

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 91-102**

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**Safety**

**NUCLEAR WEAPON SYSTEM SAFETY  
STUDIES, OPERATIONAL SAFETY  
REVIEWS, AND SAFETY RULES**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFPD 91-1, Nuclear Weapons and Systems Surety. This publication is consistent with AFPD 13-5, *Nuclear Enterprise*. It describes the functions, composition, and membership qualification requirements of the US Air Force Nuclear Weapon System Safety Group (NWSSG); defines the procedures for conducting safety studies and operational safety reviews; outlines the development, approval, and publication process for Nuclear Weapon System Safety Group Reports and Weapon System Safety Rules; and outlines the responsibilities of participating organizations. It applies to all United States Air Force (USAF) personnel who deal with these with nuclear weapon system safety and security responsibilities, including Air Force Reserve Command (AFRC) and Air National Guard (ANG) personnel. Send major command (MAJCOM) supplements to this Instruction to AFSC/SEW, 9700 G Avenue, Kirtland AFB NM 87117-5670 for review/coordination before publication. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, Management of Records, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afrims/afrims/afrims/rims.cfm>. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Form 847s from the field through the appropriate functional's chain of command.

**SUMMARY OF CHANGES**

This interim change (IC) adds new language in the introductory paragraph, specifically the second sentence, to make this publication consistent with AFPD 13-5, *Nuclear Enterprise*. This IC also adds AFPD 13-5 in the reference section of Attachment 1.

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*Section A—General Information*

**1. Terms and Definitions.** The terms used in this Instruction are defined in AFI 91-101, Air Force Nuclear Weapons Surety Program.

**2. Department of Defense (DoD) Safety Standards.** DoD Directive 3150.2, Nuclear Weapon System Safety Program, establishes the DoD Nuclear Weapon System Safety Program, Policies, and Nuclear Weapon System Safety Standards. The DoD Nuclear Weapon System Safety Standards, identified below, serve as the foundation for all nuclear weapon safety matters:

- 2.1. There shall be positive measures to prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.
- 2.2. There shall be positive measures to prevent DELIBERATE prearming, arming, launching, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.
- 2.3. There shall be positive measures to prevent INADVERTENT prearming, arming, launching, or releasing of nuclear weapons in all normal and credible abnormal environments.
- 2.4. There shall be positive measures to ensure adequate security of nuclear weapons, under DoD Directive S-5210.41-M, Vols 1-3.

**3. Air Force Goals and Requirements:**

- 3.1. This Instruction provides guidelines to ensure nuclear weapons are designed, maintained, trans-ported, stored, and operated in a safe and secure manner. The Air Force supports these goals by:
  - 3.1.1. Convening the NWSSG to evaluate nuclear weapon systems.
  - 3.1.2. Proposing nuclear weapon system safety rules for Secretary of Defense (SECDEF) approval.
  - 3.1.3. Conducting Nuclear Surety Inspections according to AFI 90-201, Inspector General Activities.
- 3.2. Operational units shall:

- 3.2.1. NOT perform any nuclear operations without SECDEF-approved safety rules.
- 3.2.2. Only use equipment, software, facilities, and procedures certified according to AFI 91-103, Air Force Nuclear Safety Design Certification Program.
- 3.2.3. Conduct operations with war reserve nuclear weapons according to certified procedures authorized by the appropriate level of authority.

***Section B—NWSSG Functions and Composition.***

**4. NWSSG Functions:**

- 4.1. Reviews nuclear weapon system designs and operations to determine if they meet the DoD Nuclear Weapon System Safety Standards IAW DoDD 3150.2. NOTE: A NWSSG Study/Review is part of the overall nuclear certification process and includes review/recommendation of hardware and software items for nuclear critical component status; however it does not constitute nuclear safety design certification of the nuclear hardware, software, facilities, or procedures studied by the NWSSG. Reference AFI 91-103 for details regarding the Air Force Nuclear Safety Certification Program.
- 4.2. Proposes new weapon system safety rules and recommends changes to existing SECDEF-approved weapon system safety rules to maximize nuclear weapon system surety commensurate with operational requirements.
- 4.3. Convenes and remains in session (this does not require the physical presence of the membership at a particular location) until the Nuclear Weapons System Safety Group Report is accepted by appropriate HAF 3-letter and/or 2-letter offices for the weapon system under review.

**5. NWSSG Composition.** Agencies appoint permanent members to serve in the NWSSG.

5.1. Permanent Voting Membership:

- 5.1.1. Chair from the Air Force Safety Center Weapons Safety Division (AFSC/ SEW) (votes only to break a tie).
- 5.1.2. One member each from the Air Force Global Strike Command, Air Force Materiel Command (AFMC), Defense Threat Reduction Agency (DTRA), Department of Energy (DOE), Air Force Security Forces Center, US Strategic Command (USSTRATCOM), and Assistant Chief of Staff, Strategic Deterrence and Nuclear Integration (AF/A10).

5.2. Additional Voting Membership:

- 5.2.1. One member each from the Air Mobility Command, Air Combat Command, US European Command, United States Air Forces in Europe, Supreme Headquarters Allied Powers Europe, United States Navy, and the National Security Agency when the group addresses topics in their organization's area of responsibility.
- 5.2.2. A member from another Air Force agency or military service that operates or maintains the weapon system being studied or reviewed.
- 5.2.3. The Chair shall identify and/or approve the additional voting members needed for each study/review.

