OFFICE OF THE ASSISTANT TO THE SECRETARY OF DEFENSE
1400 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-1400

10 MAY 1995

Ref: 95-F-0539

PUBLIC AFFAIRS

Mr. Brian Barger
Cable News Network
111 Massachusetts Avenue, N.W.
Washington, DC 20001

Dear Mr. Barger:

The enclosed documents were provided to this Directorate by the Department of Energy (DOE) for release to you. The documents were received in this Directorate March 9, 1995. These responsive documents refer to your June 28, 1990, Freedom of Information Act (FOIA) request to DOE (DOE #90070503D, item number fourteen).

There are no chargeable costs for processing this FOIA request in this instance.

Sincerely,

A. H. Passarella
Director
Freedom of Information
and Security Review

Enclosures:
As stated

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March 21, 1953 J.E.2

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AN AGREEMENT BETWEEN THE AEC AND THE DOD FOR THE DEVELOPMENT, PRODUCTION, AND STANDARDIZATION OF ATOMIC WEAPONS

PART I

OBJECTIVE

The objective of this agreement is to delineate the responsibilities to be assumed by the AEC and the DoD respectively in connection with the determination of programs for proposed atomic weapons, their development, test, standardization, and production in accordance with military requirements.

PART II

GENERAL OUTLINE OF FUNCTIONS AND RESPONSIBILITIES

1. The functions, responsibilities, and procedures established by the agreement are based on the following premises:

a. That, unless otherwise provided by law or by agreement between the Atomic Energy Commission and the Department of Defense, the development and production of atomic weapons will be the complementary responsibilities of the AEC and the DoD;

b. That the development and production of nuclear systems are primary functions of the AEC;

c. That the division of responsibilities for the development and production of atomic weapons, exclusive of the nuclear systems, will be by joint agreement on each weapon or by classes of weapons between AEC and DoD; and

d. That the determination of military characteristics, suitability, and acceptability (standardization) is a primary function of the DoD.

2. It is fundamental to progress that both agencies pursue aggressively the study of new and radical concepts for military application of atomic energy.

3. Liaison by DoD personnel at AEC field or other offices, as referred to in this paper, will be arranged by agreements covering the number of liaison personnel involved and the intent and scope of their proposed activity.

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ENCLOSURE 2

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---/DoE

4. For the purpose of this agreement, the functions to be performed by the AEC and DoD in the conception, program study, development, production, and standardization of atomic weapons are described in six phases. This method of defining the problem permits a clear delineation of the various functions to be performed. It should be understood that in practice new weapon programs cannot be expected to develop precisely in accordance with these six phases or in the chronological order of steps described. The phases may merge with one another and, in some cases, with the full understanding of both parties, may be omitted or deferred as is appropriate. The agreement provides a means by which the progress or relative status of a weapon project may be ascertained.

PART III

A. SYNOPSIS OF FUNCTIONS AND PROCEDURES

Phase 1 - Weapon Conception

AEC	DOD
Continuing studies by AEC agencies. Studies may be informal and independent from DoD or may be conducted jointly with DoD. May result in the focusing of sufficient DoD interest in a modification of a present weapon or in the development of a new type weapon to warrant formal study.	Continuing studies by DoD agencies. May be independent of the AEC or may be conducted jointly with AEC. Sufficient attention may become focused on an item to warrant a formal program study. DoD requests AEC to make a program study on a new idea for a weapon or component or may initiate its own study.

Phase 2 - Program Study (Determination of Feasibility and Responsibilities)

AEC	DOD
Performs independent feasibility studies as desired. Based on DoD's request for feasibility study, makes a study to determine a weapon's feasibility, time scale, costs, and inter-program effects, etc., and reports results to the DoD.	Performs independent feasibility studies or asks assistance, as desired. Furnishes detailed guidance on weapons characteristics and probable requirements to AEC. Reviews AEC's feasibility study. Determines the required military characteristics for the weapon and furnishes to AEC.

If a review of the feasibility study indicates that a development program is desirable, the AEC and the DoD will reach a joint agreement on the division of responsibilities for development and procurement.

(From time to time agreements may be made covering items in a whole class of weapons.)

NOTE - Phases 3, 4, 5, and 6 which follow pertain to those weapons and components for which the AEC has the responsibility to develop and produce. They do not apply to weapons or components for which the DoD is responsible. (See note - at end of Part III, B, Phase 2).

Phase 3 - Development Engineering

AEC	DOD
Launches a development program based on required military characteristics. Produces prototypes for AEC and DoD evaluation. Provides development specifications to DoD as they become available. Determines the developmental design release date and submits a final report on the developmental design to the DoD.	Maintains liaison with AEC field agencies and conducts independent evaluation of prototypes as considered necessary. Studies the development specifications of the weapon design and gives appropriate guidance to the AEC.

Phase 4 - Production Engineering

AEC	DOD
Proceeds with production engineering of weapon, tooling, and layout of manufacturing facilities, without waiting for formal comments of DoD on the developmental design. Such guidance is integrated when received. Further prototype evaluation is performed during this phase. Prepares product specifications for production release and furnishes these specifications to the DoD for review.	Reviews product specifications. Maintains liaison with appropriate AEC agencies on product design changes and specifications and gives appropriate guidance to AEC. Continues evaluation of prototypes as considered necessary.

Phase 5 - First Production

AEC	DOD
Initiates manufacture of weapons according to product specifications by production tools, without waiting for DoD's comments on product specifications. AEC performs own evaluation and on basis of preliminary evaluation releases weapons	Completes operational suitability tests and makes independent evaluation of production type weapons. If weapon as designed, produced, and approved by AEC is satisfactory, approves the weapon as standard.

to DoD for testing, training, and other purposes. Makes final evaluation and approves weapon model as suitable for standardization.

Phase 6 - Quantity Production and Stockpile

AEC	DOD
Brings various production facilities up to full production pursuant to DoD requirements. Maintains production, inspection and quality control programs to ensure that each article produced meets specifications. Maintains quality assurance and functional surveillance programs to ensure the continued quality of weapons in stockpile, in accordance with current agreements with respect to stockpile operations. These programs and the data obtained therefrom will be made available to the DoD.	Maintains liaison with AEC agencies at production facilities. Continues appraisal of weapon performance. Maintains liaison with AEC to review performance and technical advances in anticipation of modernization changes. Reviews AEC's quality assurance and functional surveillance programs and results and submits appropriate comments and recommendations to the AEC. Maintains functional surveillance program in accordance with current agreements with respect to stockpile operations.

B. FUNCTIONS AND PROCEDURES

Introduction

The following paragraphs provide an elaboration of the functions and procedures which were previously outlined in Part III, A.

Phase 1 - Weapon Conception

1. This phase consists of continuing studies by AEC laboratories, DoD agencies, and others. A continuous exchange of information, both formal and informal, is conducted among individuals and groups. This results in the focusing of sufficient interest in an idea for a new weapon or component to warrant a program study.

2. Both agencies are free to develop such ideas through the stage of determination of feasibility except that:

a. Should the DoD wish to pursue an idea which would involve the modification of or the new development of nuclear systems, the DoD will ask the AEC to examine the practicability of at least that portion of the development.

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b. Should the AEC pursue an idea which would require the development of new delivery or handling equipment, the AEC will ask the DoD to examine the practicability of at least that portion of the development.

Phase 2 - Program Study (Determination of Feasibility and Responsibilities)

1. This phase includes the determination of the feasibility and desirability of undertaking the development of a new weapon or component, the establishment of military characteristics for the article, and the determination of respective responsibilities between the AEC and the DoD for the various tasks involved in its development and procurement.

2. If the DoD desires the AEC to make a feasibility study, the Military Liaison Committee (MLC) will make that request to the AEC.

3. The feasibility studies which the AEC undertakes at the request of the DoD will include such items as the weapon's technical feasibility, probable times for design and production releases, costs, and inter-project influences.

4. Should the AEC determine the feasibility of a new weapon to its own satisfaction, and, having submitted appropriate information and recommendations to the DoD, receive either an indication of DoD's lack of interest or no expression of interest whatsoever from the DoD, the AEC has complete freedom of action either to drop the development or to continue it independently.

5. Should the DoD determine to its satisfaction the feasibility of a new weapon which utilizes already developed and proved nuclear systems, and, having submitted appropriate information and recommendations to the AEC, receive either an indication of AEC's lack of interest or no expression of interest whatsoever from the AEC, the DoD has complete freedom of action either to drop the development or to continue it independently.

6. The DoD furnishes detailed technical guidance on desired weapon characteristics to the AEC during the program study. In particular, the DoD furnishes to the AEC as early in the program as possible requirements for:

a. Prototype weapons for evaluation, training, etc.

b. Production weapons and appropriate spares required for operational suitability testing, research and development, training and evaluation, and war reserve stockpile.

c. Ancillary gear for testing, handling, etc.

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7. The feasibility and desirability of undertaking the development of a new weapon having been determined, the DoD will establish desired military characteristics for it. The AEC will provide advice, as requested, in the preparation of these Military Characteristics (MC's). The MC's will be transmitted by the MLC to the AEC. Detailed technical guidance in elaboration of these approved MC's will be provided as necessary by the AFSWP or cognizant Service.

8. The DoD may assign AFSWP or one of the Services as the cognizant DoD agency for the weapon project. This cognizant DoD agency would then recommend a specific assignment of responsibilities to the MLC and the DMA would make a similar recommendation to the AEC. Insofar as is practicable, the prime proposed responsibilities of the AEC and the DoD for development and production should be determined by the DMA and the cognizant DoD agency. The MLC and the AEC then reach an agreement on the respective assignments. From time to time agreements may be made covering items in a class of weapons.

9. Designated representatives of the appropriate DoD agency and the AEC will coordinate efforts on the weapon project, and will report to the cognizant DoD agency and the AEC as principals. These representatives will recommend resolution of interface problems, will recommend joint participation in weapons development tests, and will ensure such interchange of information as will permit each principal to make its own independent evaluation of the weapon.

NOTE - Components which are assigned to the DoD for development and production are excluded from further consideration in this paper.| It is understood that both the AEC and the DoD must assure themselves that those components for which they have primary development and production assignment will function properly with the other's items. Both the DoD and the AEC must have the information necessary to evaluate independently the functioning of the products they produce.

Phase 3 - Development Engineering

1. This phase includes those events beginning with the launching of AEC's development program, through the determination of development specifications, and culminating in the design release by the development agencies.

