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# REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES

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## Accountability And Control Of Warheads In The Custody Of The Department Of Defense And The Energy Research And Development Administration

The record systems the Defense Nuclear Agency and Energy Research and Development Administration use for accountability and control of nuclear weapons were found to be functioning properly. No discrepancies were noted between the active stockpile and accountability records.

However, Defense Nuclear Agency's inspection function would be more effective if the units to be inspected were selected independently rather than taken from lists of units nominated by the military services.

GAO recommends that

- the Defense Nuclear Agency independently select and inspect each unit at least once every 5 or 6 years,
- existing inventory procedures be strengthened, and
- the agencies determine the feasibility of relocating serial numbers to a more accessible place on the warhead and/or designing containers with a window so that serial numbers are visible.



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-163058

To the President of the Senate and the  
Speaker of the House of Representatives

We reviewed the management and reporting systems for maintaining accountability and control of nuclear warheads in the custody of the Department of Defense and the Energy Research and Development Administration (ERDA). The Defense Nuclear Agency (DNA) keeps centralized accountability records for warheads in Defense custody and is responsible for on-site inspections to assure that Defense control and safety standards are maintained. ERDA keeps accountability records for warheads in its custody.

In summary, the systems DNA and ERDA use for accountability and control of nuclear weapons were found to be functioning properly. No discrepancies were found between the active stockpile and accountability records.

DNA's inspection function would be more effective if the units to be inspected were selected independently rather than taken from lists of units nominated by the military services.

In July 1976 the Deputy Assistant Secretary of Defense (Audit) initiated a review to evaluate the reliability and timeliness of the Defense nuclear weapons reporting system. We have coordinated our review with the Defense audit staff to avoid unnecessary duplication and to provide greater audit coverage. The audit staff expects to issue a report on its review by mid-1977.

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In our review we (1) tested the procedures by which ERDA and DNA keep separate accountability record files, (2) compared ERDA's production records for three warhead programs with active and inactive stockpile records kept by DNA, (3) inventoried warheads at 15 Defense and 1 ERDA location and compared the results with DNA stockpile records, (4) reviewed DNA's process for selecting nuclear-capable military units that it inspects, and (5) evaluated the procedures military units use to inventory their stockpiles.

Our review disclosed the following weaknesses:

- DNA's records of inactive warheads contained 12 serial numbers that ERDA never assigned.
- Military units perform semiannual inventories of their stockpiles to reconcile DNA's accountability records. However, many warheads are not physically inspected since they are on alert or are containerized.
- DNA inspects about 20 to 25 percent of all nuclear-capable units annually but does not have the independence to choose which units it inspects.

#### THE ACCOUNTABILITY SYSTEMS

Every nuclear warhead is assigned a serial number. With few exceptions, the serial number is permanently affixed to the warhead and is also stenciled on the warhead case, its shipping container, and the weapon. Both ERDA and DNA use these serial numbers in their stockpile accountability and control systems to record all weapon condition and configuration changes. ERDA notes custody changes between itself and Defense; additionally, DNA records all location changes. ERDA facilities and Defense units contribute input to these files.

Nuclear component and warhead inventory records at DNA and ERDA are maintained and updated by computer. The accuracy of the records is essential to make timely decisions concerning the use, deployment, allocation, and security of nuclear weapons.

We tested the logic in the computer programs and the functions of the internal computer controls to determine whether transactions involving nuclear weapons are handled correctly and whether erroneous data is rejected by the computer before it is entered into ERDA's and DNA's master data bases. Test transactions included valid and invalid transactions designed to validate the procedures and controls documented in the user manuals. We also tested procedures and controls which were not specifically documented but which we believed to be necessary for proper accountability.

None of our attempts to enter false weapon accountability data into the computer were successful.

