

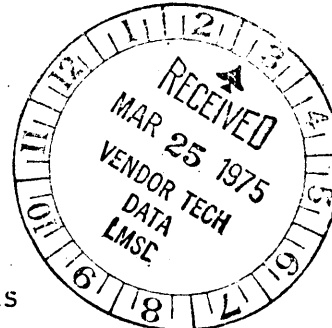


DEPARTMENT OF THE NAVY  
OFFICE OF THE CHIEF OF NAVAL OPERATIONS  
WASHINGTON, D.C. 20350

IN REPLY REFER TO

OPNAVINST 8020.9D  
Op-985G

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OPNAV INSTRUCTION 8020.9D

From: Chief of Naval Operations

Subj: Safety studies, reviews, and evaluations involving nuclear weapon systems; procedures for

Encl: (1) Concept of operations with navy nuclear weapon systems

1. Purpose. To establish policies, procedures, and responsibilities for nuclear safety studies and reviews, and for the development of safety rules for operations involving USN or USMC nuclear weapon systems, and weapon systems of Allied Nations employing USN nuclear weapons.

2. Cancellation. OPNAVINST 8020.9C.

3. Policy

a. Nuclear weapons and nuclear weapon systems require special consideration because of their political and military importance, their destructive power, their cost, and the consequences of an unauthorized or accidental detonation. They shall be protected against the risks and threats inherent in their environment. The search for increased nuclear weapon systems safety shall be a continuous process, beginning as early as possible in the development of a nuclear weapon system and continuing throughout its life. (R)

b. In support of this policy, the Department of the Navy shall chair and conduct safety studies and reviews, and develop appropriate safety rules and detailed technical and operational procedures for all nuclear weapons and nuclear weapon systems for which it has development responsibility. Where the Department of the Navy does not have development responsibility, but has an operational capability for a given nuclear weapon system, additional studies and reviews shall be conducted and additional safety rules and procedures developed, as required. Safety studies and reviews shall be comprehensive and thorough. Their purpose will be to ensure that design safety features and procedural safeguards are adequate to meet the safety standards specified herein. Procedural safeguards which are determined by safety studies, and developed and processed under the provisions of this instruction, shall be entitled "Safety Rules."

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4. Definitions. For purposes of this instruction, the following definitions will apply.

R) a. Nuclear safety. Nuclear safety is the assurance that nuclear weapons and nuclear weapon systems are designed, maintained, transported, and employed so as to incorporate maximum safety, consistent with operational requirements. It is the safeguarding of nuclear weapons against inadvertent or deliberate actions and events which could result in loss, damage, or unauthorized prearming, arming, firing, launching, releasing, or detonation. Nuclear safety is achieved through compliance with the nuclear safety standards set forth in paragraph 6a.

R) b. Nuclear weapon system. A nuclear weapon system consists of a nuclear weapon or nuclear warhead and those components required for its operation. An air-launched weapon system consists of a bomb or missile and a delivery aircraft. A surface or subsurface weapon system normally consists of a missile or torpedo and the associated launching and/or fire control system. Systems involving nuclear projectiles consist of the projectile and the gun used to fire it. Systems involving nuclear demolition munitions generally consist of the munition and the man or team and equipment associated with its emplacement and enablement on target. A nuclear weapon system may be supported by combatant and logistic ships, logistic aircraft, shore facilities, and by ancillary equipment as necessary to utilize the weapon.

R) c. Safety rules. Administrative controls developed by a safety study group which have been approved by CNO, JCS, and SECDEF, and have been coordinated with DNA and the AEC. (See para. 8 also).

(1) Safety rules are of two basic types.

A) (a) Those required to satisfy the 4 safety standards during all operations in the stockpile-to-target sequence wherein the weapon is not emplaced on target nor associated with the launch or delivery means, but is vulnerable in one or more of the areas prescribed by the safety standards. (Safety rules in this category may be general in nature and consist of the general provisions (controls) contained in applicable directives and technical publications by referencing the applicable directive or publication. Controls considered to be of significant importance may be specified.)

(b) Those required to satisfy the 4 safety standards while conducting unique nuclear weapon system operations wherein the nuclear weapon is being emplaced or is associated with the launch or delivery means, including situations where it is in automatic or semiautomatic sequence to the launch or delivery

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means. (Safety rules in this category must be specific and consist of significant controls required to satisfy the 4 safety standards during the particular unique operation.) A separate group of rules is required for each unique operation.

(2) Proposed safety rules governing operations with each nuclear weapon or nuclear weapon system are to be forwarded to the Chief of Naval Operations for processing. (See para. 8.) The Secretary of Defense grants final approval for all safety rules after coordination with the Atomic Energy Commission.

