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FINANCIAL MANAGEMENT

DOD's Liability for the Disposal of Conventional Ammunition Can Be Estimated





United States
General Accounting Office
Washington, D.C. 20548

Accounting and Information
Management Division

B-273004

December 19, 1997

The Honorable William S. Cohen
The Secretary of Defense

Dear Mr. Secretary:

Recent laws have enhanced the legislative requirements to provide policymakers and agency program managers with more reliable financial information to formulate budgets, manage government programs, and make difficult policy choices.¹ Recognizing the extent of incomplete and unreliable information on the cost and consequences of government programs and activities, these laws have made implementation of new accounting standards and audited financial statements a priority. New federal accounting standards have been adopted to enhance financial statements by requiring that government agencies show the financial results of their entire operations and provide relevant information on agencies' true financial status. The third in a planned series of reports,² this report discusses the Department of Defense's (DOD) implementation of the requirement to disclose the liability associated with the disposal of various types of assets, specifically conventional ammunition,³ hereafter referred to as ammunition.

Background

In October 1990, the Federal Accounting Standards Advisory Board (FASAB) was established by the Secretary of the Treasury, the Director of the Office of Management and Budget (OMB), and the Comptroller General of the United States to consider and recommend accounting standards to address the financial and budgetary information needs of the Congress, executive agencies, and other users of federal financial information. Using a due process and consensus building approach, the nine-member Board,

¹The Chief Financial Officers (CFO) Act of 1990, the Government Management Reform Act of 1994, and the Federal Financial Management Improvement Act of 1996.

²Financial Management: Factors to Consider in Estimating Environmental Liabilities for Removing Hazardous Materials in Nuclear Submarines and Ships ([GAO/AIMD-97-135R](#), August 7, 1997) and Financial Management: DOD's Liability for Aircraft Disposal Can Be Estimated ([GAO/AIMD-98-9](#), November 20, 1997).

³DOD Directive 5160.65, "Single Manager for Ammunition" defines ammunition to include small arms, mortars, automatic cannons, artillery, ship gun ammunition, bombs, unguided rockets, land mines, grenades, flares and pyrotechnics, incendiaries, projectiles, high explosives, and fuzes. The directive's definition includes chemical ammunition, which is excluded from this report because estimated costs for disposal of chemical weapons are discussed in Chemical Weapons and Materials: Key Factors Affecting Disposal Costs and Schedule ([GAO/NSIAD-97-18](#), February 10, 1997). Both the directive and this report exclude nuclear weapons and guided rockets (missiles).

which has since its formation included a member from DOD, recommends accounting standards for the federal government. Once FASAB recommends accounting standards, the Secretary of the Treasury, the Director of OMB, and the Comptroller General decide whether to adopt the recommended standards. If they are adopted, the standards are published as Statements of Federal Financial Accounting Standards (SFFAS) by OMB and by GAO. In addition, the Federal Financial Management Improvement Act of 1996, as well as the Federal Managers' Financial Integrity Act, require federal agencies to implement and maintain financial management systems that will permit the preparation of financial statements that substantially comply with applicable federal accounting standards.

Issued in December 1995 and effective beginning with fiscal year 1997, SFFAS No. 5, Accounting for Liabilities of the Federal Government, requires the recognition of a liability for any probable and measurable future outflow of resources arising from past transactions.⁴ The statement defines probable as that which is likely to occur based on current facts and circumstances. It also states that a future outflow is measurable if it can be reasonably estimated. The statement recognizes that this estimate may not be precise and, in such cases, it provides for recording the lowest estimate and disclosing in the financial statements the full range of estimated outflows that are likely to occur.

The liability disclosure requirements stated in SFFAS No. 5 apply to several types of assets, including property, plant, and equipment (PP&E) and operating materials and supplies. SFFAS No. 3, Accounting for Inventory and Related Property, defines operating materials and supplies as consisting of tangible personal property to be consumed in normal operations. SFFAS No. 6, Accounting for Property, Plant, and Equipment, which is effective beginning in fiscal year 1998, deals with various accounting issues pertaining to PP&E. This statement establishes several new accounting categories of PP&E, collectively called stewardship PP&E. Other PP&E is referred to as general PP&E. One of the new stewardship categories—federal mission PP&E—is defined as tangible items owned by a federal government entity, principally DOD, that have no expected nongovernmental use, are held for use in the event of emergency, war, or natural disaster, and have an unpredictable useful life. Federal mission PP&E, which includes ships, submarines, aircraft, and combat vehicles, is a major part of DOD's total PP&E.