2. The AEC will write development specifications and will furnish copies of them to the DoD as these specifications become available.

3. The cognizant DoD agency will examine AEC development specifications and will furnish guidance either at the DMA or AEC Field Office level, as appropriate. Continuous liaison will be maintained by AFSWP or the cognizant Service.

4. DoD liaison concerning activities at AEC and AEC contractor facilities will be with the Operations or Field Offices concerned. Access by DoD liaison personnel to AEC or contractor plants will be permitted. Guidance resulting from such DoD liaison activities will be only at AEC Field Office or higher level.

5. The AEC, in addition to furnishing the DoD with the results of its own evaluation testing of components as the development proceeds, will furnish prototype components and complete articles to the DoD for use in tests by the cognizant Service or AFSWP as may be requested. The cost of the components and equipment furnished upon request will be borne by the DoD. Early DoD request for items for test purposes is essential.

6. When the DoD furnishes to the AEC its quantitative requirements, the AEC issues the authorization for procurement, and begins preliminary planning and scheduling for production rates and deliveries to the DoD.

Phase 4 - Production Engineering

1. This phase covers those activities which adapt the developmental design into a manufacturing system which can produce weapons and components on a production basis. Comments from the DoD on the developmental design are not prerequisites to the initiation of production engineering. Comments on the developmental design are considered for integration when received. In the meantime, testing of developmental prototypes conducted by both the AEC and the DoD and either jointly or separately will be continued. This phase culminates in the production release at which time the AEC furnishes the product specifications to the DoD for comment. Throughout this phase AFSWP or the cognizant Service will maintain liaison with appropriate AEC activities.

2. The AEC production agencies release the design for production. This step follows the completion of production engineering, basic tooling, layout, and the adoption of fundamental assembly procedures. Formal comments by the DoD on the product specifications are not prerequisite for the production release. (Various DoD agencies responsible for the training of weapons organizations, operational suitability testing, and other weapon evaluation projects utilize the production release date for planning purposes.)

Phase 5 - First Production

1. This phase comprises the delivery of the first weapons from production facilities. The production rate is limited, but increases as the

various production facilities come into operation. These first weapons are evaluated by AEC and DoD agencies. During this phase, AEC makes a preliminary evaluation of the weapon pending its final evaluation and subsequent approval as to suitability for standardization. This phase terminates in the DoD's formal standardization action.

2. The preliminary evaluation does not constitute a finding that the weapons are suitable for standardization, or for operational use, except in emergency.

3. Should the DoD require weapons for test or training purposes prior to final approval by the AEC, then these weapons may be utilized with the understanding that the AEC final evaluation has not been made.

4. A final evaluation is made by AEC agencies after the completion of an engineering evaluation program for the weapon.

5. Based upon this final evaluation, the AEC advises the DoD that the production model is suitable for standardization with limitations, if any.

6. The DoD will accomplish a standardization action, and through the MLC will inform the AEC as to whether the weapon meets the desired military characteristics and whether it should become a standard or limited stockpile item. (If the DoD needs, for its evaluation, information in addition to that already obtained from development, engineering, and operational suitability tests, the DoD will purchase the necessary material and perform appropriate tests.)

Phase 6 - Quantity Production of Mark Weapons for Stockpile

1. During this phase the AEC undertakes the necessary quantity production of Mark weapons for stockpile. This includes the phased production of components, spare parts and ancillary gear. Previously produced weapons are redesignated as Mark weapons if they meet the criteria for a standardized weapon. If not, an appropriate modification program may be undertaken.

2. The AEC will operate whatever inspection system it feels to be required in order to permit certification of each item as a Mark weapon as it is delivered to stockpile. The DoD will provide liaison with AEC Field Offices at production agencies. Liaison officers' reports will be through military channels and comments or recommendations by DoD will be through military channels to the AEC at DMA or AEC Field Office level.

3. The AEC will maintain appropriate quality assurance programs. These the DoD will review, offering appropriate comment. In addition, data obtained during these programs will be made available to the DoD for review and comment.

4. A detailed division of stockpile responsibilities between the AEC and the DoD was agreed upon in 1951 and will continue to apply until changed by mutual agreement.

PART IV

DEFINITIONS

1. Nuclear System - The nuclear system is comprised of the fission and/or fusion material, together with those components required to convert the system from the safe condition to an explosion. This definition specifically excludes the fuzing system of the weapon.

2. Development Specifications - A description, sometimes including drawings, of the major considerations to be observed in the design and development of a new weapon or component.

3. Product Specifications - The document and drawings used in a production contract to describe what the contractor is to produce and the standards or tolerance which the product is to meet.

4. First Production - First production is that production in conformance with a product specification prior to AEC approval and DoD standardization.

5. Quantity Production - Quantity production is production in conformance with product specifications, occurring after AEC approval and DoD standardization.

6. Mark Weapon - A weapon which has been produced according to a standardized design.

UNITED STATES ATOMIC ENERGY COMMISSION

Gordon Dean
Chairman

DEPARTMENT OF DEFENSE

MAR 2 1 19

Charles E. Wilson
The Secretary of Defense

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SUPPLEMENTAL AGREEMENT
TO THE
"STATEMENT OF THE DIVISION OF EQUIPMENT RESPONSIBILITY BETWEEN THE ATOMIC ENERGY COMMISSION AND THE ARMED FORCES," DATED 4 MARCH 1954."

TITLE: DIVISION OF RESPONSIBILITY FOR THE DESIGN, DEVELOPMENT AND PRODUCTION OF STOCKPILE CONTAINERS AND ASSOCIATED EQUIPMENT FOR AEC DESIGNED WEAPONS AND WARHEADS

15 April 1958

Classification changed to Unclassified
by authority of Memo fm Class Kellogg to Asst 8-12-
by Barbara J. Rusk date 1-14-70

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ENCLOSURE 3

AGREEMENT

I. REFERENCE

Agreement, Brigadier General K. E. Fields, Director, Division of Military Application, Atomic Energy Commission, and Major General A. R. Luedecke, Chief, Armed Forces Special Weapons Project, entitled, "Statement of the Division of Equipment Responsibility between the Atomic Energy Commission and the Armed Forces," 4 March 1954.

II. SCOPE OF AGREEMENT

A. This agreement delineates the responsibility between the Atomic Energy Commission and the Department of Defense for the design, development and production of stockpile containers and associated equipment used on or with AEC designed, developed and produced weapons and/or warheads.

B. This agreement is concerned only with the amplification and clarification of responsibilities outlined in reference cited in paragraph I pertaining to stockpile containers and associated equipment for AEC designed, developed and produced weapons and/or warheads.

C. Provision is made herein for the AEC, at the request of the Department of Defense, to design, develop and/or produce handling, transporting, positioning and loading equipment for which the DOD normally is responsible when mutually satisfactory to AEC and DOD. This will primarily involve the addition of certain functions, which are normally a DOD responsibility, to equipment for which the AEC is responsible.

III. DEFINITIONS

A. The terms "stockpile containers" and "associated equipment" as used herein are interpreted to mean AEC special design handling ("H") items when such items are used as stockpile containers and include dollies and trailers and other material handling equipment when part of or used with the stockpile containers.

IV. PRINCIPLES

A. The AEC is responsible for the design, development, production and funding of stockpile containers, dollies, trailers and associated equipment for those weapons or warheads for which the AEC has design, development and production responsibility. This responsibility encompasses design and development to meet requirements imposed by handling or transporting of the weapons or warheads up to the normal point of release of the weapon or warhead to the DOD.

B. The DOE is responsible for the design, development, production and funding of handling, transporting, positioning and loading equipment to be used with AEC designed, developed, and produced weapons and/or warheads from the normal point of release by the AEC to the DOD. Normally, the point of release to DOD is considered the MSS or OSS; however, release may be at other points as mutually agreed upon. The DOE will insure that such equipment, designed for procurement by the DOE, satisfies applicable weapons handling criteria established by the AEC to insure weapons reliability.

C. Provision is hereby made that the articles for which the AEC and DOE have separate responsibilities, as outlined herein, can be designed, developed, produced and/or fumed as a joint effort of the AEC and DOD in the interest of national economy and when mutually acceptable to the agencies concerned. This provision permits the design and development of stockpile containers, dollies, trailers and associated handling equipment giving consideration to the requirements of both the AEC and the DOD within the scope of their responsibilities.

1. In instances where the overdesign of such AEC equipment is requested, mutual agreement as to the degree of overdesign should be reached as early as possible in order that normal or committed time schedules of the AEC can be maintained. To this end the DOE will make their basic requirements known at the earliest possible date and the AEC, with guidance from appropriate military agencies, shall, as soon as possible and at no cost to the DOE, study the feasibility of overdesigning the equipment to include the military features.

2. The Services may simultaneously explore other means of satisfying their peculiar requirements through contractors other than the AEC. Should the Services, at some point in the development, determine that the AEC jointly developed item is not desired, AEC (AMO) will be notified and cancellation costs, if any, will be born by the DOD (pertinent agency of the service or services concerned.)

3. Any change required by the DOE on an item between the time an Engineering Release (ER) has been issued and the time production has been completed will be submitted in accordance with the normal AEC procedures for effecting such changes. All costs incident to such changes will be born by the DOD.

D. This agreement permits the AEC and DOE to make mutually satisfactory arrangements for split funding when considered necessary or feasible; however, this split funding method will only be utilized when the equipment concerned is required to be overdesigned to meet DOD requirements and where additional cost can be attributed to meeting the additional requirements of the DOE.

1. In instances where split funding is determined to be necessary in connection with the development costs, mutually satisfactory arrangements will be made between the AEC (ALOO) and DOD (pertinent agency of the Service or Services concerned). The amount of development costs to be born by the DOD shall be representative of only the additional costs attributed to the DOD requirements.

2. In instances where split funding for production of standardized stockpile containers, dollies, trailers or associated handling equipment becomes necessary, the DOD funding responsibility will be exercised by the Chief, Armed Forces Special Weapons Project (Field Command, AFSWP). The amount of production cost to be born by the DOD shall be only the additional cost, on a unit basis, that is attributed to DOD requirements beyond those necessary for AEC handling or transporting of weapons or warheads up to the normal point of release to the DOD.

