System Safety Engineering

Glossary & Acronyms

SAFETY ENGINEERING SEAC & ANALYSIS CENTER

Analysis: An examination of the elements of a system requiring separation of the whole system into its component parts.

Asset (or Target): A resource having value to be protected – e.g., personnel, equipment, environment, productivity or reputation.

Common Cause: An event or a phenomenon which, upon occurring, induces the occurrence of two or more faults within the system.

Frequency: How often a loss event occurs.

Hazard: Conditions of a SYSTEM posing harm to, or threatening loss of an ASSET.

Mishap (Accident): An unplanned event in which a loss is experienced.

Mission Phase: A discrete functional period in the life cycle of a system – e.g., buildup, storage, transport, shakedown, startup, standard run, shutdown, emergency stop.

Mode: Operational segments within the system mission, i.e., start up, steady state operation, shut down, emergency shut down or start, etc.

Preliminary: Coming before and usually a necessary prelude to something.

Preliminary Hazard List (PHL): A line item inventory of system Hazards, with no evaluation of Probability, Severity or Risk.

Preliminary Hazard Analysis (PHA): An initial system safety study of potential loss events including only qualitative assessments of Risk.

Probability: How likely a loss event is to occur; a component of Risk; (sometimes inappropriately called Frequency).

Risk: A measure of the degree of harm that is posed to an ASSET. Composed of two elements: Probability and Severity. Risk = Probability x Severity (R = P x S)

Severity (a.k.a. Consequence): A measure of how bad or great a loss event; a component of Risk.

State: The conditions in which a system or subsystem can exist, i.e., on, off, run, idle, etc.

System: An entity, at any level of complexity, intended to carry out a function.

System Safety: The application of engineering and management principles, criteria, and techniques to achieve acceptable mishap risks, within the constraints of operational effectiveness and suitability, time, and cost, through out all phases of the system life cycle.

Threat: A potential for loss associated with the system.

ACRONYMS

AFSPCMAN	Air Force Space Command Manual
ALAP	As Low As Practicable
ALARP	As Low As Reasonably Practicable
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CCA	Cause-Consequence Analysis
CEU	Continuing Education Unit
CDR	Critical Design Review
CDRL	Contract Data Requirements List
COTS	Commercial Off-the-Shelf
EOD	Explosive Ordnance Disposal
ESOH	Environmental, Safety and Occupational Health
ETA	Event Tree Analysis
FHA	Functional Hazard Analysis
FMEA	Failure Modes and Effects Analysis
FMECA	Failure Modes and Effects Criticality Analysis
FTA	Fault Tree Analysis
FTCA	Federal Tort Claims Act
GFI	Ground-Fault Circuit Interrupter
HA	Hazard Analysis
HMMP	Hazardous Material Management Plan
HTS	Hazard Tracking System
IEEE	Institute of Electrical and Electronics Engineers
IPT	Integrated Process Team
KMR	Kwajalein Missile Range
LOCA	Loss of Coolant Accident
LOR	Level of Rigor
MIL-STD	Military Standard
MOV	Motor Operated Valve
MTBF	Mean Time Between Failures
NDI	Non-Development Item
NEC	National Electric Code
NFPA	National Fire Protection Association
NUREG	Nuclear Regulatory Commission Regulation
O&SHA	Operating and Support Hazard Analysis
PDR	Preliminary Design Review
PHA	Preliminary Hazard Analysis
PHL	Preliminary Hazard List
PPP	Pollution Prevention Plan
PRA	Probabilistic Risk Assessment
RAC	Risk Assessment Code
RBESCT	Risk-Based Explosives Safety Criteria Team
SC	Safety Critical
SCC	Software Control Category
SCI	Software Criticality Index
SCM	Software Criticality Matrix
SCSF	Safety Critical Software Function
SD	Software Development
SHA	System Hazard Analysis
SOW	Scope of Work
SPF	Single Point Failure
SRCA	Safety Requirements/Criteria Analysis
SSHA	Subsystem Hazard Analysis
SSMP	System Safety Management Plan
SSPP	System Safety Program Plan
SSRA	System Safety Risk Assessments
SSWG	System Safety Working Group
SwSS	Software System Safety
SwSSPP	Software System Safety Program Plan
TCS	Terminal Countdown Sequence
TRR	Test Readiness Review
WSMR	White Sands Missile Range