⁴These requirements generally mirror those of the Statement of Financial Accounting Standard No. 5, Accounting for Contingencies (FASB No. 5), which was effective prior to the development of SFFAS No. 5.

Recently, FASAB reviewed the asset category for ammunition and reiterated its position that ammunition should be classified as operating materials and supplies rather than federal mission PP&E. Although the asset categories for financial reporting may be different, the SFFAS No. 5 requirements for recording the disposal liability are the same for operating materials and supplies and mission assets.

Results in Brief

DOD has not yet implemented the federal accounting standard that requires recognizing and reporting liabilities such as those associated with ammunition disposal, nor has it provided guidance to the military services. In commenting on our recent report on the aircraft disposal liability, DOD agreed with our recommendation to incorporate SFFAS No. 5 in its Financial Management Regulation. Ammunition disposal is an ongoing process that results from materials with a limited shelf-life or that otherwise will not be used in operations, and the cost can be reasonably estimated. Accordingly, these activities meet the criteria for a reportable liability. The cost information that DOD developed in response to requests from congressional committees can be used as a starting point to estimate the ammunition disposal liability. A number of additional factors will have to be addressed, including data reliability, data completeness, and the need for periodic updates.

Objectives, Scope, and Methodology

We undertook this review to assist DOD in its efforts to meet the new federal accounting standard, SFFAS No. 5, and because of our responsibility to audit the federal government's consolidated financial statements beginning with fiscal year 1997. Our objectives were to determine (1) the status of DOD's efforts to implement the new federal accounting standard for disclosure of liabilities, such as ammunition disposal costs, and (2) whether the ammunition disposal liability was probable and whether a reasonable estimate of the minimum disposal liability for ammunition could be made.

To determine if the liability is probable, we reviewed financial accounting standards, environmental laws and regulations, and DOD manuals that address the handling and disposal of hazardous material. We also reviewed congressional committee reports that requested ammunition disposal cost information. We also interviewed DOD officials responsible for financial reporting and those at the service level responsible for program management, ammunition demilitarization, and disposal.

To determine if a disposal liability was reasonably estimable, we obtained information on ammunition inventories, as of September 30, 1996, the most recent data available at the time of our review, and what it costs to demilitarize and dispose of ammunition. To determine the availability of ammunition inventory information, we interviewed service officials responsible for inventory management and obtained information on the services' ammunition inventory systems as well as their ammunition inventories as of September 30, 1996.

To determine the availability of ammunition demilitarization and disposal cost information, we obtained information on the volume, nature, and cost of the Army Industrial Operation Command's (DOD's single manager for ammunition) disposal activities, as well as information on the Joint Ordnance Commanders Group's munitions demilitarization studies. We also obtained information on the Navy's ammunition disposal activities because the Navy disposes of certain Navy-specific items, such as underwater torpedoes and depth charges. In addition, we interviewed service officials responsible for the accounting and reporting of demilitarization and disposal costs.

We analyzed the DOD Joint Ordnance Commanders Group, Munitions Demil/Disposal Subgroup's 1995 and 1996 reports on demilitarization and disposal cost information. The Subgroup's 1996 Munitions Demilitarization Study identified disposal costs for 23 munition⁵ categories, referred to as Munition Items Disposition Action System (MIDAS) families. We did not independently verify the inventory and cost data furnished to us.

We conducted our review between November 1996 and November 1997 in accordance with generally accepted government auditing standards. Appendix I lists the primary locations where we performed our review. We provided a draft of this report to the Secretary of Defense for review and comment. We received oral comments which are discussed in the "Agency Comments and Our Evaluation" section.