E. The Department of Defense, as operators of the National Stockpile Sites and the Operational Storage Sites has an inherent interest in the matter of the stockpile containers and dollies, trailers and associated handling equipment being suitably designed to meet on-site operations. In those instances where Service agencies of the Department of Defense, operating through the Armed Forces Special Weapons Project, consider that a piece of equipment which is an AEC responsibility, is not completely suitable for their on-site stockpile operations, the Service agency involved will, if timely solution of the matter is not obtained through normal Unsatisfactory Report or Material Review Board procedure, forward the problem for joint resolution by the Manager, Albuquerque Operations Office, Atomic Energy Commission, and Commander, Field Command, AFSWP, and the Service agency involved. Should they be unable to reach an agreement, the question shall be referred to their respective higher authorities for decision.

V. BUDGETING AND PROCUREMENT RESPONSIBILITY

A. The budgeting, funding, and procurement responsibilities outlined in the Sections III and IV of the basic agreement remain as stated except in those cases where the provisions of this supplemental agreement are applicable. Mutually satisfactory arrangements between the DOD and the AEC will be reached in each specific instance of split funding. Such arrangements will specify the limit of budgeting and procurement responsibility between the AEC and the DOD.

B. In the event that it is determined to be of mutual benefit for the weapons handling equipment for all phases of the stockpile-to-target sequence to be developed by the Atomic Energy Commission as a complete "system" or package during the design and development phases of the weapon itself, that portion of the cost incurred for design and development of the equipment which is a DOD responsibility, as indicated in paragraph IV.B. above, will be funded by the DOD (Service agency concerned). Essentials of such designs, drawings and specifications will be released to the DOD for procurement from its own selected contractors if the DOD desires to do so.

C. The Chief, Armed Forces Special Weapons Project (Field Command, AFSWP) will exercise the DOD funding responsibility where split funding is involved for production of standardized stockpile containers, dollies, trailers or associated handling equipment.

VI. BORDERLINE CASES

The statement contained in paragraph VII of the basic agreement continues to apply in borderline cases.

A. R. STARBIRD
Brigadier General, USA
Director of Military Application

EDWARD N. PARKER
Rear Admiral, USN
Chief, AFSWP

Production Branch
Record Copy File

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STATEMENT OF THE DIVISION OF EQUIPMENT RESPONSIBILITY
BETWEEN

THE ATOMIC ENERGY COMMISSION AND THE ARMED FORCES

2-3-54

I. GENERAL.

A. This document supersedes the Statement of the Division of Equipment Responsibility between the Atomic Energy Commission and the Armed Forces signed by Brigadier General Kenneth E. Fields, Director, Military Applications Division, USAEC 25 August 1952, and Major General Herbert B. Loper, Chief, Armed Forces Special Weapons Project, 14 July 1952.

B. Technical equipment required to make operational use of atomic weapons ranges from fissionable material through assembly tools and handling equipment to delivery vehicles. Responsibility for development, procurement, issue and budgeting for this equipment is divided between the Atomic Energy Commission and the Armed Forces. This statement delineates the division of responsibilities and is based upon the following: The Atomic Energy Act of 1946; "Memorandum for the Chairman, Military Liaison Committee, subject: Missile and Rocket Responsibilities", signed by the Chairman, Atomic Energy Commission, 22 January 1953; "An Agreement Between the AEC and the Department of Defense for the Development, Production, and Standardization of Atomic Weapons", signed by the Chairman, Atomic Energy Commission and Secretary of Defense, 21 March 1953; Operational Suitability Testing Program Agreement Between Atomic Energy Commission and Department of Defense contained in letters from the AEC to the MLC dated 17 June 1953 and from the MLC to the AEC dated 13 August 1953.

C. By Presidential directive dated 2 December 1953, the President directed the Chairman of the AEC to authorize the Armed Forces to assume the responsibiliy for the manufacture, production or accuisition of such non-nuclear components and weapons utilizing the implosion type as well as gun type nuclear systems as may be mutually agreed upon by the AEC and DOD. When authorization is obtained for the Armed Forces to produce non-nuclear components for atomic weapons, Sections II B and III B, 1 and 2, apply. If the Armed Forces are assigned budgetary responsibility for non-nuclear components of atomic weapons and ancillary equipment then the provisions of Section II E and IV B 1 will apply.

Classification changed to Unclassified
by authority of Memo from Class. Kellogg to Dean 8/12/70
by Barbara J. Mueller 10-14-70

II. PRINCIPLES.

The division of responsibilities enunciated below are derived from the authorities stated above.

A. The Atomic Energy Commission has procurement responsibility for AEC developed and produced atomic weapons, ancillary equipment which affects or tests and reliability of these weapons, spares and spare parts pertaining thereto, and all nuclear components.

RESTRICTED DATA

This document contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited.

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B. The Armed Forces have procurement responsibility for military developed and produced atomic weapons (less nuclear), ancillary equipment which affects or tests the reliability of these weapons, spares and spare parts pertaining thereto, (See Section 1 C).

C. The Armed Forces have procurement responsibility for items associated with the handling and delivery of atomic weapons developed and/or produced by AEC which do not affect the reliability of those weapons.

D. The AEC will budget and fund for AEC developed and produced atomic weapons, spares and spare parts, and ancillary equipment for that portion of the war reserve for which the AEC has responsibility.

E. The Armed Forces will budget and fund for all items required in connection with atomic weapons developed and produced by the Department of Defense, (See Section 1C).

F. The Armed Forces will budget and fund for all equipment required by them for assembly, handling, delivery, and training in connection with atomic weapons developed and produced by the AEC.

G. The Armed Forces will budget and fund for atomic weapons materiel required for operational suitability tests. All unexpended materiel not desired for retention by the Armed Forces will be returned to the AEC.

H. The AEC will budget and fund for costs of:

1. Repaying to the Armed Forces the purchase price of returned operational suitability test materiel accepted by the AEC for reprocessing for inclusion in the national stockpile, except that no payment will be made in those cases where the components are not required by the AEC to fulfill stockpile needs as established by the DOD in its annual statement of War reserve requirements.

2. All reprocessing, disassembly, salvage and disposal operations for unexpended OST materiel returned to the AEC.

III. PROCUREMENT RESPONSIBILITY

A. The AEC is responsible for procurement of the following categories of equipment:

1. AEC developed and produced atomic weapons, including spares and spare parts, except items recuired for training which are commercially available or available in standard military stocks.

2. Specially designed test and handling equipment items used for assembly and testing of atomic weapons developed and produced by the AEC, including specially designed spares and spare parts.

B. The Armed Forces are responsible for procurement of the following categories of equipment.

1. Military developed and produced atomic weapons (less nuclear systems), including spares and spare parts.

2. Test and handling equipment items used for assembly and testing of atomic weapons developed and produced by the military, including spares and spare parts.

3. Test and handling equipment items used for assembly and testing of atomic weapons developed and produced by the AEC, which are commercially available or available in standard military stocks, including spares and spare parts.

4. Handling equipment other than that covered by paragraphs A2 and B2 above.

5. Spares and spare parts, which are commercially available or available in standard military stocks, for test and handling equipment items procured by the AEC in accordance with paragraph A2 above.

6. Shelters, power systems, disaster clean-up materials, housekeeping materials, and items for maintenance of this equipment.

7. Material permanently installed in the delivery vehicle.

C. Items of equipment for storage sites will be subjects of special agreements.

D. The Armed Forces are responsible for furnishing the AEC with firm requirements for AEC equipment produced on a reimbursable basis. These requirements in general should be submitted eighteen months in advance of expected delivery dates.

IV. BUDGETING RESPONSIBILITY.

A. The AEC will budget and fund for:

1. AEC developed and produced atomic weapons, spares and spare parts, and ancillary equipment for that portion of the war reserve for which the AEC has responsibility.

2. Costs of repaying to the Armed Forces the purchase price of returned operational suitability test materiel accepted by the AEC for reprocessing for inclusion in the national stockpile, except that no payment will be made in those cases where the components are not required by the AEC to fulfill stockpile needs as established by the DOD in its annual statement of war reserve requirements.

Transmittal 11/13/57

3. Costs of reprocessing, dissembly, salvage and disposal operations for unexpended OST materiel returned to the AEC.

B. The Armed Forces will budget and fund for:

1. Non-nuclear components and spares and spare parts pertaining thereto of certain atomic weapons which are developed and produced by the military (See section 1C).

2. Equipment required for testing, assembly and handling of atomic weapons developed and produced by the AEC or the military.

3. Armed Forces training equipment requirements.

4. Weapons required for operational suitability tests.

5. Delivery vehicles and equipment permently installed therein.

6. Maintenance and modification of all equipment held by the Armed Forces.

C. Items of equipment for storage sites will be subjects of special agreements.

V. ISSUE RESPONSIBILITY.

A. Items procured by the AEC for use by the Armed Forces may be transferred to AFSWP for distribution within the Armed Forces; however, direct distribution to the Armed Forces of items procured by the AEC will be encouraged wherever feasible and practical.

VI. EXCEPTIONS

A. The Armed Forces may procure an atomic weapon part if it is commercially available or available in standard military stock, and if it is for use with training weapons only. Armed Forces are responsible that parts for training weapons will never be used with stockpile weapons.

B. The AEC may obtain from the Armed Forces items commercially available or available in standard military stocks which are for AEC designated kits that are part of the AEC War Reserve. The AEC will reimburse the Armed Forces for these items.

C. There may be a small number of items designed by the AEC which are not commercially available or available in standard military stocks but which may be procured by the Armed Forces. Where such an item is required by the AEC, the AEC may obtain this item from the procuring agency on a reimbursable basis.

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). The Armed Forces may locally manufacture certain spare parts est and handling equipment and training weapons as authorized by the Determination of spare parts authorized for local manufacture will ade at initial provisioning meetings for end items as agreed to by a Corporation and AFSWP representatives.

1. Items authorized for local manufacture will be so annotated e Sandia Corporation and AFSWP publications and may be manufactured by Services as the requirements exists. Requests for local manufacture of s not so annotated will be authorized as concurred in by AFSWP and approved e Manager, ~~Sandia Field Office~~, AEC. SANTA FE OPERATIONS,

2. Service requests for authority to locally manufacture parts T & H equipment and training weapons now in the system will be approved FSWP after review and concurrence by the Manager, ~~Sandia Field Office~~, SANTE FE OPERATIONS,

E. SEE AMENDMENT No. 1.

BORDERLINE ITEMS.

This statement has advisedly been written in broad terms to avoid ng it dependent upon transitory conditions. Some items developed in future will not fall precisely into the stated categories. The allo- on between the AEC and the Armed Forces of procurement, issue, and eting responsibilities for these borderline items shall be a matter joint decision of the Manager, ~~Sandia Field Office~~, SANTA FE OPERATIONS, and the Commanding al, Field Command. Should they not agree, the question shall be re- ed to higher authority for decision.