COMPARISON OF ERDA PRODUCTION RECORDS  
WITH DNA STOCKPILE AND RETIREMENT RECORDS

To check the completeness and accuracy of DNA's records, we obtained a list from ERDA of all warheads produced for three weapon programs and compared it with DNA's stockpile listings. While we found no discrepancies in DNA's current active stockpile listings, the inactive warhead files for one program contained 12 serial numbers which were not on ERDA's production listings.

DNA officials initiated a detailed examination and found that six of the serial numbers were erroneously entered into DNA's active weapons file during 1964 and 1965. The serial numbers were removed by 1966. Late in the 1960's, when DNA was converting to the present computerized accounting system, the same six serial numbers were entered into the inactive warhead file. The other six serial numbers appeared in DNA's inactive files as disassembled weapons during conversion to the present system and apparently were never in the active files.

DNA officials could not fully explain the erroneous entries but said keypunch errors were suspected. In order to verify the accuracy of its data base of inactive warheads, DNA is searching the files of the remaining programs to determine if they contain erroneous entries and will provide us with the results when the search is completed.

In our opinion the chances of erroneous serial numbers being entered into the active weapon files under the present computerized accounting system are remote. None of our attempts to enter false weapon accountability data into the system were successful. In addition, as part of the present system DNA and ERDA make monthly reconciliations by serial number of the current status of every nuclear weapon in the stockpile.

GAO TEST OF INVENTORY

At each of the 16 locations we

- inventoried the nuclear warheads,
- compared our inventory to DNA's records, and
- compared our inventory to the accountable unit's inventory records.

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Attempts to use the permanently affixed serial number as the primary means of verification were only partially successful. A few warheads do not have permanent markings. Also, many warheads are stored in containers and must be removed before the permanent serial number is visible. In taking our inventory, we required a sample of warheads to be removed from their containers so the permanent serial number could be verified. Stenciled numbers were checked for the remainder of the containerized warheads.

Other warheads were inaccessible because they were attached to their delivery vehicles or were on alert status and could not be seen without disassembling the weapon or downgrading the alert status of the weapon. We selected a small sample of warheads which were attached to delivery vehicles and requested partial disassembly so the permanent serial numbers could be verified. We verified the stenciled numbers on the weapon or warhead on the remainder. While some alert warheads were available for inspection, others could only be verified through a review of custodial and accountability records.

We inventoried 19 percent of the total stockpile. Of those inventoried, 47 percent were verified through the permanently affixed serial number, 14 percent through the stenciled number on the warhead or weapon, 27 percent by viewing the stenciled number on the container, and 12 percent by reviewing the unit's custodial and accountability records. There were no discrepancies between our inventory and DNA's records.

#### DNA INSPECTIONS

To assure that Department of Defense standards are maintained, the Joint Chiefs of Staff require DNA to annually inspect 20 to 25 percent of all nuclear-capable units in Defense. A nuclear-capable unit is defined as one certified by the military service as having the capability for assembly, maintenance, or storage of nuclear weapons, associated components, and ancillary equipment. The DNA inspection teams review areas such as

- management and administration, including accountability records;
- technical operations;
- conditions of the stockpile, including an examination of items in storage;
- security; and

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--safety.

Scheduling of inspections is accomplished jointly between DNA and the services, but the units inspected are selected from a list of nuclear-capable units nominated by the parent service. DNA emphasizes inspecting a sampling of units according to mission and type of unit rather than inspecting each unit once within a specified period of time.

The following table shows DNA's inspection activities since January 1, 1971.

<u>Service</u>	<u>Number of nuclear-capable units at 10/76</u>	<u>Units not inspected</u>
Army	275	<u>a/38</u>
Navy	<u>b/287</u>	<u>c/153</u>
Air Force	<u>74</u>	<u>d/ 3</u>
Total	<u>636</u>	<u>194</u>

a/Of the 38 units, 14 are new since July 1974.

b/This is a quarterly average.

c/Of the 153 units, 2 are no longer in service and 28 are new since January 1971.

d/Of the three units, two are new since January 1975.