DOD Has Not Implemented SFFAS No. 5

As we recently stated in our report on DOD's aircraft disposal liability, as of the end of the fiscal year on September 30, 1997, DOD had not established a policy to implement SFFAS No. 5. On September 30, 1997, the DOD Comptroller's office posted revisions to the electronic version of DOD's Financial Management Regulation (FMR) to include SFFAS No. 1 through 4, but SFFAS No. 5 was not included. In commenting on a draft of our aircraft

⁵Munitions includes ammunition as well as tactical missiles.

disposal liability report, DOD agreed with our recommendation that SFFAS No. 5 be incorporated in the FMR.⁶ In addition, the DOD Comptroller, who is responsible for developing and issuing guidance on accounting standards, and the Under Secretary of Defense (Acquisition and Technology), who is responsible for the operational activities associated with ammunition disposal, have not provided implementation guidance to the services to assist them in estimating the disposal costs for ammunition. Service officials stated that they are reluctant to estimate a liability for their ammunition disposal until they receive DOD-wide guidance. Unless prompt action to implement this standard is taken, it is unlikely that DOD's or the military services' fiscal year 1997 financial statements will include an estimate of ammunition disposal costs as required.

Ammunition Disposal Liability Has Been Incurred

One of the key criteria cited in SFFAS No. 5 for a liability to be reported is that a future payment is probable—that is, the future outflow of resources is likely to occur. Although, in some cases, the likelihood of a future outflow may be difficult to determine and an entity may have difficulty deciding whether to record a liability for certain events, this is not the case for DOD. DOD continually disposes of ammunition and has an amount for disposal costs in its annual budget. According to the Industrial Operations Command's Associate Director for Demilitarization, during the last 5 years, DOD has spent over \$370 million to dispose of ammunition. Thus, because it is known at the time of acquisition that costs will be incurred for ammunition disposal, the probability criterion for recording a liability is met.

The Congress has also recognized that disposal will occur and has emphasized the importance of accumulating these costs and considering this information. In the past 3 years, congressional committees have specifically asked for information related to ammunition disposal costs. The Senate Committee on Appropriations, in its report on the fiscal year 1995 Defense Appropriations bill, directed DOD to develop a plan for the disposal of rocket motors, ammunition, and other explosives, including information on alternative ammunition disposal methods and related costs. The next year, the House Committee on Appropriations, in its report on the fiscal year 1996 Defense Appropriations bill, expressed concern about the Army's continuing practice of demilitarizing ammunition by open-air burning and detonation. The committee requested an analysis that included the costs and savings of recycle and reuse technologies, the

⁶See Financial Management: DOD's Liability for Aircraft Disposal Can Be Estimated (GAO/AIMD-98-9, November 20, 1997).

revenue that could be derived from the sale of recycled and reusable products, and the ultimate clean-up costs for open-air burning and detonation sites. Most recently, the Fiscal Year 1997 National Defense Authorization Act required the establishment of a 5-year program for the development and demonstration of environmentally compliant technologies for the disposal of ammunition, explosives, and rockets.

Ammunition Disposal Process

The Army Industrial Operations Command (IOC), DOD's single manager for ammunition, has an ongoing program to dispose of ammunition from all services. While each service maintains its own ammunition inventory management systems and technically owns the ammunition, IOC manages procurement and disposal of ammunition items for all services. IOC supplies or ships ammunition from production and storage sites to field installations and units; manages ammunition disposal programs; oversees efforts to upgrade ammunition already in service; and manages the Army's worldwide ammunition stockpile.

IOC is responsible for the disposal of about 96 percent of all ammunition. The exceptions are generally service-unique ammunition items, like Navy torpedoes, or items that are more practical to dispose of at their current installation or depot or by a contractor. The reasons for disposal of ammunition are obsolescence, deterioration, and excess supply. Obsolescence occurs when the weapons systems that use the ammunition are phased out, thus eliminating the need for the ammunition. Ammunition becomes excess when the quantities on hand exceed what is needed due to factors such as downsizing of the military forces. Deterioration can result from age and long-term storage conditions that render the ammunition unusable.

The two overall types of ammunition disposal methods are (1) destructive processes that either explode or incinerate the ammunition and (2) resource recovery and recycling processes that remove the explosive components through a variety of methods and allow their reuse.

Ammunition Inventory

Ammunition under IOC's control is tracked by the Commodity Command Standard System. This system accounts for ammunition in depots, but does not include ammunition issued to military field units. Army field ammunition stocks are accounted for by the World-wide Ammunition Reporting System. Systems used by the other services are the Air Force's Combat Ammunition System, the Navy's Conventional Ammunition

Information Management System, and the Marine Corps Ammunition and Accounting Reporting System.⁷ We requested a detailed listing of the year-end ammunition inventory from each of the services and obtained the inventory balance from the information they provided to us. The September 30, 1996, ammunition inventory balance is shown in table 1, which contains the most recent data available.