(3) Safety rules shall not have influence on the authority or responsibility of a commander to take appropriate action in an emergency. However, this provision does not apply to the requirement for maintaining U. S. custody of nuclear weapons associated with weapon systems of Allied Nations. In no event shall war reserve weapons be expended until receipt and authentication of a nuclear control order conveying proper release authority.

d. Stockpile-to-target sequence. The series of operations performed during the route from the initial placement in USN or USMC stockpile to detonation of the weapon on target under the natural and induced environmental conditions, occurring along this route. The operations will include, but are not necessarily limited to, assembly, handling, testing, storing, transporting, loading, launching, and flight. (A

e. Findings. The assumptions, discussions, conclusions, and recommendations (including proposed safety rules and minority opinions, when applicable), as prepared by the members of the safety study or review.

f. Specific operations. Specific operations include immediate operational readiness, strike, exercises, and training, such as tactical ground handling and movement; loading and transporting on combat aircraft (including logistic movement by combat aircraft (Tactical Ferry)), reconfiguration, cyclic operations, installing in or mating to offensive or defensive missiles; operations with demolition charges or artillery applications; and any other operation or application in which a nuclear weapon or warhead is involved or interfaced with a delivery vehicle.

(1) Air-launched weapons. Specific operations with air-launched weapons include: (F

(a) Immediate operational readiness

1 Alert load. Loading one or more war reserve nuclear weapons on an aircraft in connection with an advanced condition of readiness for nuclear warfare.

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2 Alert flying. An aircraft airborne with one or more nuclear weapons capable of being expended. Such flights are conducted in connection with advanced conditions of readiness for nuclear warfare.

(b) Strike

1 Strike (attack). An operational commitment of nuclear weapons against predetermined enemy targets. Strike can be a continuation of immediate operational readiness (alert load or alert fly).

A) 2 Strike (ASW). An operational commitment of nuclear weapons against authorized enemy targets which meet the attack criteria specified by the responsible operational commander. In the event weapons are not expended during a strike (ASW) sortie, cyclic operations may commence. Strike (ASW) can be a continuation of immediate operational readiness (alert load or alert fly).

A) (c) Cyclic operations. The resortie of aircraft loaded with WR nuclear weapons for new missions when the nuclear weapons were not expended on a previous mission. Refueling and replenishment of conventional weapons, without downloading the nuclear weapons, are integral parts of this operation. Cyclic operations can be a continuation of alert flying or strike.

A) (d) Reconfiguration. Transition from strike configuration to logistic movement (tactical ferry) configuration without downloading the weapon(s).

(e) No-notice emergency launch. Launch of an alert loaded aircraft for the purpose of self-preservation prior to the declaration of a defense emergency.

(f) Logistic movement by combat aircraft (tactical ferry). The air transport of completely assembled war reserve nuclear weapons by means of combat aircraft.

A) (g) Exercise. A readiness evaluation not directly related to an advanced condition of operational readiness. It includes the removal of a weapon or warhead from its normal operational storage location, preparation for use, delivery to an employment unit (except when in stockpile storage configurations), or movement in a ground or shipboard readiness exercise to include loading aboard an aircraft, down loading, and return to storage. It may include any or all of the operations listed above, but does not include launching or flying operations. Typical exercises include aircraft generation exercises, ground readiness exercises, ground tactical exercises, and various categories of inspections designed to evaluate the capability of a unit to perform its prescribed mission.

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(2) Surface, subsurface, and amphibious weapons.

Operations with surface, subsurface, and amphibious weapons include:

(a) Exercise. A readiness evaluation conducted by a surface or subsurface nuclear capable unit involving readiness tests or evaluations of nuclear weapon systems. These exercises may include launch of Quality Assurance Service Test (QAST) weapons from launcher systems also containing nuclear weapons. Expenditure of nuclear weapons is prohibited.

(b) Field exercise. A readiness evaluation conducted by ground forces involving readiness tests or evaluations of nuclear weapon systems. It may include removal of the nuclear weapon from its normal operational storage location and preparation for use, but does not include emplacement, employment, or expenditure of the weapon.

g. Logistic transport. Those evolutions necessary to effect transfer of nuclear weapons or components from one nuclear capable activity to another within the stockpile-to-target sequence (STS). Weapons involved in logistic transport will not be in the completely assembled for launch (CAL) configuration unless specifically authorized. Safety certification of noncombat delivery vehicles and logistic support equipment will be in accordance with appropriate directives.

h. Tactical movement. Those evolutions necessary to effect movement of nuclear weapons or components within the combat area; for example, within an amphibious objective area, and the area between communications zone and forward edge of battle area. Weapons will be in the configuration required by the tactical situation.

i. Safety analysis. The organized progress of determining possible modes of failure in a system that relate to nuclear safety. Analyses are prepared to identify hazardous conditions for the purpose of their elimination or control. Analyses shall be made to examine the system, subsystem, components, and their interrelationships.

