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Major Additions and Clarifications
IEEE Std 323-2003 Compared to IEEE Std 323-1974
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IEEE Std 323-2003 contains the same qualification methods and process as was contained in IEEE Std 323-1974, but contains additional requirements that have been identified since the development of IEEE Std 323-1974, including lessons learned from NRC research.

The major additions and clarifications are summarized:

- IEEE Std 323-2003 Sections 6.1.5.1, 6.3.1.7, and 7.2.(e) include EMI/RFI and surge testing requirements for electrical equipment in mild and harsh environments. IEEE Std 323-1974 does not require testing for EMI/RFI and surges.
- IEEE Std 323-2003 Section 7.2.(n) has expanded the environments identified in item (7) of Section 6.2 of IEEE 323-1974, consisting of range type and duration of environmental conditions including temperature, pressure, humidity, radiation, chemicals and seismic forces, to include temperature versus time curve, pressure versus time curve, chemical spray, water spray, electrical loading, mechanical loading, applied voltage, applied frequency, and submergence, as applicable.
- IEEE Std 323-2003 Section 5.1.3 states that analysis alone cannot be used to demonstrate qualification. IEEE 323-1974 Section 5.1 preferred type test, but allowed analysis for initial qualification. Since experience requires addressing the adequacy of documentation, the result is that type test is now the default method for initial qualification.
- IEEE Std 323-2003 Section 6.2.1.1 requires review of safety-related equipment for potentially significant aging mechanisms.
- IEEE Std 323-2003 Section 6.2.1.2 requires testing and age conditioning of all aging mechanisms found to be significant.
- IEEE Std 323-2003 Section 7.2 requires more documentation for harsh environmental qualification than did IEEE 323-1974 Section 8, including identification of installation considerations and requirements for mounting, orientation, interfaces, and conduit sealing.
- IEEE Std 323-2003 Section 7.2.(i) requires identification of tested configuration (whether any connections within the test chamber are exposed to simulated accident effects).
- IEEE Std 323-2003 Section 7.2.(o) requires identification of radiation test results, as applicable, including radiation type, dose rate, and total dose.

- IEEE Std 323-2003 Section 7.2.(r) requires identification of any scheduled surveillance, maintenance, periodic testing, or component replacement required to maintain qualification.
- IEEE Std 323-2003 Section 7.2.(s) requires evaluation of test anomalies, including effect on qualification.
- IEEE Std 323-2003 Section 6.3.1.5 requires that data acquisition equipment shall be calibrated against standards traceable to nationally and/or internationally recognized standards and shall have documentation to support such calibration.
- IEEE Std 323-2003 Section 5.3 allows condition monitoring to be used in place of a qualified life to determine if qualified equipment is suitable for further service and requires that the condition indicator must be measurable, linked to the functional degradation of the qualified equipment, and have a consistent trend from unaged through the limit of the qualified pre-accident condition.