Table 1: Service Inventory of Ammunition as of September 30, 1996

Service	Inventory balance (tons)
Army	2,159,667
Air Force	2,102,988
Navy	644,424
Marine Corps	107,797
Total	5,014,876

The ammunition inventory serves as the basis for estimating the disposal liability because ammunition used in training and operations is generally replaced to maintain the inventory at certain levels. As a result, training and operational usage may not reduce the total liability for ammunition disposal.

Ammunition Disposal Liability Could Be Estimated

The second key criterion in SFAS No. 5 for reporting of a liability is that an amount be reasonably estimable. In the past, DOD has reported its estimated ammunition disposal costs using several methodologies that range from a “rule of thumb” figure to more detailed cost analyses based on specific types of ammunition. Achieving a reasonable estimate is possible using the existing detailed analyses as a starting point. A number of key factors would have to be considered to ensure that the development of the ammunition disposal cost estimate is as accurate as possible.

DOD’s Estimates Based on Analysis by Ammunition Type

DOD has used \$1,000 per ton as a “rule of thumb” for ammunition disposal costs. For example, in May 1995 congressional testimony, the Deputy for Ammunition, U.S. Army, stated that “rule of thumb is that it costs about \$1,000 a ton, hopefully a little less, to get rid of unserviceable

⁷We as well as the DOD Inspector General and service auditors have reported problems with the reliability of information in DOD’s accounting and logistical systems. While there are limitations in the data, DOD is working to improve the systems that should, over time, increase the accuracy of the information and improve the disposal liability estimates. See our report Defense Financial Management (GAO/HR-97-3, February 1997).

ammunition.”⁸ According to officials in the Army’s Office of the Deputy for Ammunition, the \$1,000 estimate was calculated for the Army’s Conventional Ammunition Demilitarization Master Plan issued in May 1993. They stated that the \$1,000 estimate was an average cost based on actual disposals during the 2 years preceding the master plan’s issuance.

As part of its response to Senate and House requests for more detailed disposal cost information in 1995 and 1996, DOD compiled historical cost information that could be used as a starting point for developing a reasonable estimate of the ammunition disposal cost liability. In response to the fiscal year 1995 Senate Committee on Appropriations report requesting information on alternative disposal procedures and costs for ammunition and other explosives, the Joint Ordnance Commanders Group (JOCG),⁹ Munitions Demil/Disposal Subgroup, analyzed the ammunition stockpile in 1995 using “families” of items for disposal. The MIDAS families are based on the materials contained in the ammunition, methods of assembly/disassembly, preferred demilitarization methods, and any unique features. In its September 1995 report, JOCG provided an estimate of the tonnage requiring disposal for each MIDAS family of ammunition.

In response to the 1996 House Committee on Appropriations report that requested additional information, the JOCG subgroup formed an ad hoc working group¹⁰ to study the comparative benefits and costs of different disposal methods using the MIDAS families as the basis for collecting and summarizing the cost per ton for the various alternative disposal procedures. The cost information was collected for both government installations and contractor facilities that had performed ammunition disposal during fiscal years 1994 to 1996. For the 1996 study, the JOCG working group collected historical cost information on the ammunition disposed of during fiscal years 1994 through 1996. It grouped¹¹ the disposal actions by MIDAS family and calculated an average disposal cost per ton based on the facility type—government-owned and operated facilities, government-owned facilities operated by a contractor, and

⁸Testimony of the Deputy for Ammunition, U.S. Army, before the Subcommittee on National Security, House Committee on Appropriations, May 2, 1995.

⁹JOCG consists of representatives from each of the four military services. It was established to coordinate and consolidate programs for the development, production, and support of military ammunition systems within DOD.

¹⁰Participants included the Army Defense Ammunition Center and School, Industrial Operations Command, Argonne National Laboratory, Army Corps of Engineers, as well as subject matter experts from the military services, industry, and academia.