K. E. Fields
. FIELDS
adier General, USA
ctor, Division of Military Application

4 March 1954

/s/ A. R. Luedecke
A. R. LUEDECKE
Major General, USAF
Chief, AFSWP

DATE 3 February 1954

~~CONFIDENTIAL~~

MEMORANDUM OF AGREEMENT

DEPARTMENT OF DEFENSE

AND THE

ATOMIC ENERGY COMMISSION

FOR

COMPREHENSIVE TEST PLANNING

AEC-DOD COMPREHENSIVE TEST PLAN (CTP) PROGRAM

I. PURPOSE: The purpose of this agreement is to delineate responsibilities of the Department of Defense (DOD) and the Atomic Energy Commission (AEC) for preparing a Comprehensive Test Plan (CTP) for each new nuclear weapons subsystem in, or entering, Phase 3 (Development Engineering) after the effective date of this Memorandum of Agreement. For those systems which are in Phase 4 (Production Engineering) on the effective date of this agreement, this guidance applies to the extent possible.

II. SUPERSESSION: This agreement supersedes in its entirety ATSD(AE) memorandum dated October 9, 1968, subject, "Preparation and Coordination of Weapons System Comprehensive Test Plan (U)".

III. IDENTIFICATION OF PARTIES: The parties to this Memorandum of Agreement are:

A. The Department of Defense

B. The Atomic Energy Commission

IV. DEFINITIONS: For the purpose of this agreement, the following definitions are applicable:

A. A Nuclear Weapon Subsystem (NWSS) is defined as the AEC components and those DOD interface components of a nuclear weapon/weapon system which are required to work in unison to produce the desired nuclear yield.

DoD/DoE

B. A Comprehensive Test Plan (CTP) is a joint DOD/AEC document which describes post-development testing of the NWSS throughout its life cycle and which identifies DOD and AEC responsibilities for integrating, coordinating and implementing such testing.

C. The Comprehensive Test Plan Group (CTPG) is a joint DOD/AEC group charged with the responsibility of developing the CTP for a particular NWSS.

D. The Joint Test Policy Review Group (JTPRG) is a joint DOD/AEC group which will provide a forum to review NWSS testing policies.

V. GENERAL: CTP's are to be developed as a management tool. They provide all agencies involved in the development, production, deployment, operations, maintenance and evaluation of an NWSS with a clear understanding of their own and other agencies' separate and joint responsibilities for testing, test analysis, evaluation and reporting during the subsystem post-development life cycle. Unless otherwise provided by law or by agreement between the Atomic Energy Commission and the Department of Defense, the development of CTP's is the joint responsibility of the AEC and DOD.

A. The AEC will be responsible for developing and coordinating with the DOD that portion of the CTP for those NWSS components developed and produced by the AEC.

B. The DOD will be responsible for developing and coordinating with the AEC that portion of the CTP for those NWSS components developed and produced by the DOD.

C. The responsibility for development of the DOD/AEC interface portion of the CTP will be jointly shared by DOD and AEC.

D. Should these procedures surface issues which cannot be resolved at the Service/ALO level, the lead Service or AEC/ALO will refer such issues to ATSD(AE) and DMA/AEC for resolution.

VI. CTP OBJECTIVES: To provide one document of sufficient detail, descriptive rationale, and test philosophy to:

A. Identify general post-development test planning guidelines/criteria (including both the type and quantity of tests) that would be

applicable to the NWSS under normal constraints imposed by budget or test operations.

B. Describe any unusual budgetary or test operational constraints imposed on the NWSS.

C. Identify the planned test program and describe the testing that provides an objective basis for assessing NWSS reliability throughout its post-development life cycle.

D. Identify specifically NWSS test and evaluation responsibilities between the military Services and the AEC, particularly at the hardware interfaces.

E. Document that no unwarranted duplications exist in the test programs.

F. Identify any major gaps in the test programs caused by fiscal, operational or technical constraints.

VII. SCOPE OF CTP:

A. The CTP is confined to the Nuclear Weapon Subsystem and it is developed when there is a requirement for a new NWSS. The CTP coverage begins with initial production-lot testing for all items upon which the initial or interim NWSS reliability estimate is based. It phases into post-development testing, operational/stockpile reliability assessment, and continues through weapon inventory phase-out.

B. The CTP will address the desired Military Characteristics (MC's) and the environments stipulated in the Stockpile-to-Target Sequence (STS) for the AEC-provided components and the specifications and environments stipulated in the pertinent weapon system or subsystem document for the DOD components. In those instances where testing will not provide data to support a reliability assessment throughout the entire range of environments, a statement of impact on NWSS reliability assessment (where applicable to an environment or environmental range) should be included.

C. All sources of testing should be considered in developing the CTP, including, but not limited to, laboratory, production, flight and operational tests. As weapon phase-out timing and rate cannot be

predicted with precision early in a program, greater flexibility for test programming will be maintained in that portion of the CTP. When changes to tests occur in the latter stages of NWSS life cycle, pertinent revisions will be made to the CTP, to include a joint statement of the effect of the changes on the continued evaluation of the NWSS.

D. The documentation for establishing the initial reliability assessment will be referenced.

VIII. COMPREHENSIVE TEST PLAN GROUP (CTPG): The CTPG will be established at the beginning of Phase 3, Development Engineering. It will consist of members from the lead Service, from other Services where appropriate and from the AEC. The Defense Nuclear Agency (DNA) will be invited to send a representative to provide technical advisory assistance, as requested, to DOD members of the CTPG. The lead Service will normally provide the chairman of the CTPG. Administrative support will be arranged by the chairman. Members of the CTPG may not necessarily be members of the Project Officers Group (POG), but the CTPG will coordinate test planning with the appropriate POG.

IX. CTP METHODOLOGY: The CTP is generated by first describing NWSS components and their function in the sequence of operations leading to warhead detonation. This description will include a detailed block diagram which identifies all interfaces between DOD- and AEC-furnished components. The reliability prediction/allocation, which the testing described in the CTP is expected to measure, should be indicated for each block in the diagram. The NWSS-block diagram will be identified as a subgroup of the overall operational weapon system block diagram with a clear identification of the interfaces between the weapon system and the NWSS. The CTP should display the total test program in an interrelated and integrated manner. Descriptions of the tests should indicate the hardware tested (configuration/level of assembly), environmental conditions and test quantities. Tests should be related to the specific performance characteristics to which they pertain. In particular, they should be related to the appropriate events in the reliability mathematical model.

X. CTP FINALIZATION AND REVIEW: CTP's will be completed by the CTPG and approved by the lead Service and AEC/ALO prior to the start

of AEC Phase 5, First Production. The CTP then will be forwarded to the Chairman, Military Liaison Committee (MLC), and the Division of Military Application, Headquarters, AEC, for review and final coordination. Whenever the NWSS is part of a weapons system for which a Defense Systems Acquisition Review Council (DSARC) III review is planned, an approved CTP (or an interim CTP, if the CTP for that NWSS has not been approved) will be provided for use by the Council during the review.

XI. CTP PUBLICATION AND REVISION FREQUENCY:

A. The CTP will be published and distributed by the lead Service.

B. Each CTP will be reviewed jointly by the lead Service and AEC at least annually until the related NWSS is retired.

C. Revisions to the CTP which are required by major program changes or the annual review will be processed in the same manner as the basic document.

XII. DISTRIBUTION: The minimum distribution of the CTP and its revisions will be made by the lead Service in accordance with Enclosure 1. Any changes to the distribution should be addressed to the appropriate lead Service.

XIII. JOINT TESTING POLICY REVIEW GROUP (JTPRG):

A. The JTPRG shall be composed of members designated by ATSD(AE), DDR&E, DMA/AEC, and the Service members of the MLC. The DNA will provide technical advisory assistance to the DOD members of the group as requested. ATSD(AE) will normally provide the chairman for the group.

B. The tasks of the JTPRG will include the following:

1. Recommend appropriate changes to this memorandum as required based on review of CTP's and comments from appropriate groups.

2. Review testing objectives.

3. Review significant changes in all NWSS testing programs and make appropriate recommendations to the MLC.

4. Review other areas of concern in the nuclear weapons subsystem testing programs considered to be appropriate by all members of the group.

C. The JTPRG will meet annually in the last quarter of the fiscal year or on call by the chairman of the group. The minutes of the meeting and resulting recommendations will be submitted to the Chairman, MLC, for DOD approval and coordination with the AEC.

XIV. FUNDING RESPONSIBILITIES: The AEC and DOD will fund for their respective responsibilities indicated above, their separate test programs and joint tests in accordance with the existing agreements for such funding.

XV. SECURITY: Each party assumes responsibility, when physical possession is taken, for safeguarding classified information and matter it receives from the other party. Such safeguarding will be in accordance with the regulations of the receiving party.

XVI. DELEGATIONS:

A. The Assistant General Manager for Military Application AEC, or such other person whose name and title shall be communicated to the DOD in writing, will administer this agreement for the AEC.

B. The Assistant to the Secretary of Defense (Atomic Energy) or such other person whose name and title shall be communicated to the AEC in writing, will administer this agreement for the DOD.

XVII. EFFECTIVE DATE: This Memorandum of Agreement shall become effective upon the later acceptance date included below.

XVIII. TERMINATION: This Agreement shall continue in effect until terminated by mutual agreement of the parties hereto or until terminated by either party giving at least 60 days written notice of termination to the other party.

William J. Evans — 20 AUG 1973 (Date)
William J. Evans
Major General, USAF
Acting Chairman
Military Liaison Committee

Robert E. Hollingsworth — JUL 3 197 (Date)
Robert E. Hollingsworth
General Manager
U. S. Atomic Energy Commission

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J.E.K.

SUPPLEMENT TO THE 1953 AGREEMENT FOR THE DEVELOPMENT, PRODUCTION, AND STANDARDIZATION OF ATOMIC WEAPONS
BETWEEN
U. S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
AND
DEPARTMENT OF DEFENSE

ARTICLE I - IDENTIFICATION OF PARTIES AND EFFECTIVE DATE - This Supplemental Agreement is entered into between the U. S. Energy Research and Development Administration (hereinafter called "ERDA") and the Department of Defense (hereinafter called "DoD"). It will become effective when signed by both parties.