5.3. Nonvoting Technical Advisors. Engineers, technical experts, and contractors may attend any phase of the NWSSG study or review when requested by the Chair, the Executive Officer, or a voting member. The Chair may limit how many technical advisors go on field trips. Any limitations should be identified as early as possible.

5.4. NWSSG Support Staff. The support staff includes the NWSSG Executive Officer and project officers

## **6. Qualifications and Duties of Members:**

### **6.1. NWSSG voting member general qualifications:**

6.1.1. DoD military and civilian members must be of field grade rank (O-4 through O-6) or civilian equivalent (GS-13 through GS-15). (NOTE: DOE and other non-DoD agencies should appoint voting members who meet this qualification as closely as possible). The Chair will approve exceptions to this requirement based on justification provided by the parent MAJCOM/Agency Commander.

6.1.2. Military and civilian members must have operational or technical experience with nuclear weapons or nuclear weapon systems to include experience or training in evaluation techniques applicable to the DoD nuclear weapon system safety standards.

6.1.3. Military and civilian members must be knowledgeable of nuclear safety policies and procedures.

6.1.4. Military and civilian members must have no direct responsibility for designing, developing, or producing the nuclear weapon system being reviewed.

### **6.2. Voting Member Responsibilities. Individual voting members must:**

6.2.1. Independently formulate their judgments when assessing whether the nuclear weapon system under review meets the nuclear weapon system safety policies and standards.

6.2.2. Be able to identify, analyze, and provide independent assessments of pertinent nuclear weapon system safety-related information and operations.

6.2.3. Have full understanding of their agency's responsibilities for the nuclear weapon system being reviewed and be able to convey and represent to the NWSSG the unique operational requirements and responsibilities of their organization.

6.2.4. Attend all NWSSG study/review phases as described in paragraph 9.3, actively and knowledgeably participate in NWSSG studies and reviews, vote during NWSSG meetings, and sign the NWSSG report.

6.2.5. Be responsible for the following administrative activities in support of the NWSSG:

6.2.5.1. Serve as point of contact to assist in coordinating the activities of the NWSSG.

6.2.5.2. Send their security clearance verification documentation to AFSC/SEW every year or as required.

### **6.3. Qualifications and Responsibilities of Advisors. Technical advisors must:**

6.3.1. Have relevant technical knowledge of nuclear weapon systems or specific technical knowledge or operational experience with the design, development, production, or operation of the nuclear weapon system under evaluation.

6.3.2. Support the member they represent by making contributions to briefings, discussions, and deliberations to clarify points of discussion on issues that are raised.

6.3.3. Send their security clearance verification documentation to AFSC/SEW no later than 5 days prior to start of study/review.

6.4. Member Training. NWSSG members are encouraged to complete training on nuclear weapons provided by agencies such as Joint Service Nuclear Weapons School, Sandia National Laboratories, and DOE. Contact NWSSG Support Staff for a list of recommended courses and their availability.

**7. Observer Participation.** Observers approved by the Chair or the Executive Officer may attend NWSSG meetings. Observers must:

7.1. Send visit requests to AFSC/SEW at least 1 month before the meeting. Include the following information:

7.1.1. Full name, rank or civilian grade, Social Security number, and civilian employee or military identification card number.

7.1.2. Organization, address, and telephone number (Defense Switched Network [DSN] number, if available).

7.1.3. Security clearance and any special access, such as North Atlantic Treaty Organization (NATO), critical nuclear weapons design information, and unauthorized launch access.

7.1.4. Visit dates and specific NWSSG activities.

7.1.5. Justification for visit.

7.1.6. Telephone number (DSN, if available) of the office that can verify the security clearance and special access.

### *Section C—Scheduling the Study/Review and Processing Reports*

**8. Types of Studies and Reviews.** DOD 3150.2-M, DoD Nuclear Weapon System Safety Program Manual, describes the types of studies and reviews the Air Force must conduct at a minimum. The NWSSG Chairman will determine the need and scope of studies.

8.1. Initial Safety Study (ISS) examines design features and aspects of the proposed concept of operations (if available) that will affect the safety of the nuclear weapon system.

8.2. Preliminary Safety Study (PSS) examines design features, hardware, procedures, and aspects of the concept of operations that affect the safety of the nuclear weapon system.

8.3. Interim Safety Study (INSS) reviews any changes to the nuclear weapon system since the Preliminary Safety Study.

8.4. Pre-Operational Safety Study (POSS) examines safety procedures for new or modified systems, and aspects of the concept of operations that will affect the safety of the nuclear

weapon system to determine if the DoD nuclear weapon system safety standards are met. This is the first opportunity to draft weapon system safety rules for a new system.

8.5. Operational Safety Review (OSR) examines all operational aspects of a nuclear weapon or nuclear weapon system for safety to determine if the DoD four safety standards addressed in para 2 are met. The weapon system's first OSR takes place during the second year after the initial approval of safety rules. Recurring OSRs shall be conducted at intervals not to exceed 5 years from the start of the weapon system's preceding OSR.