¹¹Other groupings showing average costs were included in the working group’s analysis.

contractor-owned and contractor-operated facilities. For 14 of the MIDAS families for which costs were available, the demilitarization was performed by a single category of facility and thus yielded a single average cost. The other eight MIDAS families involved demilitarization at more than one type of facility, thus yielding a range of average costs. See appendix II for a listing of the MIDAS families and the average disposal costs that were developed based on the working group's report.

Although a number of critical factors would have to be considered, including the reliability of the historical data as discussed in the following section, the cost estimates developed for the MIDAS families can be used as a starting point to estimate the ammunition disposal liability. The national stock numbers (NSNS) of ammunition items throughout DOD have been associated with the MIDAS families. For example, for the Army, the U.S. Army Defense Ammunition Center and School staff provided us with a data file that translated the specific Army ammunition NSN line items into their respective MIDAS families. Using Army's fiscal year 1996 inventory amount of 2,144,995 tons (which excludes 14,672 tons of ammunition for which MIDAS cost information was not available) and the average disposal cost data developed by the JOCG working group for the MIDAS families, we estimated that the Army's ammunition disposal liability could range from about \$1.3 billion to \$2.1 billion.

Marine Corps, Navy, and Air Force officials verified that information was available to perform a similar analysis of their respective ammunition inventories using NSNS and the MIDAS cost families.

Key Estimation Factors to Be Considered

In using the MIDAS analysis to estimate the disposal liability, several additional factors would have to be considered to refine the estimate. Although SFFAS No. 5 is clear that the disposal liability is to be a reasonable estimate and that the disclosure may be presented as a range, the accuracy and precision of the range will affect its usefulness to decisionmakers. Key estimation factors to be considered include the following.

Data reliability - Although we did not verify the underlying data supporting the historical cost data developed for the MIDAS families, a limited review yielded a number of discrepancies. For example, one schedule indicated that a contractor had destroyed 1,512 tons of small caliber ammunition in fiscal year 1996 for \$1,512, or \$1 per ton. The same schedule showed that the same contractor had destroyed the same type of ammunition in fiscal year 1995 for \$728 per ton. In addition, the schedule showed that two

government-owned, government-operated facilities had destroyed small caliber ammunition with costs of \$0.10 per ton at one facility and \$3,327 per ton at the other facility. Such anomalies would have to be addressed before relying on these data as a basis for estimating the total disposal liability.

In addition, the appropriateness of averaging the actual disposal costs by type of facility would have to be considered. For example, the study concluded that the disposal cost for white phosphorus was \$1,231 per ton. The underlying data show that white phosphorus was destroyed by one government-owned, government-operated facility in six separate batches in fiscal years 1994 through 1996. The reported costs per ton for each batch ranged from \$646 to \$14,208 and were averaged to arrive at the \$1,231 figure. If it is determined that averaging does not appropriately reflect the true range of these costs, alternatives may include calculating a disposal liability range for each MIDAS family based on factors such as type of facility or disposal method.

Data completeness - As stated in appendix II, data were not available for six of the MIDAS families because (1) the types of ammunition were not disposed of during the period studied or (2) the ammunition was disposed of by a specific service and the cost data were not available to the working group. DOD would have to consider the significance of these costs and determine whether cost data were collected by individual services. In addition, the MIDAS costs did not include an amount for packaging, crating, handling, and transportation, nor do they reflect the value of any scrap recovered from the demilitarization process. JOCG determined that packaging, crating, handling, and transportation costs ranged from \$66 per ton to \$228 per ton. Also, although the working group's 1996 report indicated that storage costs were part of the disposal costs, the group did not develop any storage cost estimates.

Updated information - Finally, estimates using the MIDAS costs would have to be updated periodically to take into account the use of different disposal methods and locations, current costs, and other factors that would affect costs. Such factors would have to be considered by DOD as it develops its policy for determining its ammunition disposal liability.

Reporting Total Disposal Liability by Future Time Periods Would Be Useful

DOD has pointed out that the total disposal liability estimate for ammunition will result in a significant liability—much of which would not require budget authority in the current year. Thus, one way to provide a proper context for this reported liability and make it more meaningful to decisionmakers would be to provide a breakdown of the liability in a footnote to the financial statements showing the liability based on the services' estimates of the ammunition scheduled to be taken out of service.