5. Discussion

a. Past operations involving nuclear weapon systems have proven the nuclear employment capability of the Navy and Marine Corps, and have been instrumental in the determination of the proper organization, training, and logistic support requirements. The need for extreme caution during operations involving nuclear weapons is evident.

b. Safety rules are mandatory for use until declaration of a defense emergency or comparable state of readiness by the

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commander of an appropriate unified or specified command, or higher authority. Following such a declaration, safety rules will be complied with to the maximum extent practicable, consistent with operational requirements. Certain safety rules continue in application until the conditions specified therein are met.

6. Safety standards

a. To ensure that certain vital areas of operations with nuclear weapons systems are considered as required herein, safety rules, and technical and operational procedures will be consistent with the following nuclear safety standards:

(1) There shall be positive measures to prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.

R) (2) There shall be positive measures to prevent deliberate prearming, arming, launching, firing, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.

R) (3) There shall be positive measures to prevent inadvertent prearming, arming, launching, firing, or releasing of nuclear weapons.

(4) There shall be positive measures to ensure adequate security of nuclear weapons.

b. The term "positive measures to prevent" can be accomplished by physical, electrical, or mechanical restraints and administrative controls, such as safety rules and directives issued by competent authority. The phrase "positive measures to prevent" does not mean "absolute assurance against"; however, maximum safety consistent with operational requirements must be provided.

R) 7. Safety studies, reviews, and evaluations. Safety studies, reviews, and evaluations are conducted on a nuclear weapon system to evaluate the nuclear safety of that system and, when appropriate, to propose safety rules for the system. Studies, reviews, and evaluations will be conducted, as required, for all USN nuclear weapon systems, and for weapon systems of Allied Nations employing USN nuclear weapons. Also, to assure adequate safety in the USN or USMC application of nuclear weapons developed by other military departments, safety studies, reviews, and evaluations are conducted on nuclear weapons for which the USN or USMC has a capability to supplement those conducted by the particular military department. The USN or USMC is represented on the studies conducted by the particular military department involved; hence, the supplemental studies are conducted only when and if the USN or USMC application of the nuclear weapon is different.

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a. Initial safety study

(1) Purpose. The purpose of the initial safety study is to evaluate the proposed operational concept and the design safety features of a nuclear weapon system, in order to identify deficiencies and provide guidance for any further development which may be required to enable the weapon system to meet the nuclear safety standards.

(2) Timing. The study shall be conducted as early as significant data are available, with the objective of early detection of deficiencies to avoid later delays and added expense.

(3) Scope. The study shall consist of an examination of all material, design features, procedures, and operational concepts under development at the time of the study which will affect nuclear weapon system safety during the stockpile-to-target sequence.

b. Preoperational safety study

(1) Purpose. The purpose of the preoperational safety study is to determine the adequacy of the safety features in the weapon system design, and of the procedures for operation of the weapon system, and to provide a basis for development of safety rules which will meet the prescribed nuclear safety standards throughout the stockpile-to-target sequence.

(2) Timing. The study shall be completed at least 120 days prior to the expected operational date of the nuclear weapon system.

(3) Scope

(a) The study shall consist of an examination of all the material, manuals, procedures, and operational concepts existing at the time of the study which will affect the weapon system throughout the stockpile-to-target sequence. The study shall include the preparation of and study group concurrence in the proposed safety rules. The study shall determine whether the weapon system and the proposed safety rules meet the nuclear safety standards prescribed in subparagraph 6a above, and shall make suitable recommendations to improve nuclear safety.

(b) The study shall include a nuclear safety evaluation, based, to the extent possible, on actual operations using a training or inert weapon with the delivery means and the applicable support equipment. Such operations will be performed by appropriate operational forces, at the request of the naval activity responsible for conducting the study.

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c. Operational Review

R) (1) Purpose. The purpose of an operational review is to reexamine the adequacy and suitability of weapon design safety features, safety rules, and technical and operational procedures throughout the stockpile-to-target sequence after field experience in the use of the weapon system is available.

R) (2) Timing. An operational review shall be conducted during the second year after the first unit employing the particular weapon system has become operational, and will be repeated as required, based upon design and procedural changes and experience with the weapon system and the safety rules. Normally, in the absence of indications to the contrary, three-to five-year intervals between operational reviews should be sufficient to assure compliance with nuclear safety standards.

