequency at a rate of 0.2 Hz/second to 59.2 Hz for six (6) cycles beginning and ending at a zero crossing and then returning to 60 Hz at a rate of 0.2 Hz/second for five minutes.

Waveform 6: A 100% of rated voltage (120 V rms) 60 Hz sinusoidal that rises in frequency at a rate of 0.2 Hz/second to 60.5 Hz for six (6) cycles beginning and ending at a zero crossing and then returning to 60 Hz at a rate of 0.2 Hz/second for five minutes.

b. Three-Phase Inverters and Relays

Non-Volatile Memory Test: Prior to waveform testing, all batteries shall be disconnected or removed for a minimum of ten (10) minutes. If the system requires no battery, then the device shall be disconnected from its source of power for a minimum of ten (10) minutes. This test is to verify the system has a non-volatile memory and that the protection settings are not lost. A test shall also be performed to determine that failure of any battery used in the power conversion and control process and not used to supply trip power will result in an automatic shutdown.

Waveform Testing: Each three-phase waveform test shall be repeated ten (10) times. Failure to trip for any one run constitutes failure of the test.

Reset Timer Test: These tests shall also verify the inverter or power producing facility shall not automatically reconnect to the waveform generator until after five (5) minutes of continuous normal voltage and frequency. The manufacturer may supply a special production sample with the five-minute reset timer disabled to eliminate waiting time during type testing. At least three tests must be performed on a sample with a five minute reset timer to verify the function and accuracy of the timer. The test will be considered a failure if, in any one of the tests, the inverter automatically reconnects to the utility system prior to the required five-minute time interval.

Three-phase inverters and discrete three-phase voltage relays shall be type-tested with three-phase waveforms. The inverter shall disconnect or the protection equipment shall initiate a trip from the waveform generator for each of the waveforms described below.

The voltage magnitudes listed below are given in percent of rms voltage rating of the inverter, followed in parentheses by the rms voltage magnitude for 120 V rated inverters:

Waveform 1: A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted by phase A voltage depressed to 49% of rated voltage (59 V rms) for six (6) cycles beginning and ending at a zero crossing while B and C phases continue at 100% of rated voltage (120 V rms). Repeat the same test with B phase depressed, with C phase depressed, with A and B phases depressed, with B and C phases depressed, and finally with all phases depressed to 49% of rated voltage (59 V rms) for six cycles.

Waveform 2: A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted by phase A voltage depressed to 49% of rated voltage (59 V rms) for six (6) cycles beginning and ending at a zero crossing while B and C phases are increased 125% of rated voltage (150 V rms) beginning and ending at the same point of discontinuity. Repeat the same test with B phase depressed and A and C phases increased and with C phase depressed and A and B phases increased.

Waveform 3: A three-phase sinusoidal operating at 60 Hz and 100% of rated voltage (120 V rms) interrupted