



December 6, 1973
NUMBER 5000.36

ASD(MRA&L)
Department of Defense Instruction

SUBJECT System Safety Engineering and Management

- References:
- (a) DoD Directive 1000.3, "Accident Prevention Safety and Occupational Health Policy for the Department of Defense," June 15, 1976
 - (b) DoD Directive 5000.1, "Major System Acquisitions," January 18, 1977
 - (c) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977
 - (d) through (h) see enclosure 1

A. PURPOSE

The purpose of this Instruction is to reduce the number and severity of DoD mishaps through the organized use of system safety engineering and system safety management. This Instruction amplifies the system safety policy set forth in reference (a), and is especially pertinent to the system acquisition process established in references (b) and (c).

B. APPLICABILITY AND SCOPE

1. The provisions of this Instruction apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Defense Agencies and the Unified and Specified Commands (hereafter referred to as "DoD Components").

2. This Instruction is not intended to modify the safety requirements for chemical and nuclear systems as prescribed in DoD Instruction 4120.13 (reference (d)) and DoD Directive 5030.15 (reference (e)).

C. DEFINITIONS

Terms as used in this Instruction are defined in enclosure 2.

D. POLICY

1. System safety engineering and management programs shall be used in accordance with criteria and procedures set forth herein to ensure that the highest possible degree of safety and occupational health, consistent with mission requirements and cost effectiveness, is designed into DoD systems and facilities. These system safety programs shall commence with program initiation and continue through the life cycle of the program.

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2. Primary emphasis will be placed on the identification, evaluation, and elimination or control of hazards prior to the production and deployment phase of systems or the construction phase of facilities.

3. These programs shall be in consonance with the uniform requirements to develop and implement tailored system safety programs as prescribed in Military Standard 882A (reference (f)).

E. RESPONSIBILITIES

1. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) shall:

a. Monitor the application of system safety programs in the DoD acquisition process.

b. Review the "for comment" decision coordinating papers to ensure that safety risks have been addressed according to the requirements set forth in paragraph 2.b. below.

c. In coordination with the Under Secretary of Defense for Research and Engineering, establish and support system safety engineering research projects.

2. The Heads of DoD Components shall:

a. Establish system safety programs and apply Military Standard 882A (reference (f)), tailored in accordance with DoD Directive 4120.21 (reference (g)), for each major system acquisition. Military Standard 882A shall also be applied in the acquisition of other systems and facilities, as appropriate, based upon the severity of associated hazards and the potential for loss or damage of DoD resources. These system safety programs shall:

(1) Provide for an initial assessment of safety risks at program initiation to define the scope and detail of system safety program requirements.

(2) Integrate system safety engineering and management into the total system acquisition program so that system safety program milestones are consistent with other engineering and program management milestones.

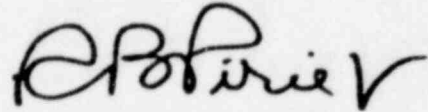
(3) Ensure that historical safety data (lessons learned) from previous system acquisitions are considered and used where appropriate.

- (4) Eliminate or control:
 - (a) System hazards prior to the production and deployment phase.
 - (b) Facility hazards prior to the construction phase.
 - (5) Use risk assessment and life cycle cost analyses to determine priorities to correct identified hazards.
 - (6) Establish procedures to ensure timely follow-up on identified hazards and to implement corrective action.
 - (7) Establish formal documentation of each management decision, if any, to accept the risks associated with an identified hazard.
 - (8) Ensure that system safety is considered in all testing. Where normal testing is insufficient to demonstrate safe operation, prepare and monitor special safety tests and evaluations.
 - (9) Require a follow-on system safety effort to ensure that changes made after deployment do not introduce hazards or degrade existing levels of system safety.
 - (10) Develop procedures for the safe and environmentally acceptable disposal or demilitarization of any hazardous materials associated with the system.
 - (11) Plan for the development of data required to identify hazardous materials and items as prescribed in DoD Instruction 6050.5 (reference (h)).
- b. Provide for system safety hazard assessments at design and program reviews. For major system acquisitions, furnish these assessments to the Service Acquisition Review Councils. Moreover, inform the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) of any significant hazards relative to major systems prior to the Milestone II decision.
- c. Apply the requirements specified here to off-the-shelf procurement items with potential for critical or catastrophic failures; and to DoD "in-house" development, production, modification and test programs.

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F. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. Forward one copy of each implementing document to the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) within 120 days.



ROBERT B. PIRIE, JR.

Acting Assistant Secretary of Defense
(Manpower, Reserve Affairs, and Logistics)

Enclosures - 2

1. References
2. Definitions

POOR ORIGINAL

REFERENCES, continued

- (d) DoD Instruction 4120.13, "Safety Program for Chemical Agents and Associated Weapon Systems," April 30, 1970
- (e) DoD Directive 5030.15, "Safety Studies and Reviews of Nuclear Weapons Systems," August 8, 1974
- (f) Military Standard 882A, "System Safety Program Requirements," June 28, 1977
- (g) DoD Directive 4120.21, "Specifications and Standards Application," April 9, 1977
- (h) DoD Instruction 6050.5, "Hazardous Material Information System," January 25, 1978

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DEFINITIONS

A. Mishap. An unplanned event or series of events that result in death, injury, occupational illness, or damage to or loss of equipment or property.

B. Hazard. An existing or potential condition that can result in a mishap.

C. System Safety Engineering. An element of system engineering requiring specialized professional knowledge and skills in the application of scientific and engineering principles, criteria, and techniques for the timely identification and elimination or control of hazards.

D. System Safety Management. An element of management that ensures the planning, implementation, and accomplishment of tasks and activities to meet identified system safety requirements, consistent with overall program requirements.

E. System Safety Program. The combined tasks and activities of system safety management and system safety engineering that enhance operational effectiveness by satisfying the system safety requirements in a timely, cost-effective manner throughout all phases of a system life cycle.