8.6. Special Safety Studies (SSS) investigate unsafe conditions revealed by operational experience; accidents and/or incidents; modifications (including software), tests, or retrofits involving nuclear safety or nuclear security; significant changes in the concept of operations; additional new equipment and/or weapons; proposed changes to nuclear weapon system safety rules; or inactive storage of nuclear weapons.

8.6.1. Any NWSSG voting member/organization may request a SSS. The member shall provide the request in writing to the NWSSG Chair for final determination and scheduling. The request shall contain the rationale and scope of the proposed SSS.

8.7. Transportation Safety Study (TSS) examines transport operations with the nuclear weapon system.

## **9. NWSSG Study/Review Process:**

9.1. The NWSSG Support Staff is responsible for scheduling studies and reviews. The Support Staff provides an AFSC/SEW-approved 5-year OSR schedule to the Office of the Deputy Assistant to the Secretary of Defense for Nuclear Matters (ODATSD (NM)) and maintains the schedule on the AFSC web site.

9.2. Pre-NWSSG Study/Review Time Lines.

9.2.1. Six months prior to the study/review – Appropriate MAJCOM submits its Operational Plan Data Document (OPDD), including Concept of Operations, to AFSC/SEW when a TNSA is required. If TNSA is NOT required, submit Concept of Operations, only.

9.2.2. Four months prior to the study/review (18 months for NATO operations) – AFSC/SEW notifies NWSSG members of dates and location(s) of the study/review.

9.2.3. Three months prior to the study/review (12 months for NATO operations) – AFSC/SEW presents draft agenda to MAJCOM and NWSSG Voting Members, and requests briefings/demonstrations for Phase I and Phase II.

9.2.4. Six weeks prior to the study/review – NWSSG Support Staff submits country clearance for NATO visits.

9.2.5. 30 days prior to study:

9.2.5.1. Air Force Nuclear Weapons Center (AFNWC) provides the TNSA (if required) to AFSC/SEW.

9.2.5.2. NWSSG Support Staff distributes an Air Force Data Package to NWSSG members and confirms clearances of all visitors.

- 9.2.5.3. Briefing Agencies/Individuals provide electronic copy of briefings to NWSSG Support Staff.
- 9.2.6. Two weeks prior to study/review – NWSSG Support Staff distributes final agenda to NWSSG members.
- 9.2.7. One week prior to the study/review – NWSSG Support Staff confirms clearances of NWSSG members and technical advisors.
- 9.3. Conduct of NWSSG Study/Review. Generally, NWSSG studies/reviews will consist of three phases (Phase II will be tailored as necessary depending on maturity of the weapon system under review). Phases I and III will normally be conducted at the Air Force Safety Center, and Phase II is conducted at a location(s) where the system under review is operated.
- 9.3.1. No phase of the NWSSG Study or Review can be initiated without all permanent voting members identified in paragraph 5.1., plus the applicable operational MAJCOM and Combatant Command voting member identified in paragraph 5.2., being present.
- 9.3.2. Phase I of the study or review includes:
- 9.3.2.1. Review of the Air Force Data Package.
- 9.3.2.2. Review of the status of relevant findings, recommendations, and open corrective actions from previous Nuclear Weapon System Safety Reports (NWSSR).
- 9.3.2.3. Technical and operational briefings on the weapon system under study.
- 9.3.2.4. Results and recommendations of available inadvertent and unauthorized launch analyses and related software and physical security analyses.
- 9.3.3. Phase II of the study or review will include technical briefings and demonstrations of nuclear weapon-related operations with applicable support equipment in a representative sample of operational environments and in substantially unique operational environments. Demonstrations will normally be conducted in the actual work areas/facilities. Areas of interest with respect to the weapons stockpile-to-target sequence include, but are not limited to:
- 9.3.3.1. Storage, maintenance, transportation (to include convoy operations), and employment operations (weapon loading as well as maintenance and operations crew procedures).
- 9.3.3.2. Potential hazards in normal and abnormal environments for impact on safety.
- 9.3.3.3. Authentication and execution procedures of nuclear control orders at the delivery unit level.
- 9.3.3.4. Use control procedures in the context of preventing deliberate prearming, arming, launching, or releasing of nuclear weapons without direction by competent authority.
- 9.3.3.5. Security response procedures (e.g., recapture, denial, alarm response), as well as routine security postures, in the context of ensuring adequate security of nuclear weapons.



9.3.4. Phase III of the study or review will make a determination if the nuclear weapon system is being operated in a manner that meets the DoD nuclear weapon system safety policy and standards. Phase III includes:

9.3.4.1. Discussion and deliberation on findings and items of interest raised during Phase I or Phase II.

9.3.4.2. Preparing safety rules for new weapon systems or recommending changes to existing safety rules that ensure the weapon system meets the DoD nuclear weapon system safety standards or provides improvements to operations.

9.3.4.3. Preparing and signing NWSSG Report for submission to HAF.

9.3.5. NWSSG Executive Support Staff coordinates with the applicable MAJCOM/SEW to make every effort to vary the Phase II locations of studies for multi-unit weapon systems, based upon operational availability.

9.3.6. MAJCOMs will coordinate required briefings and demonstrations with subordinate units supporting Phase II and NWSSG Support Staff.

9.3.7. The NWSSG is disbanded when the HAF accepts the NWSSG Report.

**10. Safety Rules Processing Responsibilities.** DOD 3150.2-M requires prompt report processing (See Attachment 3 for post-study timeline).