R) (3) Scope. An operational review shall consist of an examination of the operational history of the weapon system, including unsatisfactory reports and QAST summaries, and an examination of the material, manuals, and procedures in use at the time of the review which affect nuclear weapon safety during any portion of the stockpile-to-target sequence.

d. Special safety study

(1) Purpose. The purpose of a special safety study is to investigate:

(a) Unsafe conditions revealed by operational experience, and/or

(b) Modifications, alterations, retrofits, and special tests which affect nuclear weapon safety, and/or

(c) Proposed changes to approved safety rules, and/or

(d) Significant changes in operational concept or stockpile-to-target sequence.

R) (2) Timing. A special safety study will be conducted when deemed necessary by the Chief of Naval Operations:

R) (3) Scope. The scope of the study will be determined by the requesting activity, in coordination with the Chief of Naval Material and approved by the Chief of Naval Operations. The scope should be limited to the area of the change or condition which generated the need for the study.



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e. Safety Evaluation

(1) Purpose. The purpose of a safety evaluation is to study and evaluate modifications to nuclear weapon systems, new or modified subsystems, or changes within the STS to determine if nuclear safety is affected, the need for a formal safety study, or further action. (R)

(2) Timing. A safety evaluation will be conducted when deemed appropriate by the Chief of Naval Operations. (R)

(3) Scope. The scope of the safety evaluation will be determined by the requesting activity, in coordination with the Chief of Naval Material, and should be limited to the area of the change or condition which generated the need for the evaluation. (I)

8. Responsibilities

a. Chief of Naval Operations will:

(1) Provide policy guidance for the conduct of safety studies, reviews, and evaluations.

(2) Maintain liaison with the Assistant to the Secretary of Defense (Atomic Energy); Director, Defense Nuclear Agency; the Joint Chiefs of Staff; and the Division of Military Application; Atomic Energy Commission, regarding safety rules.

(3) Review the operational concepts for Navy and Marine Corps nuclear weapon systems, as submitted by fleet commanders in chief, and provide a single Navy operational concept to the Safety Study Group thirty (30) days prior to the weapon system safety study convening date. NOTE: This function is performed by the Commandant of the Marine Corps for weapons used only by the Marine Corps. The concepts may be in the form of a Marine Corps Order, e.g. MCO 003401.3. (I)

(4) Review recommendations contained in safety study, review, or evaluation reports and the corrective action approved by the Chief of Naval Material. Monitor status of action taken to implement recommendations. (I)

(5) Process proposed safety rules for approval.

(6) Concurrent with the forwarding of proposed rules or proposed changes to approved safety rules, provide the Secretary of Defense, the Joint Chiefs of Staff, and the Defense Nuclear Agency the status of the recommendations contained in the safety study report.

(7) Promulgate approved safety rules and necessary implementing instructions to appropriate naval commands.

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b. The Commandant of the Marine Corps will:

(1) Provide membership on nuclear weapon system safety study groups, as appropriate.

(2) When required, request the Chief of Naval Material to initiate a safety study, review, or evaluation on those nuclear weapons systems for which the Marine Corps has operational responsibilities.

c. The following specific responsibilities are assigned:

(1) Fleet commanders in chief

R) (a) Provide the Chief of Naval Operations with operational concepts for those nuclear weapon systems for which they have a responsibility, including those for USMC systems and weapon systems of Allied Nations employing USN nuclear weapons. This information is to be provided 120 days prior to the scheduled safety study convening date, in accordance with the guidance continued in enclosure (1).

(b) Provide knowledgeable and qualified members to safety studies, reviews, and evaluations (if required), and technical representation to advise on:

R) 1 Weapon system operational concept, matters of fleet readiness and safety, policy, administration, and training.

2 Desired weapon systems readiness, compatible with readiness and alert conditions.

3 Technical, handling, maintenance, and operating procedures of the system, to the extent that fleet personnel will eventually become involved.

4 Security considerations.

R) 5 All portions of the STS, from acceptance into fleet custody of the weapon system and continuing through all operations, up to and including emplacement, launch, or release of the weapon.

(c) Arrange for safety group visits, briefings, and demonstrations relating to ships, aircraft, or facilities under their cognizance, as required for the proper conduct of safety studies, reviews, or evaluations.

(d) Comment on the weapon system safety study, review, and evaluation findings, when appropriate, to the Chief of Naval Operations and Commandant Marine Corps within thirty (30) days from the date of the preliminary report, with information copy to naval commands represented on the safety study.