ARTICLE II - PURPOSE - The purpose of this Agreement is to delineate the responsibilities of ERDA and the DoD during Phase 2 activities for investigating weapons design/military characteristics trade-offs, identifying baseline designs, determining the development schedule, and reporting nuclear weapon costs and other resource requirements. The assignment of an ERDA design team and the establishment of a Project Officers Group (POG) prior to Phase 3 as described in this Supplement do not precommit the DoD to follow with a Phase 3 request. This Agreement supplements and is intended to be consistent with the 1953 Agreement between the AEC and the DoD for the Development, Production, and Standardization of Atomic Weapons.

ARTICLE III - DEFINITIONS - For the purpose of this Agreement, the definitions contained in "An Agreement Between the AEC and DoD for the Development, Production, and Standardization of Atomic Weapons" March 31, 1953, and the "Agreement for Project Officer Liaison Procedures" September 4, 1975, apply.

The Major Impact Report (MIR) will identify those aspects of the development, design, testing, and production processes which are perceived as being likely to be determining factors in meeting program objectives. This report will be prepared by ERDA and distributed concurrently with the Phase 2 report. It will include appropriate discussion of early year funding requirements, budget process limitations, and nuclear materials availability. The ERDA Weapon Design and Cost Report (WDCR) will provide definitions of baseline design(s) and cost estimates which have evolved from trade-offs analyses of system requirements, development and production costs and capabilities, and nuclear materials availability.

ARTICLE IV - ACTIVITIES AND RESPONSIBILITIES - Delineated below are the sequence of events and responsible organizations for a nominal Phase 2 program. The schedule for each program should be mutually agreed to meet program unique objectives and requirements. This model sequence of events presumes early (pre-Phase 3) selection of a single ERDA design team, though this may not always be deemed appropriate. In fact, this sequence may, if conditions warrant, be terminated by joint DoD/ERDA agreement at a number of points.

#8

Event	Responsibility	Remarks
A. Phase 2 feasibility study request to include approximate weapon/warhead parameters, FPU and IOC dates, approximate build quantities, and desired dates of Phase 2 feasibility study and WDCR.	DoD	For DoD systems requiring DSARC review, Phase 2 should be initiated so events 1 through 6 are accomplished prior to DSARC I.
1. Initiate Phase 2 meeting	DoD, ERDA	Establish Phase 2 study scope and schedule.
2. Submit study inputs to Service study chairman	ERDA, DoD	
3. Distribute for-comment draft of Phase 2 report	DoD	
4. Sign Phase 2 report	DoD, ERDA	
5. Distribute Phase 2 report	DoD	
6. Distribute Major Impact Report	ERDA	Concurrent with Phase 2 study report.
B. DSARC I if appropriate	DoD	
C. Initiate design definition and cost study	ERDA, DoD	DoD will advise ERDA whether or not they consider the additional effort warranted.
1. Selection of ERDA design team	ERDA	Although a single ERDA design team will normally be selected, DMA will have the option to retain two design teams for a longer period on a specific system.
2. Form Project Officers Group (POG)	DoD, ERDA	Establish scope and schedule for design definition and cost study.
3. Review and revise draft MC's and STS	DoD, ERDA	

Event	Responsibility	Remarks
4. Conduct trade-off studies to identify baseline design(s) which best balance resources and requirements considerations. Establish tentative development and production schedule and divisions of responsibility	ERDA, DoD	
5. Distribute WDCR	ERDA	When circumstances permit distribution date will provide ample time for consideration of the WDCR by the DoD before a Phase 3 request is initiated.
6. Respond to WDCR	DoD	

ARTICLE V - IMPLEMENTATION - Representatives of ERDA and DoD assigned responsibility for the administration of this Agreement will make such additional arrangements as are necessary for its detailed implementation within their own agencies.

ARTICLE VI - AMENDMENT AND TERMINATION - This Agreement may be amended or terminated by written agreement between ERDA and DoD.

Harold Brown
Secretary of Defense

5-13-77

Robert W. Fri
Acting Administrator, ERDA

5-31-77

UNITED STATES DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE
P. O. BOX 5400
ALBUQUERQUE, NEW MEXICO 87115

Modification No. A003 to
Memorandum of Understanding
No. AT(29-2)-2477
Redesignated EY-77-A-04-2477

ARMY-DOE STOCKPILE RELIABILITY ASSESSMENT PROGRAM

This Modification to an existing Memorandum of Understanding (MOU) is entered into between the parties identified in Article 1 below.

WITNESSETH THAT:

WHEREAS, effective February 13, 1968, the parties entered into MOU AT(29-2)-2477, redesignated EY-77-A-04-2477, covering the Army-AEC (now DOE) Stockpile Reliability Assessment Program; and

WHEREAS, the MOU has been previously amended by Modifications numbered 1 and A002; and

WHEREAS, the parties now desire to further amend MOU EY-77-A-04-2477, as follows:

(1) change Section IX to provide for the establishment of an Army-DOE Assessment Methodology Working Group (AMWG), (2) change Section III.B to reflect current authority, (3) change nomenclature of "Comprehensive Test Plan (CTP)" in Section VI to "Nuclear Weapon Subsystem Test Plan (NWSSTP)," (4) amend Section V to include establishment of Joint Reliability Study Groups, and (5) renumbering existing Sections IX through XII.

NOW THEREFORE, the parties agree that MOU EY-77-A-04-2477 is amended to read in its entirety as follows:

I. Identification of Parties: The parties to this MOU are:

A. The United States Department of Energy (DOE), represented by the Albuquerque Operations Office (ALO).

B. The Department of the Army (Army), represented by the Project Manager for Nuclear Munitions.

ENCLOSURE 6

PROCUREMENT

II. Purpose: The purpose of this MOU is to:

A. Establish a program and forum for combining and analyzing data developed by the DOE and the Army with the objective of establishing assessments of the reliability and probability of premature operations of nuclear weapons used by the Army under normal Stockpile-to-Target-Sequence (STS) environments.

B. Provide concerned agencies, as determined by mutual written agreement of the parties, with those reliability and premature assessments that can meaningfully be combined with evaluations of other major elements of nuclear weapon systems to determine total system effectiveness.

C. Provide for Assessment Methodology Working Group (AMWG).

III. Authority:

A. Agreement between the AEC (now DOE) and the DOD for the development, production, and standardization of Atomic Weapons, AT(29-2)-290, March 21, 1953.

B. "Memorandum of Understanding between the DOD and the DOE for Nuclear Weapon Subsystem Test Planning, dated May 22, 1979."

IV. Delegations:

A. The Project Manager for Nuclear Munitions will administer this MOU for the Army. The technical coordination of the program for the Army is delegated to the U.S. Army Armament Materiel Readiness Command.

B. The Director, Quality Assurance Division, ALO, will administer this MOU and manage the program for the DOE. ALO's operating contractor, Sandia National Laboratories, Reliability Analysis Department, will be responsible for program execution within DOE management guidelines.

V. General:

A. The program established under this MOU will be known as the Army-DOE Stockpile Reliability Assessment Program. The weapon programs covered by this MOU are those which have a DOE-Army fuzing and firing interface, and for which the DOE and the Army have separate design responsibilities and joint interface requirements for their major assemblies.

B. Joint Reliability Study Groups consisting of reliability engineers from DOE and Army will be established as early as practical for each weapon system to apply the methods outlined in Article VI hereof to the task of assessing reliability and premature probability.

VI. Method: Through the Joint Reliability Study Groups participating technical agencies within the DOE and the Army will:

A. Participate with the Joint Test Working Group* for each Nuclear Weapon in the development of the Nuclear Weapon Subsystem Test Plan (NWSSTP).

B. Collect and collate all applicable test data from tests outlined in the NWSSTP such as, New Material Lab* and Flight Tests, Stockpile Lab and Flight Tests*; and Component and Production Tests.

C. Generate mutually acceptable mathematical assessment models and apply applicable test data to reflect a joint assessment of nuclear weapon reliability and premature probability for all employment options under normal STS environments.

D. Address and degradation trends which could or would affect weapon reliability and premature probability assessments.

E. Prepare and distribute joint reliability and premature probability assessment reports as provided for in Para. VIII of this MOU.

F. Periodically update the joint reliability and premature probability assessments for each weapon system as follows:

1. every twelve months for the first four years,

2. every two years thereafter for the total service life of the weapon system,

3. at the request of the Army or the DOE.

The joint reliability and premature probability assessment reports may be updated by a memorandum supplementing the reports when the assessed reliability does not impact stated requirements or operational goals. In all other cases, the reports will be reissued in their entirety, defining associated problems, impacts, and recommended actions as appropriate.

VII. Responsibilities: The reliability and premature probability assessment of DOE material will be the responsibility of the DOE. The reliability and premature probability assessment of Army material will be the responsibility of the Army. However, there exists a joint responsibility to establish a methodology which will permit the combination of data and individual agency assessments into a total weapons analysis. There will be a free technical exchange of information, collated data, and scoring criteria by both DOE and Army to assure complete understanding of each party's evaluation technique and validity for joint assessment.

*Memorandum of Understanding EY-77-A-04-1135 (formerly AT(29)-1135) for the New Material and Stockpile Laboratory Test Program; Memorandum of Understanding EY-77-A-04-2145 (formerly AT(29-2)-2145) for the Joint Flight Test Program.

VIII. Publications: Army-DOE Stockpile Reliability Assessment Reports will be prepared jointly and issued by the Army throughout the service life of each Army nuclear weapon. While these reports may also include reliability or premature probability assessments for individual Army and DOE subsystems or components, the principal purpose of each report will be to provide an overall nuclear weapon reliability assessment. Discussion of significant problems detected in any applicable test program should be included. The format of the assessment reports will be agreed upon by the representatives of the parties, and will be such that significant information of concern to only one of the parties to this MOU can also be included. The distribution of the reports within the Army and the DOE will be determined by mutual written agreement of the parties based on requirements of each party.

The DOE and the Army each agree not to publish, without permission of the other, any documents purporting to report on the stockpile reliability or premature operation of any portion of the weapons covered by this MOU which are under the design cognizance of the other agency. Otherwise, data and information from joint, Army, or DOE reports may be freely used by either agency in further assessments or reports, provided that the source of the data is identified.

IX. New Methodologies: A Joint Army-DOE Assessment Methodology Working Group (AMWG) will be established. The AMWG will consist of Army and DOE representatives.

A. Objectives

1. Evaluate candidate methodologies for suitability in expressing nuclear munitions reliability, including confidence intervals.