10.1. At the conclusion of the study, NWSSG Support Staff will create a NWSSG Report. The NWSSG Report will not be changed following the signature of the NWSSG members, other than to correct administrative errors. Within 2 weeks of completing the study, AFSC/SEW will notify ODATSD (NM) of completion of the study/review and forward electronic copies of the NWSSG Report via classified email to AF/SEI for appropriate HAF 3-letter offices for the weapon system under review for coordination and comments. AF/SEI will:

10.1.1. Request appropriate HAF 3-letter offices coordinate on the NWSSG Report and approve/disapprove, with applicable rationale, the findings and recommendations.

10.1.2. Request that approved recommendations include corrective actions, as required, from the appropriate office/agency.

10.2. Within 4 weeks of receipt of the NWSSG Report, HAF 3-letter agencies will review, approve or disapprove, with applicable rationale, the findings and recommendations. Agencies will also provide any comments to aid with publishing the NWSSR and return report to AF/SEI. AF/SEI will consolidate HAF comments and provide them to AFSC/SEW for incorporation (as appropriate) in the Air Force NWSSR.

10.2.1. Within 2 weeks of receipt of HAF 3-letter comments, AFSC/SEW will incorporate appropriate comments into the NWSSR and forward electronic copies via classified email to AF/SEI for appropriate HAF 2-letter offices for the weapon system under review for coordination and comments.

10.2.2. AF/SEI will request appropriate HAF 2-letter offices coordinate on the NWSSR within 3 weeks.

10.2.3. AF/SEI will consolidate HAF 2-letter comments and provide them to AFSC/SEW for publishing of the Air Force NWSSR. AFSC/SEW will publish the NWSSR within 4 weeks of receipt of the HAF 2-letter approval of the NWSSR. AFSC/SEW will distribute the NWSSR to appropriate agencies, including ODATSD (NM), Chairman of the Joint Chiefs of Staff, voting member organizations, OPRs for approved recommendations, appropriate commands/agencies, and NWSSG advisors.

10.3. If the NWSSG Report includes proposed rules for new systems or proposed changes to current rules, AFSC/SEW will prepare a separate Air Force Safety Rules Package and forward it to AF/SEI for separate coordination and approval with the NWSSR.

10.3.1. AF/SEI will ensure appropriate offices review proposed safety rules and recommend approval/disapproval. If approval by all offices cannot be obtained, AF/SEI will forward issues to Vice Chief of Staff, Air Force, for final resolution.

10.3.2. AF/SEI will send the Air Force Safety Rules Package to ODATSD (NM), who, in turn, will send to the following organizations for coordination: OSD staff, Joint Staff, DTRA, and DOE/National Nuclear Security Administration (NNSA).

10.3.3.1. The Joint Staff will coordinate the safety rules package with USSTRATCOM and United States European Command (for strike fighter safety rules only). Re-coordinating with the Service submitting the proposed safety rules package is not required.

10.3.3.2. Critical comments or non-concurrences received from the DOE/NNSA shall be provided from AF/SEI to the Joint Staff, the appropriate Service, and considered prior to requesting the Deputy Secretary of Defense approval of the rules.

10.3.3.3. Critical comments or non-concurrences received from the Joint Staff or DTRA shall be provided from AF/SEI to the originating Service and resolved prior to requesting Deputy Secretary of Defense approval of the rules.

10.3.4. Once coordination is completed, ODATSD (NM) will submit a recommendation for approval or disapproval, through the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)), to the SECDEF, who approves/disapproves.

10.3.5. ODATSD (NM) will return approved nuclear weapon system safety rules to the originating Service, with copies to the Joint Staff and DTRA, for implementation.

10.3.6. Upon notification of rules approval, AF/SEI will forward a copy of approved rules to AFSC/SEW. These rules are included in the appropriate weapon system 91-series AFI for the system under review. Unless otherwise specified, safety rules and revisions to approved safety rules in the AFI shall be implemented by appropriate agencies within 30 days of SECDEF approval.

10.4. AFSC/SEW, upon receipt of SECDEF-approved rules, will forward copies to the appropriate agencies (responsible MAJCOM safety offices and system program offices) under AF/SE signature directing immediate implementation of approved rules. AFSC/SEW will publish the approved safety rules in the appropriate 91-series AFI as soon as possible.

10.5. If circumstances necessitate approval of proposed safety rules before completion of the formal coordination process, the following applies:

10.5.1. The Chairman of the Joint Chiefs of Staff may request that the SECDEF grant interim approval of the proposed safety rules.

10.5.2. ODATSD (NM) will provide the interim safety rules package to DOE with a 7-day suspense.

10.5.3. Interim approval of the safety rules is effective for 6 months and does not negate the requirement for final processing of the Safety Rules Package.

10.5.4. If final processing of the safety rules is not completed within the 6-month period, AFSC/SEW must request an extension from ODATSD (NM).

#### ***Section D—Supporting Documents and Briefings***

**11. Air Force Data Package.** The Air Force Data package consists of the materials provided to NWSSG voting members prior to the NWSSG study/review for their preparation and use during the study or review. Package includes:

11.1. Operational Plan Data Document (if applicable – MAJCOM).

11.2. Weapon system concept of operations (MAJCOM).

11.3. TNSA for studies and certain reviews (AFNWC).

11.4. Technical description of the weapon system and its system safety features, when not included in TNSA (AFMC/MAJCOM).