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When action is required by the fleet commanders in chief on a recommendation made by a safety study, review, and evaluation group, indicate the action to be taken, with an estimated date of completion.

(e) Maintain a current status of approved safety recommendations for which action has not been completed, and submit a quarterly report to the Chief of Naval Operations.

(f) Distribute approved safety rules to appropriate nuclear capable units within their respective fleets, and ensure compliance with these rules.

(2) Chief of Naval Material. Ensure that safety studies, reviews, and evaluations are conducted for all USN and USMC nuclear weapon systems and weapon systems of Allied Nations employing USN nuclear weapons. In compliance with this responsibility, CNM will:

(a) Assign tasks to plan, schedule, convene, and conduct safety studies, reviews, and evaluations for each nuclear weapon system. Under this assignment, ensure preparation of draft reports and safety analyses, as defined in paragraph 10b, for each nuclear weapon system to be studied or reviewed by a Navy study group, arrange and chair safety studies and reviews, disseminate the findings of each study, review, or evaluation, and prepare and distribute the final report of the study, review, or evaluation in accordance with the guidance contained in this instruction.

(b) Provide representation, assistance, and technical information to all safety study groups, including other service safety studies for which Navy or Marine Corps has an application. Provide a member for safety evaluations when appropriate. (R)

(c) Investigate all changes to Navy nuclear weapon systems and associated equipment for effect on nuclear safety. Material changes which would affect nuclear safety will be referred to a nuclear safety study or safety evaluation.

(d) Prepare check lists, procedural guides, and similar directives incorporating the approved safety rules.

(e) Forward to the Joint Atomic Weapons Publication System (JAWPS) and SWOP preparing activities all information reported by the safety study group that is suitable for inclusion in SWOP publications.

(f) Maintain liaison with Headquarters, Marine Corps and, when requested, assign tasks for safety studies, reviews, or evaluations desired by the Marine Corps.

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- R) (g) Review and comment on the recommendations contained in safety study, review, and evaluation findings. Advise the Chief of Naval Operations of the approved corrective action for appropriate recommendations within thirty (30) days of the date of the preliminary findings. When action is required on a recommendation made by a safety study group, indicate the action to be taken, with an estimated date of completion. Further, advise the Chief of Naval Operations immediately of any cancellation, delay, or other adverse changes in previously reported corrective actions on recommendations.
- (h) Maintain a current status of approved safety recommendations for which action has not been completed, and submit a quarterly report to the Chief of Naval Operations, reporting the current status of approved safety recommendations for which action has not been completed.
- (i) Request Atomic Energy Commission and Defense Nuclear Agency participation as members on nuclear weapon system safety studies and operational reviews.
- (j) Request other Service participation as a member where studies or reviews are conducted on a particular nuclear weapon system for which the other service has an operational responsibility.
- R) (k) Maintain liaison with other services, and provide membership, when invited, on safety studies conducted by other services on nuclear weapon systems for which the Navy or Marine Corps has an operational and/or storage and maintenance responsibility.
- (l) Ensure compliance with promulgated safety rules in the Naval Material Command's area of responsibility.
- (3) The Safety Study Group. The Safety Study Group will:
- (a) Study and evaluate the system for nuclear safety.
- (b) On the basis of this evaluation, draft the findings of the group, which will appear verbatim in the final report of the study.
- (c) During the preoperational safety study, prepare a recommended set of safety rules for operations with the system.
- R) (d) Review the adequacy of the approved safety rules for the weapon system during the operational review or special study, and propose changes to the approved rules, when required, providing rationale and appropriate amplifying information for specific changes as a part of the findings.

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9. Development of Safety rules

a. Purpose. The purpose of the safety rules is to provide the procedural safeguards necessary to ensure maximum safety consistent with operational requirements during operations with nuclear weapons and nuclear weapon systems.

b. Timing. Proposed safety rules will be forwarded to the Secretary of Defense far enough in advance of the expected operational date of the system to allow him sufficient time for consideration and approval of the rules.

c. Scope. Safety rules will be based upon the findings and recommendations of the preoperational/special safety study or operational review, as appropriate.

d. Content. The document forwarding proposed safety rules, (R) JCS package, shall include the following three attachments:

(1) Part A. A brief description of the weapon system and an explanation of its operational concept. Enclosure (1) provides detailed guidance concerning the operational concept.

(2) Part B. A summary of the safety features incorporated in the weapon system.