2. Review or develop state-of-the-art statistical techniques for possible implementation toward improving existing reliability methodologies.

3. Maintain a communication link among cognizant Army and DOE agencies and the academic community on matters related to nuclear munitions reliability and premature probability assessment.

4. To establish mutually acceptable statistical standards, definitions, criteria, and terminology for use as a baseline in the conduct of the Group's objectives.

B. Membership

1. DOE

(a) DOE Albuquerque Operations Office
(b) Sandia National Laboratories

2. Army

   (a) OPM Nuclear Munitions
   (b) USA Materiel Systems Analysis Activity
   (c) USA Armament Research & Development Command
   (d) USA Armament Materiel Readiness Command

3. Chairmanship shall alternate as determined by the AMWG between the Army and the DOE.

4. Representatives from the Navy and Air Force may be invited at the discretion of the Chairman.

5. Members may bring advisors/observers to meetings when deemed appropriate by the Chairman.

6. The number of attendees should be held to the minimum necessary for the proper support of the Group's business.

X. Budgeting and Funding: Each party will budget and fund for its own participation in the Army-DOE Stockpile Reliability Assessment Program and other performance under this MOU.

XI. Security: Each party assumes responsibility, when physical possession is taken, for safeguarding classified information and matter received from the other party. Such safeguarding will be in accordance with the regulations of the receiving party.

XII. Effective Date: This Modification shall become effective upon the later acceptance date indicated below.

XIII. Amendment and Termination: This MOU may be modified or terminated by written agreement between the DOE and the Army.

IN WITNESS WHEREOF, the parties have executed this Modification in several counterparts.

U. S. DEPARTMENT OF ENERGY
ALBUQUERQUE OPERATIONS OFFICE

BY: Geo. A. Hauger

TITLE: Director, Quality Assurance Div.

DATE: December 31, 1980

DEPARTMENT OF THE ARMY
PROJECT MANAGER FOR NUCLEAR MUNITIONS

BY: William P. Farmer

TITLE: PROJECT MANAGER

DATE: 19 DECEMBER 1980

BASIC - 3/21/53

SUPPLEMENTED BY THIS - 9/5/84

SUPPLEMENT TO THE 1953 AGREEMENT FOR THE DEVELOPMENT, PRODUCTION, AND STANDARDIZATION OF ATOMIC WEAPONS BETWEEN THE DEPARTMENT OF ENERGY AND THE DEPARTMENT OF DEFENSE

ARTICLE I - IDENTIFICATION OF PARTIES AND EFFECTIVE DATE - This Supplemental Agreement is entered into between the Department of Energy (hereafter called DOE) and the Department of Defense (hereinafter called DOD). It will become effective and supersede the 1977 Supplement to the 1953 Agreement when signed by both parties.

ARTICLE II - PURPOSE - The purpose of this agreement is to delineate the responsibilities of the DOE and the DOD during joint nuclear weapon feasibility studies (Phase 2), design definition and cost studies (Phase 2A), and development engineering (Phase 3). This agreement supplements and is intended to be consistent with the 1953 Agreement between the Atomic Energy Commission (AEC) and the DOD for the Development, Production, and Standardization of Atomic Weapons.

ARTICLE II - DEFINITIONS - For the purpose of this Agreement, the definitions contained in "An Agreement Between the AEC and DOD for the Development, Production, and Standardization of Atomic Weapons," March 31, 1953, and the Department of Defense on Nuclear Weapons Development Liaison Procedures," September 9, 1975, apply. The following definitions also apply: The Major Impact Report (MIR), prepared by DOE, identifies those aspects of the nuclear design, development, testing, production processes, and resource availability likely to be determining factors in meeting program objectives and highlights the DOD requirements driving those aspects. The DOE Weapon Design and Cost Report (WDCR) provides definitions of baseline design(s) and cost estimates which have evolved from trade-off analyses of system

D/DOE

requirements, development and production costs and capabilities, and nuclear materials availability.

ARTICLE IV - ACTIVITIES AND RESPONSIBILITIES - Delineated below is the sequence of events and responsible organization for a typical program. The schedule for each program should be mutually agreed to meet program objectives and requirements. This model sequence of events presumes selection of a DOE design team at the start of Phase 2A; this sequence may, if conditions warrant, be terminated by joint DOD/DOE agreement at any point.

EVENT	RESPONSIBILITY	REMARKS
A. Phase 2 feasibility study request, through Military Liaison Committee (MLC), to include approximate weapon/warhead parameters, Initial Operational Capability (IOC) date(s), warhead quantity to satisfy IOC, schedule for the total quantity of warheads, and the desired date for the Phase 2 report and the MIR.	DOD	For DOD systems requiring Defense System Acquisition Review Council (DSARC) review, Phase 2 should be initiated so events 1 through 6 are accomplished prior to DSARC I. The DOD should specify an appropriate decision milestone for systems not under the DSARC process.
1. Initiate Phase 2 meeting	DOD, DOE	Establish Phase 2 study scope and schedule.
2. Distribute the preliminary draft Military Characteristics (MCs) and Stockpile-to-Target Sequence (STS) to be refined and revised during the study.	DOD	Preferably at the initial Phase 2 meeting, but not later than six weeks after that meeting. A draft outline of the STS is acceptable at this point.
3. Submit study inputs to study chairman.	DOE, DOD	
4. Distribute "for comment" draft of Phase 2 report.	DOD	
5. Sign Phase 2 report.	DOD, DOE	
6. Distribute Phase 2 report and the MIR.	DOD, DOE	In accordance with the schedule established in item A.1 above.
B. DSARC I or alternative decision milestone supporting a Phase 2A design definition and cost study request, through MLC, with refined guidance based on Phase 2 results and the desired date for the Phase 2A report and the WDCR.	DOD	For systems requiring DSARC, Phase 2A should be initiated so that events 1 through 5 are accomplished in time to allow careful DOD consideration of the Phase 2A report and WDCR prior to DSARC II. DOD should specify and appropriate decision milestone for systems not under the DSARC process.

EVENT	RESPONSIBILITY	REMARKS
1. Selection of DOE design team.	DOE	Although a single DOE design team will normally be selected, DOE will have the option to retain two design teams for a longer period on a specific system.
2. Form DOE/DOD Project Officers Group (POG).	DOD, DOE	Establish Phase 2A scope and schedule.
3. Conduct trade-off studies to identify baseline design(s) which best balances resources and requirements. Review and revise draft MCs and STS. Establish tentative development and production schedule and division of responsibilities.	DOD, DOE	LPO will distribute draft MCs and STS at first POM.
4. Sign Phase 2A report.	DOD, DOE	
5. Distribute Phase 2A report and the WDCR.	DOD, DOE	In accordance with the schedule established in item B.2 above.
C. DSARC II or alternative decision milestone supporting a Phase 3 request to DOE, through the MLC, to include IOC definition (quantities and date), subsequent warhead delivery schedule, draft MCs and STS, and a draft agreement for the division of responsibilities for the development project.	DOD	
1. Notify DOD of the acceptability of initiating a Phase 3 program and of the acceptability of MCs.	DOE	DOE will also provide comments on draft STS. MCs become design requirements after DOE acceptance and MLC approval
2. Forward MLC approved MCs to DOE	DOD	Approved MCs shall be forwarded to DOE within 60 days of DOE Phase 3 acceptance.
3. Conclude an agreement on the division of responsibilities for the development project.	DOD, DOE	

EVENT	RESPONSIBILITY	REMARKS
4. Forward Military Department approved STS to DOE and the Chair, MLC.	DOD	Approved STS shall be forwarded to DOE and the Chair, MLC, within 90 days of DOE Phase 3 acceptance.
5. Conduct details of development project through designated project officers and formal communications through the MLC.	DOD, DOE	

ARTICLE V - PROGRAM REVIEWS - The MLC shall review each program at least twice during Phase 3. These reviews shall consider the impact of the MCs and STS on the design effort and the resources needed to meet the various design requirements and goals. The reviews shall be held during the latter half of the first year of Phase 3 and again near the end of Phase 3. The DoE shall address the warhead development status, significant changes to the WDCR, and other issues that may impact achieving major program objectives or have an adverse effect on other nuclear weapon development or production requirements. Specific DoD requirements causing significantly greater resource expenditures or development effort than estimated at the beginning of Phase 3 will be highlighted. DoD shall address weapon system requirements relevant to warhead characteristics and required warhead delivery schedules. Similar reviews may also be conducted during production engineering.

ARTICLE VI - IMPLEMENTATION - Representatives of DoE and DoD assigned responsibility for the administration of this Agreement will make such additional arrangements as are necessary for its detailed implementation within their own agencies.

ARTICLE VII - AMENDMENT AND TERMINATION - This Agreement may be amended by written agreement between DoE and DoD and may be terminated by either party upon written notice to the other.

DEPARTMENT OF DEFENSE

Date: 23 July, 1984

By: Richard L. Wagner

DEPARTMENT OF ENERGY

Date: 5 SEPT 1984

By: William W. Horner

[redacted]

MEMORANDUM OF AGREEMENT DOD AND THE ATOMIC ENERGY COMMISSION FOR TEMPORARY STORAGE OF U.S. AEC CLASSIFIED SHIPMENTS AT MILITARY INSTALLATIONS

1. Purpose

This agreement authorizes the temporary storage of AEC classified shipments at DOD facilities in the event of civil disorder, natural disaster, and other emergency circumstances.

2. Concept

a. Available DOD facilities will be provided to support authorized AEC couriers as necessary. The mission, operational situation, and capabilities of the installation will determine the extent of support provided.

b. AEC will utilize this agreement only under emergency conditions and will remove the shipment as soon as possible.

c. DOD/AEC Agreement (Joint DOD and AEC Agreement In Response To Accidents Involving Radioactive Material), dated 9 May 1966, except paragraphs 4a, 4b and 4c thereof, is applicable in the event of an accident involving radioactive material during temporary storage. Control and responsibility for emergency operations are provided in paragraph 3 below.

3. Terms of Agreement

a. AEC Responsibilities:

(1) Retain responsibility for security and custody of shipment.

(2) Inform the installation commander of the classification and content of the shipment.

(3) Advise the installation commander of pertinent safety precautions to include any special firefighting procedures.

[redacted]

(4) Assist the installation commander in the event of an accident involving radioactive material.

(5) Provide reimbursement for any DOD expense incurred by this arrangement.

b. DOD Responsibilities:

(1) Provide a suitable temporary holding area for AEC shipments.