11.5. Draft or current safety rules located in the appropriate weapon system 91-series AFI (AFSC/SEW).

**12. NWSSG Report.** An NWSSG report is a summary of NWSSG proceedings. It is not a technical or engineering source document (DoD RCS: AT&L (A) 1994). DOD 3150.2-M, Appendix 3, contains the basic report format as follows:

12.1. Executive Summary will summarize the study results and include an appraisal statement as to whether the system meets DoD nuclear weapon system safety policy and standards.

12.2. Study Overview will summarize the study's scope, background, purpose, and comments on the impact of safety on the system's concept of operations.

12.3. Findings, Recommendations and Corrective Actions Section will state facts or conclusions regarding the nuclear safety of the weapon system and recommendations to enhance safety consistent with operational requirements.

12.3.1. A finding or recommendation must be approved by a majority of the NWSSG voting members.

12.3.2. Priority assignments for NWSSG recommendations:

12.3.2.1. Immediate Action. (USE OF THE NUCLEAR WEAPON SYSTEM IS IMMEDIATELY RESTRICTED UNTIL RECOMMENDED ACTIONS ARE COMPLETED.) Reserved for recommendations made to correct deficiencies that prevent the weapon system from meeting one or more of the DoD Nuclear Weapon System Safety Standards. It either restricts certain operations of the nuclear weapon

system or completely prohibits use of the system until approved recommendations are complied with.

12.3.2.2. Urgent Action. (USE OF THE NUCLEAR WEAPON SYSTEM MAY BE RESTRICTED IF APPROVED RECOMMENDATIONS ARE NOT COMPLIED WITH BY THE SUSPENSE DATE.) Reserved for those recommendations which conclude that, while the system currently meets required safety standards, prompt corrective actions are required to ensure no violation of any of the DoD Nuclear Weapon System Safety Standards occurs in the future. Peacetime restriction of the weapon system may be warranted, if approved recommendations are not complied with by the suspense date or if an approved extension to the suspense date is not granted.

12.3.2.3. Time Compliance. (USE OF THE WEAPON SYSTEM IS NOT RESTRICTED.) Reserved for recommendations that simply enhance nuclear surety. These recommendations are intended to make the system better and do not imply any failure to meet existing safety standards. The weapon system may be operated while action is being taken to comply with an approved recommendation. Failure to comply by the stated suspense date will not restrict use of the weapon system.

12.4. Draft Safety Rules for new systems or proposed changes to existing rules, which are NWSSG recommendations to HAF for safe operations of the weapon system, based upon NWSSG findings during the study/review.

12.4.1. A safety rule must be approved by a majority of the NWSSG voting members.

12.5. An Addendum of Minority Opinions may be included. It shall be appended to the NWSSG Report if agreement is not reached by the NWSSG through discussion and deliberation and those in the minority deem such an addendum is appropriate. The format will be the same as the findings and recommendations of the basic report and signed by each member supporting the minority position.

12.5.1. The Minority Report shall be submitted for inclusion into the basic report prior to adjourning the Phase III meeting and shall be made available for all members to review.

**13. Air Force NWSSR.** The Air Force NWSSR presents the Air Force assessment of whether the weapon system meets the four DoD safety standards addressed in para 2. The NWSSG Report is the basis for the NWSSR.

13.1. The Executive Summary will summarize the Air Force position on the study results and include an appraisal statement that assesses whether or not the weapon system meets DoD nuclear weapon system safety policy and standards. If there are differences in any portion of the Air Force NWSSR and the NWSSG Report, the Executive Summary will note the differences and rationale for disagreement.

13.2. The Assessment Section will include evaluations and analyses to support the Air Force appraisal statement in the Executive Summary.

13.3. The Findings, Recommendations, and Corrective Actions Section will:

13.3.1. List NWSSG findings, recommendations, and minority opinions, and indicate approval or disapproval of each recommendation with rationale.

13.3.2. List corrective actions with a timeline that the Air Force will implement for approved recommendations.

13.3.3. Provide recommendations on the retention, modification, or retirement of the system.

13.4. The NWSSG Report is included as an enclosure to the NWSSR.

**14. Air Force Safety Rules Package.** Parts A and B will be consistent with that provided in the Air Force Data Package. The Air Force Safety Rules Package includes:

14.1. Executive Summary: An appraisal of whether or not the weapon system meets the DoD weapon system safety policy and standards; differences between the NWSSG Report and the NWSSR; and a synopsis of the proposed safety rules or changes to current rules.

14.2. Part A: Technical Description of the weapon system and Concept of Operations.

14.3. Part B: Safety Features incorporated in the weapon system.

14.4. Part C: Proposed Safety Rules.

**15. Operational Plan Data Document (OPDD).** The OPDD is the operating command's statement of how the command operates and maintains (or, if applicable, for a new or significantly modified weapon system, how the command plans to operate and maintain) the nuclear weapon system being studied by the NWSSG. In addition, the OPDD serves as a source document for the TNSA or abbreviated TNSA when required.

15.1. The OPDD describes:

15.1.1. The nuclear weapon system's current or proposed (for new or significantly modified weapons systems) concept of operations.