Of the 194 units not inspected by DNA, available records indicated that since July 1, 1974, 61 Navy units were nominated but not selected for inspection because the units' locations and availability dates could not be incorporated into the inspection schedule without incurring excessive costs for separate inspection trips.

While we agree that costs for inspections should be held to a minimum, cost should not be the overriding consideration when the primary reason for DNA inspections is to determine how well DOD standards are being maintained by nuclear-capable units. Because data was not readily available, we could not determine how many of the remaining 133 units were nominated or, if they were nominated, why the units were not selected for inspection. The effectiveness of DNA to perform its inspection function would be improved if the units to be inspected were independently selected rather than taken from lists of units nominated by the military services.

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INVENTORIES BY MILITARY UNITS

We reviewed inventory procedures at each of the 15 military units we visited and noted several areas where the procedures could be strengthened.

Joint Chiefs of Staff regulations require every Defense installation that has nuclear weapons to conduct a complete inventory of its weapons twice each year and submit it to DNA. DNA matches this report with its own accountability records.

When the inventories are taken, only the stenciled numbers are checked in most cases. The Joint Chiefs of Staff regulations do not require verification of the permanently affixed serial numbers even though they are, in some cases, just as accessible as the stenciled numbers.

One service allows the accountability records for weapons mounted on alert aircraft to be used for inventory verification. We found that these weapons can, in many cases, be inspected with little difficulty without disturbing the weapons or downgrading the alert status of the aircraft.

The Joint Chiefs of Staff regulations do not require containers to be opened during inventories even though many can be opened easily. For example, at one location we opened 79 containerized warheads and verified the permanent serial numbers without delaying our inventory.

The purpose of physical inspection of the actual warheads is to obtain assurance, at least on a sample basis, that there is a warhead in each container in the sample and that the permanent serial number on the warhead agrees with the number stenciled on the container and the accountability records.

Three of the Defense sites visited conducted their inventories by matching a listing of serial numbers taken from the units' accountability records against the serial numbers on the weapons as the inventory is taken. Other installations conducted a "blind" inventory by writing each serial number on a blank ledger during the physical inspection and later verifying the numbers to the unit records. By conducting blind inventories, warheads in stockpile but not in inventory listings would be identified, thus providing greater assurance that stockpiles and accountability records agree.

In a report issued in 1970, the Deputy Comptroller for Internal Audit, Office of the Secretary of Defense, noted that some units were using a pre-inventory listing of serial

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For those warheads where serial numbers are not readily accessible, such as those mated to weapons or in containers, we recommend that ERDA and Department of Defense determine the feasibility of relocating the serial numbers to a more accessible place on the warhead and/or designing containers for future weapons with a window so that the serial numbers are visible.

#### AGENCY COMMENTS

This report was sent to the Department of Defense and the Energy Research and Development Administration for comment on January 26, 1977.

In a reply dated May 2, 1977, (app. I), Defense advised us that independent selection by DNA is not considered desirable because operational missions, as well as training and maintenance, have priority over inspection. Defense also advised us that the present system of joint scheduling by DNA and the services is considered flexible and cost effective.

We believe DNA should select units for inspection independent of service nomination in order that the inspection coverage is as objective and meaningful as possible. While we recognize that operational missions take priority over inspections, we also note that service inspection teams are required to inspect each unit at least once every 18 months. Thus, DNA and the services should be able to work out a schedule which provides coverage of all units with a minimum of interference with a unit's basic mission.

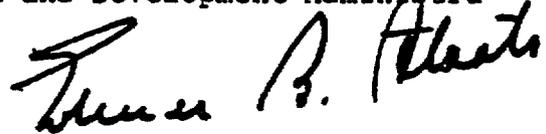
Defense also advised us that semiannual inspections of a sample of all containerized weapons and verification of serial numbers of weapons returning from alert are considered unnecessary, because current procedures provide for adequate confirmation of serial numbers by visual verification by the ultimate consignee upon change of accountability. Further warhead serial numbers are verified during scheduled maintenance and periodic inspections.