(2) In the event of incapacitation of AEC couriers, the installation commander will assume responsibility for security of the shipment.

(3) In the event of an accident involving radioactive material, the installation commander will have primary command responsibility and exercise control of emergency operations.

(4) Provide security, firefighting, communications and logistic support as necessary. Logistic support would normally include messing, billeting, medical, vehicle maintenance, and petroleum products.

APPROVED: Carl Walske
Chairman, DOD Military Liaison Committee

APPROVED: K. E. Fields
General Manager, USAEC

[redacted]

MEMORANDUM OF AGREEMENT BETWEEN THE
DEPARTMENT OF DEFENSE AND THE
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
FOR
TEMPORARY STORAGE OF U.S. ERDA
SHIPMENTS AT MILITARY INSTALLATIONS

1. Purpose

This agreement delineates the responsibilities of DoD and ERDA when prudence dictates temporary storage of ERDA shipments at DoD facilities to assure the safety and security of nuclear materials or non-nuclear classified materials in the event of civil disorder, natural disaster, and/or other emergency circumstances.

2. Concept

a. Available DoD facilities will be provided to support authorized ERDA couriers as necessary. The mission, operational situation, and capabilities of the installation will determine the extent of support provided.

b. ERDA will utilize this agreement only under conditions where the safety and security of shipment is jeopardized. ERDA will remove the shipment as soon as possible.

c. The appropriate provisions of the Joint DoD and ERDA Agreement In Response to Accidents Involving Radioactive Material are applicable in the event of an accident involving radioactive material during temporary storage. Control and responsibility for emergency operations are provided in paragraph 3 below.

[redacted]

3. Terms of Agreement

(This agreement and terms outlined herein will be jointly reviewed annually to determine if the agreement should be continued, modified or terminated.)

a. ERDA Responsibilities:

(1) Retain responsibilities for security and custody of shipment.

(2) Notify the installation commander of pending shipment arrival and verify identification of couriers accompanying shipment, if possible.

(3) Inform the installation commander of the classification and contents of the shipment, to include any special security procedures.

(4) Advise the installation commander of pertinent safety precautions to include any special firefighting procedures.

(5) Assist the installation commander in the event of an accident involving radioactive material.

(6) Provide reimbursement for any DoD expense incurred by this arrangement.

(7) Act in accordance with local installation directives, except in those cases where compliance jeopardizes shipment security and safety.

b. DoD Responsibilities:

(1) Provide a suitable temporary holding area for ERDA shipments.

(2) In the event of incapacitation of ERDA couriers, the installation commander will assume temporary responsibility for security of the shipment.

(3) In the event of an accident involving radioactive material, the installation commander will have primary command responsibility and exercise control of emergency operations.

(4) Provide security, firefighting, communications and logistic support as necessary. Logistic support would normally include messing, billeting, medical, vehicle maintenance, and petroleum products.

APPROVED:

Assistant Administrator for
National Security, ERDA

DATE: 11/27/75

APPROVED:

Assistant to the Secretary of
Defense (Atomic Energy)

DATE: 12/24/75

ASSISTANT TO THE SECRETARY OF DEFENSE
WASHINGTON, DC 20301-3050

(ATOMIC ENERGY)

15 NOV 1989

MEMORANDUM FOR DIRECTOR FOR STRATEGIC, SOF, AND AIRLIFT PROGRAMS, (SAF/AQQ), OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

SUBJECT: SRAM A Safety Study

The Nuclear Weapons Council (NWC) at its October 13, 1989, meeting reviewed a proposal to conduct a joint DoD/DOE technical assessment of the benefits and impacts of additional operationally restricting safety measures for SRAM A/W69. I request the Air Force assume the lead in this study and would appreciate your views on the scope and depth of this activity as described below.

This assessment should determine the probability of an accident involving an alert aircraft loaded with SRAM A/W69. For accidents with probabilities greater than one in one million, the resulting abnormal evironments and the predicted response of the SRAM A/W69 to those environments should be described. Specific sequences of events leading to possible nuclear detonation or plutonium dispersal should be identified. The safety benefits and operational or cost impacts of additional measures which could increase the safety of this system should also be determined.

The study should take the following approach:

a. Examine all credible accident scenarios that could result in either plutonium dispersal or nuclear yield and the approximate probability of each accident occurring.

b. For each postulated accident with an occurrence probability of greater than one in one million, identify the sequence of events which would result in plutonium dispersal or accidental nuclear yield and estimate the approximate probability of plutonium dispersal or of nuclear yield.

c. Determine how the operational options D, E, and F presented at the October 31, 1989, NWC meeting change these probabilities or otherwise improve safety.

d. Estimate the operational, cost, or other impacts associated with each operational option.

e. If the study group should identify other operational options which offer significant improvements in safety, the group is invited to report on the cost/benefit of such options.

I request that you provide within 30 days a schedule for completion, preferably six months or less. The product of this review will be an annotated briefing. I have asked DOE/Deputy Assistant Secretary of Military Application to assist you in this activity.

The NWC will wish to be informed of the results of this study. The Nuclear Weapons Council Standing Committee and the Nuclear Weapons Council Weapons Safety Committee will be invited to comment on the study prior to NWC review of the study results. My staff action officer is David Nokes, 695-7937.

Robert B. Barker

cf:
Joint Staff/J3
DNA/OPNO
DOE/DASMA
AF/XOX

ASSISTANT TO THE SECRETARY OF DEFENSE
WASHINGTON, DC 20301-3050

(ATOMIC ENERGY)

15 NOV 1989

Rear Admiral Jon M. Barr
Deputy Assistant Secretary for
Military Application
Department of Energy
Washington, DC 20545

Dear Admiral Barr:

The Nuclear Weapons Council (NWC) at its October 13, 1989, meeting reviewed a proposal to conduct a joint DoD/DOE technical assessment of the benefits and impacts of additional operationally restricting safety measures for SRAM A/W69. I request you join the Air Force in this study and would appreciate your views on the scope and depth of this activity as described below.

This assessment should determine the probability of an accident involving an alert aircraft loaded with SRAM A/W69. For accidents with probabilities greater than one in one million, the resulting abnormal evironments and the predicted response of the SRAM A/W69 to those environments should be described. Specific sequences of events leading to possible nuclear detonation or plutonium dispersal should be identified. The safety benefits and operational or cost impacts of additional measures which could increase the safety of this system should also be determined.

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Sincerely,

Robert B. Barker

cf:
Joint Staff/J3
DNA/OPNO
SAF/AQQ
AF/XOX

DEPARTMENT OF THE AIR FORCE

DATE 30 Nov 89

MEMORANDUM FOR Dr. Turner

SUBJ: SRAM A Study

All of the attached letters have been forwarded. We believe the SRAM Study Team is the appropriate group to establish the terms of reference regarding report content, etc. Be assured we do believe a report is appropriate although the ATSD(AE) tasking is only for an annotated briefing. Documentation of the study effort is essential.

The terms of reference you and Maj Gen Stapleton discussed will provide a basis for proceeding and, I believe you'll agree, are reflected in our tasking letters to AF-ISC/CC and SN.

Please let me know if you have any questions or desires for the study that we are not readily aware of.

Kirby

KIRBY M. FETZER, Lt Col, USAF
Chief, Space, Nuclear and Missile Safety
Office of Inspection & Safety
The Inspector General

18 NOV 1999

SAF/IG

Request for Data

AFISC/CC

1. Mishap data will be required to support two joint DOD/DOE studies to be conducted in the near future. Both studies are required as the result of decisions made by the Nuclear Weapons Council. The studies will address safety concerns regarding possible involvement of nuclear weapons in accidents involving aircraft. One study is concerned with logistic transport, the other with possible accidents involving the Short Range Atttack Missile (SRAM). The goal of the transport study is to determine merits/risks associated with the various transportation modes. The goal of the SRAM study is to determine a probability of an accident occurrence that could involve a nuclear weapon.

2. The type of data needed for each study is in attachment 1. We believe that the appropriate organization to lead in both study efforts is the Directorate of Nuclear Surety because the concerns center ultimately on nuclear safety rather than flight or ground safety. AFISC/SN also has close working relationships with the other agencies that will be key participants in the study efforts. Keeping in mind that the data will be available to non-Air Force personnel, we request that AFISC/SN be provided the data identified.

3. We believe it would be extremely beneficial if you could also evaluate the data compiled to establish a probability of an accident involving a SRAM loaded B-52 or B-1B in the circumstances given in Attachment 2. Independently established probability numbers (or qualitative assessments) might prove useful in assessing the validity of the results of the joint study group on SRAM.

4. Our point of contact is Lt Col Kirby Fetzer, SAF/IGAF, AUTOVON 227-7050.

SIGNED

JOSEPH K. STAPLETON
Major General, USAF
Deputy Inspector General

2 Atch
1. Mishap Data Needed
2. Accident Scenarios

cc: AFISC/SE/SN

MISHAP DATA NEEDED

1. Transportation Study. (For C-141s and C-130s past 10 years)

   a. Number of takeoffs and landings each year
   b. Number of flight hours each year
   c. For each Class A and B mishap (ground and flight) as appropriate:

      (1) Brief narrative describing the accident and general cause (operations, logistics, misc/other)
      (2) For ground mishaps, assess whether or not the mishap is of a type that could occur at an operational location or is peculiar to other locations (e.g., depot)
      (3) The type of flight activity (low-altitude, high-altitude, approach, climb) or ground operation being accomplished when the mishap occurred.
      (4) Type of mission (PNAF, training, etc.)
      (5) If available for flight mishaps
          (a) ground speed
          (b) vertical speed
          (c) impact angle
          (d) pitch angle
          (e) impact direction
          (f) roll angle
          (g) attitude direction
          (h) yaw angle
          (i) yaw direction
      (6) If fire was involved
          (a) extent of damage to aircraft
          (b) duration of fire
          (c) fuel source
      (7) Fuel on-board at the time of accident
      (8) Amount of fuel/oil spilled from the aircraft (regardless of fire or not) and area covered by spill

2. SRAM Study.

   a. Number of crashes within 10 miles of a runway at a SAC base with B-52 or B-1B operations (address all types of aircraft: heavy, fighter, etc.) (Data regarding mishaps of civilian aircraft within these areas may also have to be obtained.)
   b. Number and type of aircraft that transit the airfield yearly
   c. Location of crash site in relation to runway
   d. For each class A or B mishap (ground or flight) involving a B-52
      (1) Brief narrative describing the accident and general cause
      (2) For ground mishaps, assess whether or not the mishap is of a type that could occur at an operational location

ACCIDENT SCENARIOS

1. Aircraft struck by another aircraft (landing roll, taxi, crash, etc.) or vehicle

   a. ensuing fire engulfs weapons bay of loaded aircraft
   b. explosion of loaded aircraft
   c. explosion of impact aircraft

2. Aircraft crashes and burns or explodes

3. Aircraft fire during maintenance engine run

4. Aircraft fire as a result of use of

   a. engine start cartridge (B-52 only)
   b. aerospace ground equipment
   c. on-board auxiliary power unit (B-1B)

5. Aircraft fire during fueling/defueling (any fuel management operation)

6. Aircraft fire during normal operations

   a. hot-brakes
   b. electrical
   c. fuel leak

7. Alert-loaded aircraft Class A or B Mishap

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE INSPECTOR GENERAL
WASHINGTON DC 20330-1000

15 NOV 1982

MEMORANDUM TO: SAF/IGA

SUBJECT: Joint Air Force/DOE Study Group

TO: AFISC/SN

1. The Assistant to the Secretary of Defense (Atomic Energy) will request a study to address the probability of abnormal environments resulting from aircraft accidents. The guidance has not yet been received by the Air Force; however, we anticipate receipt soon. The concern driving the study is the response of the W69 in abnormal environments. Therefore, Maj Gen Stapleton has requested that you take the lead in developing a plan, milestones, etc., to complete the study.