15.1.2. General operations commonly performed regardless of geographical location.

15.1.3. Significant variations of the general operations.

15.1.4. Normal operations in the stockpile-to-target sequence during peacetime, wartime, and periods of increased hostilities.

15.1.5. Operations conducted under contingency plans.

15.2. An OPDD will be provided to the NWSSG by the operational MAJCOM. If the OPDD is new or requires changes to support an NWSSG study or review, the MAJCOM will prepare the OPDD in sufficient time to ensure approval and distribution. If a TNSA is required, the MAJCOM must provide the final approved OPDD (or change) to AFSC/SEW 6 months before the study is scheduled to begin.

15.2.1. The MAJCOM will summarize operations, refer to applicable source documents for greater detail, and include all desired operational and system capabilities in the OPDD. The weapon system safety rules proposed by the NWSSG may not allow all desired capabilities, but they will not even be considered, if not included in the OPDD. Commands can NOT add operational capabilities after the SECDEF approves the safety rules without an NWSSG study/review.

**16. Technical Nuclear Safety Analysis (TNSA).** The TNSA is prepared by the Air Force Nuclear Weapons Center IAW AFI 63-125, Nuclear Certification Program, 15 Mar 04,

Incorporating Interim Change 1, 22 Oct 09, and is an independent technical analysis of the nuclear weapon system.

16.1. Personnel who prepare the TNSA shall maintain independence from organizations directly responsible for designing, developing, producing, maintaining, operating, or providing logistics for the weapon system under evaluation.

16.2. The TNSA:

16.2.1. Describes the weapon system in depth.

16.2.2. Has a safety and security compliance matrix that shows how weapon system features meet the DoD Nuclear Weapon System Safety Standards (see Attachment 2).

16.2.3. Contains a comprehensive engineering analysis of the weapon system design.

16.2.4. States how the weapon system does or does not meet the DoD Nuclear Weapon System Safety Standards in both normal and credible abnormal environments.

16.2.5. Identifies deficiencies and recommended corrective actions for the weapon system to comply with AFI 91-107, Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems, and AFPD 31-1, Integrated Defense.

16.2.6. Assesses physical security features planned for the weapon system. If appropriate, include an examination of security measures for nonfixed site operations, identify security deficiencies, and propose necessary corrective actions.

16.2.7. Includes a qualitative risk assessment of the weapon's likelihood of violating any of the DoD Nuclear Weapon System Safety Standards or causing plutonium scatter.

16.3. Prepare a preliminary TNSA for Phase I of an initial safety study. Prepare a final TNSA for Phase II of an initial safety study and a preoperational safety study. NOTE: An abbreviated TNSA may be used for a special safety study. It is limited in scope and only covers the specific study topic.

16.4. Provide a preliminary or final TNSA, as appropriate, no later than 30 days before the first NWSSG meeting.

## **17. Support Briefings:**

17.1. The operational command, development agency, TNSA authors, subject matter experts, and contractors brief the NWSSG.

17.2. NWSSG Support Staff tells the agencies what topics they must cover in the briefing.

17.3. Topics should include, but are not limited to:

17.3.1. History of Safety Studies, Operational Safety Reviews, and Safety Rules

17.3.2. NWSSG recommendations disapproved by AF

17.3.3. Deficiency report history

17.3.4. Nuclear surety inspection findings since last review

17.3.5. Weapons system safety assessments and/or TNSA

17.3.6. Unauthorized Launch/Access Analysis

- 17.3.7. Weapon safety data applicable to the weapon system
- 17.3.8. Status of nuclear certification actions
- 17.3.9. Nuclear certified configuration issues
- 17.3.10. Weapon modifications
- 17.3.11. Use control
- 17.3.12. Pending changes to nuclear surety features and procedures affecting nuclear surety
- 17.3.13. Review of Current Technical Data (including review of any problems with compatibility of technical data with nuclear weapon system safety rules)
- 17.3.14. Nuclear Surety Concerns (including a review of any unresolved problems relating to nuclear surety)
- 17.3.15. Weapon System Safety Features Technical Description, Function, and Purpose
- 17.3.16. Weapon System Support Equipment Technical Description, Function, Purpose, and History
- 17.3.17. Weapon System Modification Program and Pending Logistical Factors Affecting Nuclear Surety
- 17.3.18. A summary of relevant mishaps and incidents which could adversely affect nuclear surety
- 17.3.19. Weapon System Operations Briefings
  - 17.3.19.1. Operational Capabilities
  - 17.3.19.2. Safety Features
  - 17.3.19.3. Special Preparations for Nuclear Missions
  - 17.3.19.4. Unit Locations, Capabilities, Command and Control
  - 17.3.19.5. Security Procedures
  - 17.3.19.6. Explosive Ordnance Disposal Procedures
  - 17.3.19.7. Accident History
  - 17.3.19.8. Personnel Certification
  - 17.3.19.9. Unique Country and Service Requirements
  - 17.3.19.10. Contingency and Emergency Plans
  - 17.3.19.11. Configurations and Load Limits
  - 17.3.19.12. Nuclear Surety Concerns
  - 17.3.19.13. Flying Restrictions
  - 17.3.19.14. Maintenance Requirements
  - 17.3.19.15. All waivers to nuclear safety/security instructions and directives currently in effect for the weapon system

*Section E—Actions Required on NWSSG Recommendations Approved by the HAF.***18. Implementing HAF-Approved Recommendations:**

18.1. The designated action agencies must implement all safety recommendations approved by the HAF. Each action agency will:

18.1.1. Notify AFSC/SEW of the agency's office of primary responsibility, telephone number (DSN, if available), and point of contact.

