

CHAPTER 1

THE DOD NUCLEAR WEAPON SYSTEM SAFETY PROGRAM ELEMENTS

A. INTRODUCTION

1. Nuclear weapon systems require special safety consideration because of their political and military importance, their destructive power, and the potential consequences of an nuclear weapon accident or unauthorized act. Therefore, nuclear weapon systems must be protected against risks and threats inherent in their peacetime and wartime environments. To achieve nuclear weapon system safety and to maintain the public trust by protecting public health, safety, and the environment, it is critical that safety be considered as early as possible during weapon development and continue to be considered throughout the life-cycle of the weapon. The process by which nuclear weapon system safety is ensured is through the effective management of the DoD Nuclear Weapon System Safety Program.

2. The DoD Nuclear Weapon System Safety Program integrates safety policy, organizational responsibilities, and the conduct of safety-related activities throughout the DoD nuclear weapon system's life-cycle; i.e., transportation activities in DoD Directive 4540.5 and security activities in DoD Directive 5210.41 (references (a) and (b)).

B. THE DOD NUCLEAR WEAPON SYSTEM SAFETY PROGRAM ELEMENTS

1. The DoD Nuclear Weapon System Safety Program consists of key elements for program guidance, system evaluation and safety assurance, and for the conduct of safe nuclear weapon system operations.

2. Those key elements are, as follows:

a. DoD Nuclear Weapon System Safety Standards. Four qualitative standards are used in the evaluation of the safety of a nuclear weapon system beginning as early as possible during development and continuing throughout a weapon system's life-cycle. Those standards are stated in Chapter 2.

b. DoD Nuclear Weapon System Safety Policy. DoD safety policy is based on years of experience with nuclear weapons and the scientific development of new and innovative technologies and assessment techniques. It is developed jointly between the Office of the Secretary of Defense, Chairman of the Joint Chiefs of Staff, the Defense Agencies, the Military Departments, and the Military Services with the common goal of providing maximum safety consistent with operational requirements. DoD policy guidance is provided in Chapter 2.

c. DoD Nuclear Weapon Safety Design Criteria. Quantitative safety design criteria are established by the Department of Defense, issued in weapon specific MCS, and implemented by the Department of Energy (DoE) in coordination with the Project Officers Group (POG). They are used during nuclear weapon design, to ensure one-point safety, and to lower premature detonation probabilities and component malfunctions.

d. Positive Measures. Positive measures are design features, safety rules, proce-

dures, accident prevention or mitigation measures, or other controls including physical security and coded control systems, used collectively or individually, to enhance safety and to reduce the likelihood, severity, or consequences of an accident, unauthorized act, or deliberate threat. Positive measures do not provide absolute assurance against an accident or unauthorized act, but provide acceptable assurance for continuing safe operation of the nuclear weapon system.

e. **Safety Rules.** Safety rules are comprised of general and specific provisions applicable to a nuclear weapon system for conducting approved operations while ensuring maximum safety consistent with operational or logistic requirements. The process to develop and to expeditiously approve safety rules is described in Chapter 5. Appendix A specifies the general nuclear weapon system safety rules applicable to all nuclear weapon systems.

f. **Technical Procedures.** Technical procedures are the explicit directions which must be followed to conduct operations with nuclear weapons. Technical procedures are documented in Service technical publications and Joint Nuclear Weapons Publication System (JNWPS) Technical Publications (TP). Technical procedures are further addressed in Chapter 11.