2. We will ask AFISC to prepare mishap information regarding B-52s for the past 10 years. This should be of use in completing the study. We also recommend that the AIDs data be reviewed for the same period. We will provide an information copy of our request when forwarded.

3. A brief summary of our preliminary information on the scope of the projected study is attached. The Air Force will be the lead agency. Please provide a point of contact as soon as possible. We have begun to receive inquiries for data from Sandia Labs, Division 7233 (Mr. Richard Smith, 4-4476, and Mr. Marty Fuentes, 6-3163). DOE appears to have begun to gather data independently. We informed the Sandia representatives that any data would be provided to you for use as the lead agency in the study.

4. Our point of contact is Lt Col Kirby Fetzer, SAF/IGAF, AUTOVON 227-7050.

RICHARD G. BELLIER, Col, USAF
Assistant Inspector General
Inspection and Safety

1 Atch
Summary of Available Information

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE INSPECTOR GENERAL
WASHINGTON DC 20330-1000

29 NOV 1989

TO: SAF/IG

SUBJ: Joint Air Force/Department of Energy Study

TO: CINCSAC/CS HQ AFSC/CS HQ DOE/DP20.1

1. The Assistant to the Secretary of Defense (Atomic Energy), has tasked (atch) the Air Force to take the lead in a study to determine the probability of an accident involving an aircraft loaded with SRAM/W69. Since The Inspector General is responsible for nuclear safety policy, AFISC/SN will lead this effort. Your support is essential to the successful completion of this study.

2. The guidance requires prompt attention to meet the schedule that has been set for us. AFISC/SN will be contacting organizations within your command or agency to assist in the study effort by providing participants to work taskings and attend technical meetings. The result of this study has significant operational and budget impact potential. Your eager support will be appreciated.

3. The AFISC/SN point of contact for the study is Col Eric Matson, AFISC/SNA, AUTOVON 244-0176. The SAF/IG point of contact is Lt Col Kirby Fetzer, SAF/IGAF, AUTOVON 225-6948.

Joseph K. Stapleton

JOSEPH K. STAPLETON
Major General, USAF
Deputy Inspector General

Atch
ATSD(AE) Memorandum, 15 Nov 89

cc: Joint Staff/J3
DNA/OPNO
DOE/DASMA
HQ USAF/AQQ/XOX
AFISC/SE/SN
HQ SAC/IG/XO/XP/LG
HQ AFSC/IG
WL/NT/NTS

SUMMARY OF AVAILABLE INFORMATION
ON
PROJECTED SRAM A/W69 ABNORMAL ENVIRONMENTS STUDY

1. Time constraints

   a. From ATSD (AE) direction to study completion: Less than 6 months

   b. Briefing on proposed milestones, study approach, team composition, etc., to the Nuclear Weapons Council Weapons Safety Committee (probably Action Officer's Group also) with preliminary brief to Maj Gen Stapleton within 1 month of formal tasking

2. Study Team composition

   a. Chair, Air Force Inspection and Safety Center, Directorate of Nuclear Surety
   b. DOE membership required
   c. Remaining composition to be determined by AF/DOE, (recommend participation by SAC)

3. Scope

   a. Address credible accident scenarios that could involve the SRAM A/W69 in an abnormal environment.
   b. Address predicted response of SRAM A/W69 if subjected to an abnormal environment.
   c. Do not address design changes

4. Goals

   a. Establish the probability of an accident occurrence that involves the SRAM A/W69 in an abnormal environment.
   b. Identify operational options to decrease that probability.
   c. Establish the probability of a nuclear yield or plutonium scattering as a result of an abnormal environment.
   d. Identify operational options to decrease probability of plutonium scattering or nuclear yield in an abnormal environment.
   e. Identify costs (operational and fiscal) associated with implementing operational options

5. Specific operational options that must be considered

   a. No engine starts except for EWO response
   b. Electrical isolation of SRAM from carrier aircraft
   c. Change in alert role

Sandia National Laboratories

Livermore, California 94550

date: January 9, 1990

to: J. B. Wright - 8150

Edward B. Talbot

from: E. B. Talbot - 8155

subject: Destruction of SRAM-A Rocket Motors

Russ Miller has asked me to investigate the rumor that "SRAM-A rocket motors are being destroyed." This memo reports the results of my investigation.

The SRAM-A rocket motor uses a "nitrogen inerted" propellant. This means that the propellant is inert when stored in a nitrogen atmosphere. The rocket motors in stockpile are sealed and filled with nitrogen at positive pressure to insure stable storage.

Recently, several motors were surveyed and found to have nitrogen pressure close to atmospheric. This indicates that a leak existed which could allow other gases to enter the motor. The effects of other gases on the SRAM-A motor propellant have not been characterized. Potentially, other gases could cause the propellant to become very unstable.

Nine motors have been identified that do not have positive nitrogen pressure. One of these motors, along with the entire missile (except warhead) has been destroyed. Tests are now being performed to determine if (at least) the electronics can be salvaged.

According to Alan Crews of BAE, this problem is limited to a few (5 to 9) missiles and not an issue for the remaining SRAM-A fleet. In his words, the motors will "work fine through the end of the century."

I hope this clarifies the issue. If you have any questions or comments please call me on X2669.

EBT:8155:SAMOTOR.MEM

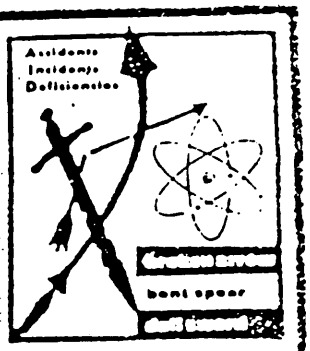
Copy to:
DOE-ALO K.A. Carlson
8155 R.G. Miller
8155 E.B. Talbot

KUSS — WHAT DO WE WANT TO SAY ABOUT THIS?

7232 } Have someone
7233 } look into this
situation and
prepare memo
for SNL Mgt.

5000 8150
5100
5125

NUCLEAR AID TOPICS



"HOT" TOPIC!

DUE to the known deterioration properties of the propellant used in SRAM A rocket motors, the ginal design required that these motors be pressurized th dry nitrogen. Loss of the motor nitrogen blanket enable ingredients of the propellant to break down, aking the affected material a contact-sensitive ex- osive or flammable. As deterioration increases, the aterial becomes more sensitive to static charge buildup d physical shock.

Several main operating bases have experienced pressurized rocket motors. The question of what to about the hazard caused by this condition has been refully deliberated, and discussions are ongoing as what actions are necessary to minimize or eliminate hazard. To date, the experts have provided the llowing guidance:

- Isolate affected rocket motors so as to minimize rsonnel exposure and exposure of the motors to other unitions.
- Remove nuclear payloads and racks, but do not complish any further disassembly of the missiles.
- Suspend all maintenance actions on these rocket otors.
- Reduce normal handling (i.e., forklift movement, ding, and unloading) to the absolute minimum.
- Plan for destruction of all SRAM A rocket motors ich, since manufacture, have been at zero pressure longer than 14 days. (Do not initiate destruction ny motor until specifically directed by the MAJCOM adquarters.)
- Schedule destruction at the location where affected tors were identified since movement to another base or site may create an unacceptable risk to the civilian population.

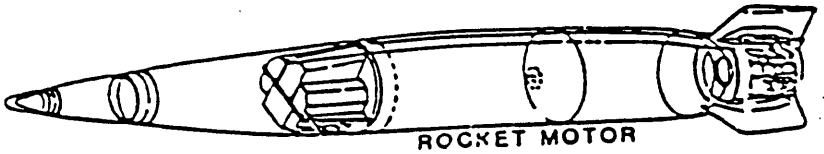
By the time you read this, you should have received instructions on how to "safe" the degraded propellant — but don't panic if you haven't. Although there is presently no way to exactly quantify the hazards associated with any specific rocket motor, Air Force rocket propellant experts tell us that nothing "magic" happens in exactly 14 days to motors without nitrogen protection. It is a conservative number representing that point in time when the most susceptible motor would just begin to degrade.

The worst probable consequence of continuous degradation, which would take much longer than 14 days, is spontaneous ignition of the propellant in a way similar to a normally initiated burn. Naturally, this would be a catastrophe. When planning storage measures for degraded motors, you should consider the fact that a propulsive effect is a worst-case consequence.

One of the unfortunate results of the SRAM A motor problem is the fact that valuable and perfectly usable components are attached to the affected missiles. Salvaging these components for reuse on good missiles could save a lot of money. However, until we have found a way to safe the motors damaged by loss of nitrogen, it isn't worth the risk.

Again, we hope the SRAM A motor problem is past history by the time you read this. The experts are working hard to find ways to overcome handling sensitivity so that usable components can be salvaged. They may even come up with a positive inspection procedure to tell whether a questionable motor has actually been damaged. Until then, follow procedures and give the weapons a little extra care and respect. (Major John D. Waskiewicz, Directorate of Nuclear Surety/SNAA)

SRAM A



ROCKET MOTOR