18.1.2. Set up a schedule to implement the recommendations.

18.1.3. Send AFSC/SEW a status report of NWSSG Studies and Reviews, Recommendations, and Safety Rules by the 15th of May and November of each year. The agency will begin reporting after receiving the Air Force NWSSR and include a schedule for completing each action item identified in each recommendation.

18.1.4. Request AFSC/SEW to close the recommendation after implementing the required actions. A recommendation is not closed until AFSC/SEW notifies the action agency in writing.

18.2. AFSC/SEW will monitor agency actions (through biannual status reports) and publishes a semiannual status of recommendations. Additionally, AFSC/SEW will conduct semi-annual NWSSG meetings to review the status of recommendations and receive updates from OPRs. An annual status report is due to ODATSD (NM) with informal copies provided to Joint Staff and DOE by July 1.

*Section F—Responsibilities***19. Air Force Chief of Safety (AF/SE):**

19.1. Oversees the Air Force Nuclear Weapons Surety Program.

19.2. Manages the safety evaluation process.

19.3. Appoints the NWSSG Chairperson.

19.4. Resolves disagreements between NWSSG and HAF.

19.5. Signs the Safety Rules Package and the NWSSR containing the Air Force assessment of compliance with the DoD Safety Standards.

**20. Air Force Director of Security Forces and Force Protection (AF/A7S).** Oversees the Air Force Security Program.

**21. Office of the Chief of Safety, Issues Division (AF/SEI):**

21.1. Monitors all nuclear surety activities and takes part in actions as directed by AF/SE.

21.2. Coordinates nuclear surety activities within the HAF and with other government agencies.

21.3. Staffs NWSSG reports sent for HAF approval.

21.4. Gives AFSC/SEW the status of proposed safety rules.

21.5. Makes initial notification of approved safety rules.



21.6. Staffs the proposed rules need date for new weapon systems, modified weapon systems, or new or modified operational concepts and informs AFSC/SEW of approved dates.

**22 Assistant Chief of Staff, Strategic Deterrence and Nuclear Integration (AF/A10).** Approves or disapproves the OPDD after consulting with appropriate HAF offices.

**23. Commander, Air Force Security Forces Center (AFSFC/CC).** Designates an NWSSG voting member to represent AF/A7S interests during studies as determined by the NWSSG Chairman.

**24. AFSC Weapons Safety Division (AFSC/SEW):**

24.1. Division Chief represents NWSSG interests when group is not convened.

24.2. Provides NWSSG Support Staff.

24.2.1. Serves as the point of contact for NWSSG members regarding the timing and conduct of the scheduled studies and reviews.

24.2.2. Schedules NWSSG evaluations and coordinates support with appropriate agencies, and publishes a semiannual NWSSG schedule and a 5-year forecast annually. The NWSSG Chair convenes the evaluations according to the schedule.

24.2.3. Prepares and distributes the Air Force Data Package to NWSSG voting members.

24.2.4. Prepares the NWSSG Report for NWSSG review and signature prior to adjournment of Phase III of the study or review.

24.2.5. Sends NWSSG Report to the HAF for coordination through AF/SEI.

24.2.6. Identifies, as necessary through an in-house health physicist, any potential SG/Medical issues.

24.3. Manages and tracks the status of the NWSSG Report, NWSSR, and Safety Rules Package.

24.4. Reviews weapon system modifications, changes in operational procedures, or proposed tests to determine if nuclear surety is affected. The support staff requests an OPDD, or OPDD change, and schedules an NWSSG study when nuclear surety is affected.

24.5. Serves as the Air Force focal point for DOE field reviews of nuclear weapon system safety rules.

24.6. Assigns an Air Force member to nuclear safety studies or operational safety reviews conducted by other military Services, if the Air Force also uses the weapon system under evaluation.

**25. MAJCOM:**

25.1. Ensures that MAJCOM-developed procedures comply with approved nuclear weapon system safety rules and agree with Air Force-approved operational and technical procedures.

25.2. Evaluates proposed modifications, procedural changes, tests, or other activities involving nuclear weapon systems and coordinates appropriate nuclear certification with AFNWC.