Table 2 is a simplified illustration of how the ammunition disposal liability for ammunition managed by the single manager could be related to the time period in which it is taken out of service. For the purposes of this illustration, we used \$1,000 per ton as the basis for estimating the disposal liability. As discussed previously, in actual practice, the services should refine this figure to reflect the expected cost experience within the time period. We applied the \$1,000 per ton disposal liability to (1) tonnage estimates reported in the JOCG September 1995 study that projected the quantity of ammunition that would be turned over to the single manager for disposal in fiscal years 1995 through 2001 and (2) the remaining inventory after subtracting these quantities.

Table 2: Example of How the Liability Could Be Related to the Disposal Schedule

Dollars in millions

Total ammunition disposal liability as of 9/30/96	Liability associated with ammunition awaiting disposal as of 9/30/96	Liability associated with ammunition expected to be transferred for disposal during fiscal year					
		1997	1998	1999	2000	2001	Thereafter
\$5,015	\$393	\$107	\$93	\$85	\$74	\$72	\$4,191

Such information could provide important context for congressional and other budget decisionmakers on the total liability by showing the annual impact of potentially needed budget authority for ammunition expected to be transferred for disposal. Furthermore, using time periods to present data consistent with budget justification documents, such as DOD's Future Years Defense Program, provides a link between budgetary and accounting information, one of the key objectives of the CFO Act.

Conclusions

Ammunition disposal costs are both probable and estimable and, therefore, meet the criteria stated in SFFAS No. 5 for reportable liabilities. In commenting on our recent report on the aircraft disposal liability, DOD

agreed to implement SFFAS No. 5 and to record the disposal liability related to aircraft, which are categorized as federal mission assets. DOD also agreed that the DOD Comptroller and Under Secretary of Defense (Acquisition and Technology) should promptly issue implementing guidance to assist the services in estimating the aircraft disposal liability. Because the same requirements apply to ammunition, which is considered part of the operating material and supply asset category, similar action is necessary to ensure that the ammunition disposal liability is properly recorded. Development of a reasonable estimate of the ammunition disposal liability, which addresses the key factors identified in this report, will help ensure not only that the financial statement disclosure requirements are met, but will also provide important information to the Congress and other decisionmakers as they continue to assess ammunition disposal methods and related costs.

Recommendations

We recommend that you ensure that

- the DOD Comptroller and the Under Secretary of Defense (Acquisition and Technology) promptly issue joint implementing guidance for the services on the SFFAS No. 5 requirements for recognition of a liability for ammunition disposal costs. This guidance should address the key liability estimation factors identified in this report, including data reliability, data completeness, and the need for updated information.
- the DOD and military service comptrollers include the estimated ammunition disposal liability in DOD's fiscal year 1997 financial statements.

Agency Comments and Our Evaluation

In commenting on a draft of this report, Department of Defense officials concurred with our recommendations that joint implementing guidance be issued promptly on the SFFAS No. 5 requirements for recognition of a liability for ammunition disposal costs. In addition, DOD officials stated that current disposal cost estimates can be reasonably determined for ammunition types that have been in the active inventory for some period of time. However, DOD officials stated that the development of disposal cost estimates for all types in the inventory and the development and coordination of standard application procedures and reporting guidance would take time to complete. For this reason, Defense officials stated that it will not be feasible to report the estimated ammunition disposal liability in the DOD's financial statements prior to fiscal year 1998.

SFFAS No. 5 was issued almost 2 years ago to allow agencies ample time to develop implementing policies and procedures prior to its fiscal year 1997 effective date. As stated in this report, information is available on all types of ammunition disposal processes to develop a reasonable estimate of these costs. Such cost information can be applied to all types of ammunition, regardless of the length of time the ammunition has been in the active inventory. Such an estimate need not be precise—SFFAS No. 5 permits the reporting of a range. Accordingly, DOD, with a concentrated effort, can develop an estimate of ammunition disposal costs for its fiscal year 1997 financial statements.

This report contains recommendations to you. The head of a federal agency is required by 31 U.S.C. 720 to submit a written statement on actions taken on these recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Reform and Oversight not later than 60 days after the date of this report. A written statement also must be sent to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of this report.