(3) Part C. The safety rules, prescribing the procedural, operational, and administrative safeguards and controls to be applied to (a) the weapon system and specific system operations, and (b) the nuclear weapon itself when not physically connected to its associated weapon system. The safety rules shall include the requirement that all technical and operational procedures involving the nuclear weapon and nuclear weapon system are consistent with, and satisfy, the safety standards throughout the stockpile-to-target sequence. Safety rules, or changes thereto, will contain a statement that each of the safety standards has been met.

e. Processing. Safety rules, or changes thereto, will be coordinated with the Director, Defense Nuclear Agency, and forwarded to the Joint Chiefs of Staff for approval. Upon approval by the Joint Chiefs of Staff, the safety rules will be forwarded to the Secretary of Defense for approval and formal coordination with the Atomic Energy Commission. An administrative change to approved safety rules for an existing weapon system to encompass a similar or modified weapon system may be accomplished by message. Prior to release, the message will be coordinated with DNA and the Joint Staff, and approved by the ATSD(AE). (R)

f. Approval. Interim or final approval of safety rules by the Secretary of Defense will be contingent upon the information (R)

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in Parts A and B of the JCS package remaining substantially unchanged. Parts A and B are not sections of the safety rules, but are included to aid understanding of the rules and thereby facilitate concurrence and approval at the policy level. In those cases where operational requirements dictate early approval of safety rules in a time frame which does not permit completion of the formal coordination process with the AEC, the JCS may request interim approval of the rules.

10. Procedures for safety studies and operational reviews

a. Agenda. The convening letter and agenda for studies and reviews will be distributed to appropriate commands and agencies.

R) b. Safety Study Preparation. A draft Nuclear Safety Study Report (NSSR) will be distributed to all commands and agencies expected to participate in the study or review thirty (30) days prior to the convening date.

(1) The report should be as complete as possible, containing all available pertinent data, including:

(a) A physical and functional description of the weapon system and the concept of operations.

(b) Physical and functional descriptions of the safety features in the system.

(c) Safety analyses in narrative, matrix, chart, outline, or fault tree form, whichever is most suitable. A separate Navy analysis is not required if an adequate analysis was performed by another service and/or AEC, provided Navy or Marine Corps participated and/or has subsequently approved it.

(d) A summary of pertinent incidents and accidents.

(e) A summary of pertinent nuclear weapon technical inspection results.

(f) A summary of pertinent unsatisfactory reports.

R) (2) All material in the draft NSSR will be pertinent to the system to be studied or reviewed. When modified systems, or portions of systems, are involved, the draft NSSR need contain only that material related to the modification or portion of the system being studied or reviewed, provided material related to the basic or complete system is contained in existing NSSRs. Safety analyses and detailed descriptive material related to the system not suitable for inclusion in the NSSR need not be included, but must be referenced.

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(3) The purpose of the draft NSSR is to provide participants with information on the system in advance of the study or review, which will enable them to be effective during the formal proceedings of the study or review.

c. Safety analyses are required as follows:

(1) For initial safety studies, a preliminary analysis shall be prepared in descriptive or narrative format.

(2) For preoperational safety studies, a system analysis shall be prepared. This analysis shall identify all components and/or equipments whose performance degradation or functional failure results in unsafe conditions. This analysis should also include a determination of the modes of failure and the effects on safety when failure occurs in subsystems.

(3) For an operational review, an analysis shall be performed to determine safety requirements for personnel, procedures, and equipment used in maintenance, support, testing, transportation, storage, and operations. This analysis shall be an updating of the preoperational safety study system analysis.

(4) For special safety studies, the analysis shall be patterned to the need for the study (e.g., component failure, subsystem, system, or operational considerations).

d. Composition of the Safety Study Group

(1) Membership. An individual assigned membership to represent a command or agency in the Safety Study Group shall actively participate in all phases during conduct of the safety study or operational review. It is expected that all members of the Safety Study Group will be qualified by operational experience and/or technical understanding to move rapidly into a thorough discussion of the safety aspects of the system under study. Each agency or command requested to participate in orientation briefings of the group should provide advisors of considerable technical and operational background who are the best available in their area of responsibility. Individuals participating as members in safety studies and operational reviews should be other than those responsible for design, development, or production of the nuclear weapon system. Safety Study Group composition shall be as follows:

(a) Safety Study Group Chairman (Naval or Marine officer)

(b) Atlantic Fleet representative

(c) Pacific Fleet representative

(d) Naval Forces Europe representative (mandatory only for non-U. S. NATO systems)

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- (e) NAVMAT representative
- (f) DNA representative
- (g) AEC representative
- (h) CMC representative (as appropriate)
- (i) USA representative (as appropriate)
- (j) USAF representative (as appropriate)

R) Agencies or commands having membership responsibility on safety studies and reviews may designate sub-agencies or subordinate commands to represent them as members when deemed appropriate, providing that members so designated are knowledgeable and prepared to act for the designating commander or agency concerning the areas of responsibility outlined in paragraph 3 above.