25.3. Revises the OPDD and requests a special safety study when appropriate.

25.4. Coordinates the date the rules are required with AFSC/SEW to facilitate NWSSG scheduling.

25.5. Designates an individual to serve as an NWSSG member consistent with guidance in this Instruction.

25.6. Provides AFNWC the technical support and data needed to prepare the TNSA or abbreviated TNSA.

25.7. Provides required support to AFSC/SEW and the MAJCOM's NWSSG voting member.

25.8. Hosts and arranges NWSSG field trips to MAJCOM facilities and supports AFSC/SEW on DOE field reviews.

25.9. Implements applicable HAF-approved NWSSG recommendations.

**26. Forms Adopted.** AF Form 847, Recommendation for Change of Publication.

FREDERICK ROGGERO, Major General, USAF  
Chief of Safety

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DoD Directive 3150.2, DoD Nuclear Weapon System Safety Program, 23 Dec 96

DoD 3150.2-M, DoD Nuclear Weapon System Safety Program Manual, 23 Dec 96

DoD Directive S-5210.41-M, Vol 1, Nuclear Weapon Security Manual: The Air Force Nuclear Weapon Security Manual, 13 Jul 2009

DoD Directive S-5210.41-M, Vol 2, Nuclear Weapon Security Manual: General Nuclear Weapon Security Procedures, 13 Jul 2009

DoD Directive S-5210.41-M, Vol 3, Nuclear Weapon Security Manual: Nuclear Weapon Specific Requirements, 13 Jul 2009

DoD Directive O-5210.41-M, Security Policy for Protecting Nuclear Weapons, 1 Nov 2004

AFI 90-201, Inspector General Activities, 17 Jun 09

AFI 91-101, Air Force Nuclear Weapons Surety Program, 19 Dec 05

AFI 91-103, Air Force Nuclear Safety Design Certification Program, 16 Sep 05

AFI 91-107, Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems, 6 Apr 94

AFI 33-364, Records Disposition—Procedures and Responsibilities, 22 Dec 06

**(ADD)** AFD 13-5, *Nuclear Enterprise*, 6 July 2011

AFPD 91-1, Nuclear Weapons and Systems Surety, 13 Feb 07

***Abbreviations and Acronyms***

**AFNWC**—Air Force Nuclear Weapons Center

**AFSC**—Air Force Safety Center

**DoD**—Department of Defense

**DOE**—Department of Energy

**DSN**—Defense Switched Network

**DTRA**—Defense Threat Reduction Agency

**HAF**—Headquarters Air Force

**ISS**—Initial Safety Study

**INSS**—Interim Safety Study

**MAJCOM**—Major Command

**NATO**—North American Treaty Organization

**NNSA**—National Nuclear Security Administration

**NWSSG**—Nuclear Weapon System Safety Group

**NWSSR**—Nuclear Weapon System Safety Report

**ODATSD (NM)**—Office of the Deputy Assistant to the Secretary of Defense for Nuclear Matters

**OPDD**—Operational Plan Data Document

**OPR**—Office of Primary Responsibility

**OSR**—Operational Safety Review

**POSS**—Preoperational Safety Study

**PSS**—Preliminary Safety Study

**SECDEF**—Secretary of Defense

**SSS**—Special Safety Study

**TNSA**—Technical Nuclear Safety Analysis

**TSS**—Transportation Safety Study

**USD (AT&L)**—Under Secretary of Defense for Acquisition, Technology, and Logistics

**USSTRATCOM**—US Strategic Command

Attachment 2

SAMPLE FORMAT FOR DOD NUCLEAR WEAPON SYSTEM SAFETY STANDARDS MATRIX

Figure A2.1. Safety Compliance Matrix.

DoD Standard Concern	Loading	A Ground-Power OFF	B Ground-Logic OFF	C Ground-Safe AMAC ON	D Flight-Safe/ LOCKED	E Flight-Arm/ UNLOCKED
Accidental Yield (1st Standard)	1 2 3 -- ----10 -	1 2 3 -- ----10 -	-2 3 -- ---- 10	-2 3 -- 6 - 8 -10 -	-2 3 -- ----10 -	---- 5 ----10 -
Unauthorized Prearm (2d Standard)	1 ---- 6 ---- 11	1 ---- 6 ---- 11	-- 3 -- 6 ---- 11	6 7 8 -- 11	6 7 8 -- -	-
Inadvertent Prearm (3d Standard)	1 2 3 -- -	1 ---- -	--3 -- -	-2 3 -5 6 7 8 9 10 -	-2 3 -5 6 7 8 9 - -	-
Inadvertent Release (3d Standard)	1 - 3 4 - 6 ---- -	1 - -4 - -	--3 4 - -	--3 4 5 6 7 -9 - -	--3 4 5 6 7 -9 - -	-- -9 - -

NOTE: This example is adapted from an actual matrix for illustrative purposes only.

## Attachment 3

## POST-STUDY TIMELINE

Table A3.1. Post-Study Timeline.

Action	Includes	OPR	Time Allotted
NWSSG Report submitted to AF/SEI for coordination	Preparation Time after OSR Administrative corrections	AFSC/SEW	14 days
NWSSG Report Coordination	3-letter coordination at appropriate HAF agencies	AF/SEI	28 days
NWSSR and Rules Package submitted to AF/SEI for coordination	Incorporation and resolution of comments from the NWSSG Report	AFSC/SEW	14 days
NWSSR and Rules Package Coordination	2-letter coordination at appropriate HAF agencies	AF/SEI	21 days
NWSSR distribution Rules Package submitted to DATSD (NM) for Joint coordination	Incorporation and resolution of comments from NWSSR and Rules Package coordination	AF/SEI AFSC/SEW	28 days
Rules Package distribution for coordination	Review and coordination by DTRA, Joint Staff, and DOE	ODATSD (NM)	45 days
Address comments		AFSC/SEW	14 days
Prepare package for SECDEF approval		ODATSD (NM)	30 days
SECDEF approval		ODATSD (NM)	14 days