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate Committee on Armed Services, the House Committee on National Security, the Senate Committee on Governmental Affairs, the House Committee on Government Reform and Oversight, and the Subcommittee on Management, Information and Technology, and to the Director of the Office of Management and Budget. We are also sending copies to the Under Secretary of Defense (Comptroller), the Air Force Assistant Secretary for Financial Management and Comptroller, the Army Assistant Secretary for Financial Management and Comptroller, the Navy Assistant Secretary for Financial Management and Comptroller, the Under Secretary of Defense (Acquisition and Technology), the Deputy Under Secretary of Defense for Environmental Security, and the Acting Director, Defense Finance and Accounting Service. Copies will be made available to others upon request.

Please contact me at (202) 512-9095 if you have any questions concerning this letter. Major contributors to this letter are listed in appendix III.

Sincerely yours,

A handwritten signature in black ink, reading "Lisa G. Jacobson". The signature is written in a cursive style with a large, stylized "L" and "J".

Lisa G. Jacobson
Director, Defense Audits

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Abbreviations

CFO	Chief Financial Officer
DOD	Department of Defense
FASAB	Federal Accounting Standards Advisory Board
FMR	Financial Management Regulation
IOC	Industrial Operations Command
JOCG	Joint Ordnance Commanders Group
MIDAS	Munition Items Disposition Action System
NSN	national stock number
OMB	Office of Management and Budget
PP&E	property, plant, and equipment
SFFAS	Statement of Federal Financial Accounting Standards

Activities/Locations Contacted or Visited

We contacted personnel and conducted work at the following locations.	
Department of Defense	DOD Headquarters, Pentagon, Washington, D.C.
Defense Finance and Accounting Service	Defense Finance and Accounting Service, Denver, Colorado
Air Force	Air Force Combat Support Division, Air Force Headquarters, Pentagon, Washington, D.C.
	Ogden Air Force Logistics Center, Commodities Directorate, Hill Air Force Base, Ogden, Utah
Army	Army Industrial Operations Command, Rock Island Arsenal, Rock Island, Illinois
	Army Materiel Command, Alexandria, Virginia
	Army Missile Command, Redstone Arsenal, Huntsville, Alabama
	U.S. Army Defense Ammunition Center and School, Savanna, Illinois
Marine Corps	Marine Corps Systems Command, Arlington, Virginia
Navy	Navy Ordnance Center, Inventory Management Systems Division, Mechanicsburg, Pennsylvania
	Naval Ordnance Center, Indianhead, Maryland
	Naval Surface Warfare Center, Crane Division, Crane, Indiana

Reported Average Ammunition Disposal Costs by MIDAS Family

Dollars in millions	
Type of ammunition (MIDAS family)	Reported average costs per ton of ammunition
White phosphorus	\$1,231
Riot control	1,601
Smokes, HC/colored/RP	1,010
Depleted uranium	1,895
High explosive components/devices	1,557
High explosive bombs	298
High explosive cartridges	430 to 776
High explosive "D" (ammunition that contains ammonium picrate)	648 to 906
High explosives for improved ammunition/cluster bomb units (ICM/CBUs) and submunitions	221 to 1,264
High explosive grenades	3,735
High explosive projectiles and warheads	578 to 626
High explosive rockets	844
Demolition material	976
High explosive land mines	1,578
Bulk propellants and black powder	878
Propellant charges and increments	873
Propellant munitions/components	745 to 765
Small caliber ammunition	104 to 542
Fuzes	243 to 1,065
Pyrotechnics	1,696
Inert (training material)	463
No family	748

Note: The study included missiles as a MIDAS family, but missiles were excluded from our analysis because they are not included in DOD's definition of ammunition. In addition, the study did not identify costs for six MIDAS families of ammunition: dyes, incendiary/themite, bulk high explosives, high explosive depth charges and underwater mines, torpedoes, and incinerable munitions and components. Data were not available for these families because (1) these types of ammunition were not disposed of during the period studied or (2) the ammunition was disposed of by a specific service and the cost data were not available to the working group.

Source: JOCG Munitions Demilitarization Study (June 1996). We did not verify these data.

Major Contributors to This Report

Accounting and Information Management Division, Washington, D.C.	Jacob W. Sprouse, Jr., Audit Manager Linda J. Brigham, Auditor
Kansas City Office	Dieter M. Kiefer, Assistant Director
Chicago Office	John R. Richter, Auditor-in-charge Stewart O. Seman, Evaluator Lynn M. Filla-Clark, Auditor Frederick P. Schmidt, Evaluator

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