

IEEE SC-2 Subcommittee
Safety Terms Group (STG)

John Wheless
Southern Nuclear

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- STG Established during SC-2 (05-2) Meeting
- STG Task 1 - Investigate Differences Between Various Safety Terms Including Class 1E, Safety Related, Important to Safety, and Safety Significant
- STG Task 2 - Report Progress during SC-2 (06-1) Subcommittee Meeting
- STG Task 3 - Recommend Specific Guidance as to How Safety Terms Should Be Used in IEEE Standards during the SC-2 (06-2) Subcommittee Meeting

Individual Contributors Safety Terms Group

John Wheless - Southern Nuclear (Chairman)

Suresh Channarasappa - Westinghouse Nuclear

Liviu Delcea - Cernavoda-1, Romania

Jim Gleason - Bechtel Power Corporation

David Horvath - Advent Engineering

Tom Hencey - Sciencetech

Tom Koshy - NRC

Jim Parello - Westinghouse Nuclear

Safety Terms Defined

Domestic Codes and Standards

- **IEEE 323 and IEEE 603**

- **Class 1E**

- Emergency Reactor Shutdown
- Containment Isolation
- Reactor Core Cooling
- Containment and Reactor Heat Removal
- Prevent Significant Release of Radioactive Material

- **10 CFR 50.49**

- **Important to Safety**

- Safety Related
- Non-SR Equip Whose Failure Could Prevent SR Functions
- Certain Post Accident Monitoring Equipment

- **Safety Related**

- Assure Integrity of RCS Pressure Boundary
- Shut Down Reactor and Maintain Safe Shutdown Condition
- Prevent or Mitigate Consequences of Accidents

- **10 CFR 50.69**

- **Safety Significant**

- Defense-in-Depth (Multiple Physical Barriers)
- Reactor Protection (Prevent Core Damage)
- Containment Isolation (Prevent Radiation Releases)

- **Safety Significant Classifications**

- RISC 1 (High SS, SR)
- RISC 2 (High SS, Non-SR)
- RISC 3 (Low SS, SR)
- RISC 4 (Low SS, Non-SR)

Safety Terms Defined

International Standards

- **IEC 60780 and 61226**

- **Safety Systems** – Systems **Important to Safety** to assure:
 - Safe Shut Down of the Reactor
 - Remove Heat from the Core
 - Limit Consequences of Accident Conditions
- **Important to Safety Categories**
 - Category A (Principle Safety Role, QA, Type Test of Identical Equip)
 - Category B (Complementary Safety Role, QA, Type Test of Similar Equip)
 - Category C (Auxiliary Safety Role, Commercial Grade, Experience Data)

- **Canadian Regulations (Candu Reactor)**

- **Safety Functions**
 - Shut Reactor Down and Maintain Safe Shutdown Condition
 - Remove Decay Heat
 - Limit Release of Radioactive Material
 - Perform Safety Related Control and Monitoring Functions
- **Safety Related Categories**
 - Preventive Nature (**Important to Safety** During Normal Operation)
 - Protective Nature (Prevent or Mitigate Consequences of System Failure)

Safety Term Hierarchy

- **Important to Safety (10 CFR 50.49)** **100%**
- **Safety Related (10 CFR 50.49)** **70%**
- **Class 1E (IEEE-323)** **70%**
- **Post-Accident Monitoring (10 CFR 50.49)** **30%**
- **Safety Significant (10 CFR 50.69)** **30% PWR**
40% BWR
- **Conclusion**
Safety Related, Class 1E, Post-accident Monitoring, and Safety Significant are all Subsets of Equipment Important to Safety.

IEEE Standards (EQ Related)

- IEEE 323 - Qualification of Class 1E Equipment
- IEEE 344 - Seismic Qual. of Class 1E Equipment
- IEEE 334 - Class 1E Motors
- IEEE 381 - Class 1E Modules
- IEEE 382 - Safety Related Valve Actuators
- IEEE 383 - Class 1E Cable, Splices, and Connectors
- IEEE 535 - Class 1E Lead Storage Batteries
- IEEE 572 - Class 1E Connector Assemblies
- IEEE 638 - Class 1E Transformers
- IEEE 649 - Class 1E Motor Control Centers
- IEEE 650 - Class 1E Battery Chargers and Inverters

Safety Term Options

- Continue Using Class 1E Language and Ignore Other Terms
- Define Other Terms and Add a Note That Class 1E Generally Applies to Equipment Important to Safety, Safety Related, and Safety Significant in IEEE 323 & 344 only
- Define Equipment Important to Safety and Change Title and Text of IEEE 323 & 344 only from Class 1E to Equipment Important to Safety
- Define Equipment Important to Safety and Change Title and Text of all IEEE Standards from Class 1E to Equipment Important to Safety
- Final Recommendation - SC-2 (06-2) Subcommittee Meeting