We did find that serial numbers are verified during scheduled maintenance. However, in performing semiannual inventories and upon changes of accountability, it is not required nor have we found it to be a practice for a unit to open containerized weapons. In our opinion, a sampling of the contents of containerized weapons is essential to insure the credibility of the inventory count.

In a letter dated February 28, 1977 (app. II), Energy Research and Development Administration advised us that it is currently making every effort to insure that serial numbers for all new weapons are accessible and permanent without interfering with weapon performance. While this is a positive step forward, we believe Defense and ERDA should determine the feasibility of designing containers with windows so that serial numbers are visible.

Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies are being sent to the Director, Office of Management and Budget; the Secretaries of Defense, Army, Navy, and Air Force; the Director, Defense Nuclear Agency; and the Administrator, Energy Research and Development Administration.



Comptroller General  
of the United States



OFFICE OF THE SECRETARY OF DEFENSE  
WASHINGTON, D. C. 20301

2 MAY 1977

Mr. R. W. Gutman  
Director, Procurement and Systems  
Acquisition Division  
General Accounting Office  
Washington, D. C. 20548

Dear Mr. Gutman:

This is in reply to your letter to the Secretary of Defense regarding your report dated 26 January 1977, on the review of accountability and control of warheads in the custody of the Department of Defense and the Energy Research and Development Administration, OSD Case #4538. The draft report has been reviewed. Specific comments and suggested changes to the report are contained in the enclosure.

While the Department of Defense generally agrees with the recommendations of the report, there are two areas that warrant discussion. First, the report recommends that the Defense Nuclear Agency (DNA) independently select and inspect each unit. The independent selection by DNA is not considered to be desirable as there are operational missions, as well as training and maintenance, that have priority over an inspection. The present system of joint scheduling by DNA and the Services, modified to the extent of DNA nominating selected units to be inspected, is considered flexible and cost effective.

Secondly, the report recommends a sample of all containerized weapons be inspected semi-annually and that weapons returning from alert require a serial number verification. This is considered unnecessary as current procedures provide for adequate confirmation of the serial numbers. The serial number of a warhead section is visually verified by the ultimate consignee upon change of accountability. Further, warhead serial numbers are verified during scheduled maintenance and periodic inspections.

A security review of the report indicates that the appropriate classification is "UNCLASSIFIED". However, it is suggested that the report be marked

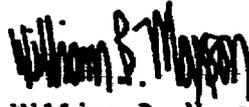


APPENDIX I

APPENDIX I

"FOR OFFICIAL USE ONLY" to preclude premature public release of  
audit information pertaining to military nuclear activities.

Sincerely,



William B. Maxson  
Brigadier General, USAF  
Deputy Assistant to the Secretary  
of Defense (Atomic Energy)

Enclosure



UNITED STATES  
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION  
WASHINGTON, D.C. 20545

FEB 28 1977

Mr. Monte Canfield, Jr., Director  
Energy and Minerals Division  
U.S. General Accounting Office  
Washington, DC 20548

Dear Mr. Canfield:

Thank you for the opportunity to review the GAO draft report entitled "Review of Accountability and Control of Warheads in the Custody of the Department of Defense and the Energy Research and Development Administration." We have no comments regarding the proposed recommendations which are directed to the Department of Defense and the Defense Nuclear Agency.

With respect to the recommendation on page li that ERDA and DOD study the feasibility of relocating weapon serial numbers to a more accessible place and/or designing containers for future weapons with a window so that the serial numbers are visible, ERDA's Division of Military Application issued a memorandum on October 4, 1965, which resulted in serial number locations being changed on several weapons. However, there are a few older weapons where relocation is not considered feasible or cost effective. We are currently making every effort to ensure that the location of serial numbers for all new weapons are accessible and permanent without interfering with weapon performance.

Sincerely,

*M. C. Greer*  
M. C. Greer  
Controller