(2) Advisors

- (a) NAVSEASYSKOM - cognizant code and/or contractor
- (b) NAVAIRSYSKOM - cognizant code and/or contractor
- (c) Project Manager - cognizant code and/or contractor
- (d) Fleet - technical and/or training personnel, as required
- (e) Fleet Marine Forces (when required)
- (f) Other appropriate agencies or commands.

Advisors will normally provide the technical and operational information used in the briefings of the Safety Study Group.

e. Minority or dissenting opinions. All minority or dissenting opinions formally submitted must appear in the findings.

f. Assumptions. When information is not available that requires assumptions to be made or that leaves the investigation incomplete in certain areas, the findings will note these limitations on the study.

R) g. Findings of the study group. The findings are the discussions, conclusions, and recommendations arrived at by the group and, when appropriate, a set of recommended safety rules or changes to safety rules, with rationale and supporting data.

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The findings will be prepared by the group and will appear verbatim in the report of the study or review. The findings will contain a statement as to whether or not each of the safety standards has been met. Any substantive change in the final report will require that the study group be reconvened to approve the change.

h. Report of the study. A formal report of each safety study or review will be published. The report will include descriptive information and the safety analysis on the system studied, and a discussion of the safety aspects of the system, to the extent necessary to support and indicate the basis for the findings. The report will also include the findings of the study group. Analyses not suitable for inclusion in the report will be referenced. Descriptive material or other material contained in previous reports will be referenced.

i. Conduct of the safety study/review. The Safety Study Group will be under the direction of the chairman, who is responsible to the Chief of Naval Operations for the timely conduct of the study or review.

(1) Briefings. The members and advisors will be briefed, as necessary, for the completion of their task. The primary function of advisors is to perform these briefings and advise on technical details of the system and of its employment.

(2) Visits to activities. Visits to activities and observations of operations and equipment will be made as considered necessary by the group in the performance of its task. The preoperational safety study for each system will include observation of actual hardware and procedures to be used, insofar as practicable. Where not possible or impracticable to observe actual hardware, mock-up or training devices may be observed. However, the requirements as defined in paragraph 7b(3)(b) must be met.

j. Signature. All members of the Safety Study Group will indicate participation in the findings by signature at the conclusion of the study or review.

k. Dissemination of findings. The chairman of the Safety Study Group is responsible for the timely completion of the study or review and the rapid dissemination of the findings of the group.

11. Composition of the Safety Evaluation Group. The participants to a safety evaluation group will be determined by the Chief of Naval Material.

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12. Distribution and processing of safety study, operational review, and safety evaluation reports and safety rules

a. Reports of safety studies, operational reviews, and safety evaluations. The safety study report will be forwarded to Chief of Naval Operations for approval; to the Chief of Naval Material, Commander in Chief, Atlantic Fleet, Commander in Chief, Pacific Fleet, Commander in Chief, U. S. Naval Forces, Europe, and Commandant of the Marine Corps, when appropriate, for review (concurrence, nonconcurrence) and comment to the Chief of Naval Operations. Copies will be forwarded to all other commands and agencies participating in the study.

13. Documentation. All operational and maintenance procedures performed on nuclear weapon systems must conform to the procedures prescribed in appropriate Navy SWOPs, ordnance publications, manuals, and publications.

a. Air-launched Systems. Carriage or electrical connection of single, multiple, or mixed loads of nuclear weapons on aircraft is not permitted unless authorized by NATOPS and a specific, official NAVAIR Nuclear Weapons Check List. Official NAVAIR Nuclear Weapons Check Lists are mandatory for use during aircraft nuclear weapon system loading operations, and are directive in nature. The NAVAIR Nuclear Weapons Check Lists must be used with knowledge and understanding in performing each step function. Drafts of proposed check lists shall be available for review by the safety study groups.

b. Other Systems. Standardized check lists, weapons procedures, ordnance documents, procedural guides, and shipboard handling manuals shall be reviewed by safety study, review, and evaluation groups for their effect on nuclear weapon safety. Procedural documents as approved by appropriate authority are mandatory for use during nuclear weapon system operations, and are directive in nature. When check lists have not been provided by higher authority, drafts of locally prepared check lists shall be available for review by the preoperational safety study group during analysis of the operations performed.

14. Reports. Symbol OPNAV 8020-2 is assigned to the reporting requirements prescribed in paragraphs 8c(1)(c) and 8c(2)(h). Due dates for the report are 1 February, 1 May, 1 August, and 1 November.



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Chief of Staff, USAF (2)  
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Sandia Corp., Albuquerque, N.M. (Code 1200) (5)  
NCSG, Ft. Belvoir (2)  
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Op-03	Op-43	Op-098	Op-22
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Op-32	Op-05	Op-981	Op-06
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CONCEPT OF OPERATIONS WITH NAVY/MARINE CORPS  
NUCLEAR WEAPON SYSTEMS

1. Discussion

A. During the conduct of a Navy/Marine Corps Nuclear Safety Study the study group is required to examine all the materials, manuals, procedures and operational concepts available or in use at the time of the study. The above requirement provides recognition that technical information cannot be expected to provide the basis for a realistic evaluation of weapon system safety unless it is presented and considered against the background of intended operational employment of the system in the stockpile-to-target sequence. A safety study evaluates a system which is in use or intended for use. The description of the salient features of this use is the function of the Concept of Operations. In the final analysis, the success of a safety study in achieving a realistic balance between safety and operational readiness in its recommendations will depend in large part upon the adequacy of the operational concepts as presented.

B. In view of the pre-eminent importance of the Concept of Operations to the safety study, Section II below provides the necessary guidance for the preparation of this document. It is essential that concepts and changes be submitted in accordance with the basic instruction.

C. Approved concepts of operations for a specific weapon system will remain valid for all safety studies and reviews of that system unless modified by CNO.

II. Guide for the Preparation of the Concept of Operations

U.S. (Applicable) Fleet  
Concept of Operations for the ( Applicable )  
Weapon System.

A. Introduction. A brief introductory statement serving to further identify the weapon system, point out which, if any, weapon system it supplements or replaces and make a preliminary identification of the operational forces which will employ it.

B. Logistics. Indicate where the weapons will physically come into the custody of Fleet Commanders in Chief and the type activities involved. Indicate those commands which may become responsible for logistic movements and define their chain of command to the Fleet Commanders in Chief. Indicate when responsibility shifts between Type Commanders when more than one is involved. Briefly describe the vehicles or mechanisms which will be used to transport or transfer the weapons. Detailing of handling equipment or procedures is

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not desired since it will be obtained from other sources. Where circumstances require that the weapon be transported in other than the stockpile configuration, the configuration required and the circumstances should be described.

C. Security. Describe the security measures to be afforded the weapon/weapon system throughout the stockpile-to-target sequence. This should include a description of physical security measures and administrative procedures both in the logistic and operational environment.

D. Weapon Storage, Configuration and Handling. A general statement that storage, handling and maintenance will be in accordance with appropriate SWOPs and ordnance publications will suffice. Where special circumstances or equipment will make adherence to these procedures difficult, the nature of the difficulty should be detailed. Briefly describe plans for weapon/component storage throughout the STS. Briefly describe the levels of maintenance to be performed by activities having physical custody of the weapon. If user units normally will not have custody of WR weapons in peacetime (or until declaration of advanced DEFCON), so state; e.g. USMC and UDT-SEAL etc.

E. Operational Employment. State those forces which are, or will be, the operational user of the weapon system. Include details of the operational chain of command. Briefly describe that part of their mission which is concerned with the delivery of nuclear weapons. Discuss the operations, as described in paragraph 4.f. of basic instruction, in which war reserve nuclear weapons may be involved. Describe the conditions of readiness to which the weapon or weapon systems will be raised by the operating units. Discuss any operational constraints which may be placed on the system.

F. Safety. Describe safety precautions or administrative procedures to be employed for the enhancement of safety for the weapon/weapon system. In general, a statement that the provisions of a cited document will govern a specific safety aspect will suffice. Describe any emergency plans including jettison procedures which may be peculiar to the weapon/weapon system and describe the manner of reporting accidents/significant incidents.

G. Tactics and Employment. Briefly describe weapon delivery tactics envisioned for the weapon system. As applicable, furnish typical flight and delivery profiles for combat aircraft and state requirements for single, multiple and mixed (nuclear and conventional) carriage of weapons. Cite appropriate documents or describe restrictions pertaining to the Tactical use of the weapon system, such as Restricted Fire Zones, CAP warning, etc.

H. Command and Control. Briefly describe the administrative procedures by which employment of the weapon system would be authorized. Identify the commander(s) authorized to approve employment of the weapon system. Discuss and describe the command and control provisions incorporated in the weapon system such as separable components and permissive action links. For systems incorporating permissive action link (PAL) devices, identify the following: (1) where and by whom operational codes are set; (2) Command(s) authorized to unlock devices, and (3) whether operational or logistical codes are used during peacetime operations and logistic movement.

I. Training. Briefly describe training programs and special equipment to be utilized for training.