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Department of Defense Management of Hazardous Materials

Statement of
Norman J. Rabkin
Associate Director, Air Force Issues
National Security and International
Affairs Division

Before the
Subcommittee on Environment, Energy
and Natural Resources
Committee on Government Operations
House of Representatives

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to testify on our work on Decontamination Solution 2, commonly referred to as DS2. The Department of Defense (DOD) purchases DS2 for decontaminating equipment in the event of chemical warfare. This is the only stated use of DS2. In conjunction with our testimony, we are releasing a report on DS2[1] today. The Army is the principal user of DS2. Our testimony discusses the major issues in our DS2 report in the context of DOD's hazardous waste programs and our other reports[2] on DOD's hazardous materials and hazardous waste programs.

RESULTS IN BRIEF

Over the past 17 months we have reported on DOD's hazardous materials and hazardous waste programs and made recommendations to improve DOD's efforts to reduce the amount of hazardous waste it generates and disposes of. We recommended that DOD minimize the amount of hazardous materials it purchases; manage its inventories of hazardous materials properly; reuse, recycle, and treat hazardous waste to minimize the amount of waste that has to be

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[1]Hazardous Materials: DOD Should Eliminate DS2 From Its Inventory of Decontaminants (GAO/NSIAD-90-10, Apr. 25, 1990).

[2]Hazardous Waste: DOD Efforts to Reduce Waste (GAO/NSIAD-89-35, Feb. 7, 1989). Hazardous Waste: Attention to DOD Inventories of Hazardous Materials Needed (GAO/NSIAD-90-11, Nov. 6, 1989). Hazardous Waste: Inadequate Safeguards Over Sales Pose Health and Environmental Dangers (GAO/NSIAD-90-70, Feb. 12, 1990).

disposed of; and dispose of excess hazardous materials and hazardous wastes properly.

Our report on DS2 provides a case study of most of these concerns. Effective, less toxic substitutes for DS2 are available and are being used by the Air Force and the Navy but not the Army or the Marine Corps. The Army's storage facilities for DS2 did not comply with regulations, and the Defense Logistics Agency was selling excess DS2 to the public without providing information on its potential danger and the safety precautions that need to be taken when using DS2. We recommended that the Army and the Marine Corps use a substitute for DS2 and that the Defense Logistics Agency not sell DS2 to the general public and restrict sales to recyclers.

BACKGROUND

DOD purchases and uses a large quantity of hazardous materials in its industrial and maintenance operations. A significant percent of the hazardous materials become hazardous waste. DOD reported that it generates over 400,000 tons of hazardous waste each year from its industrial processes used primarily to repair and maintain weapon systems.

The military services estimate that they have procured a total of about 5 million gallons of DS2 since the early 1960s. The Army has purchased the largest amount. From November 1986 to November

1988, the services requisitioned a total of 772,000 gallons of DS2. (DS2 procurement records earlier than November 1986 were not required to be retained.) Of this amount, the Army requisitioned about 666,000 gallons, or 86 percent; the Marine Corps requisitioned about 104,000 gallons, or about 13 percent; and the Air Force and the Navy requisitioned about 2,000 gallons, or less than 1/2 of 1 percent. The cost of DS2 varies from about $14 to $28 per gallon.

National concern about the threat of environmental damage posed by the disposal of hazardous waste has resulted in the enactment of various environmental laws, including the Resource Conservation and Recovery Act of 1976, as amended, and the Hazardous and Solid Waste Amendments of 1984. The 1984 law requires that organizations that generate hazardous waste have programs in place that minimize, to the extent practicable, the generation of hazardous waste. In response to this requirement, DOD delegated responsibility for developing and implementing such programs to the Army, the Navy, and the Air Force.

Large quantities of hazardous materials and hazardous waste must be disposed of each year. Disposal can be costly because of procedures required to minimize the risk to humans and the environment. To avoid disposal costs, DOD has adopted programs to reduce hazardous waste generation and limit the amount of hazardous materials and waste that must be disposed of. These include

minimizing the use of hazardous materials; managing its hazardous material inventory better; reusing, recycling, and treating hazardous materials and waste; and disposing of excess hazardous materials properly.

In our report on DS2 we noted that, depending on its use, DS2 can be hazardous to humans and the environment. DS2 has many adverse effects: it is toxic and highly corrosive and can cause severe chemical burns; stricture of the esophagus; damage to the liver, cornea of the eye, and central nervous system, and may cause adverse reproductive effects and birth defects. Protective clothing must be worn when handling DS2 to prevent contact with the skin. DS2 is so corrosive, storage containers may leak after slight damage or during extended storage periods.

We also noted that DS2 is incompatible with most metals. It corrodes aluminum, cadmium, tin, and zinc. It can also damage electronics, rubber sealants, fabrics, and plastics, which can affect the readi. ss of military equipment, such as tanks, and is difficult to store.

HAZARDOUS WASTE REDUCTION

DOD has initiated some efforts since the mid-1980s to minimize the amount of hazardous materials that have to be disposed of, such as source reduction techniques and improved inventory management. The

services set a goal of reducing hazardous waste generation by 50 percent by 1992. Despite these efforts, hazardous materials still have to be disposed of unnecessarily.

Minimizing Hazardous Materials During the Acquisition of Weapon Systems

Although the services could consider minimizing the use of hazardous materials in the acquisition of weapon systems, we reported in February 1989 that they had not yet integrated such considerations but had taken some initial steps. For example, the Air Force Systems Command had outlined a plan to reduce the use of hazardous materials during the early stages of a weapon system's development. In its comments on that report, DOD advised us that the Air Force has begun a strategy of assigning personnel with technical expertise, including personnel with expertise in hazardous waste minimization, to each of its weapon system program acquisition offices. A May 1988 Navy directive included a requirement that the acquisition process for all weapons and support systems consider hazardous waste minimization. The Army had no formal procedures, but DOD advised us that regulations will assign responsibilities to investigate opportunities for minimization.

Source Reduction Techniques

In the mid-1980s, the services began programs to minimize the amount of hazardous waste they generate through optimum use of hazardous materials. At the 19 installations we visited, officials made some changes to production, maintenance, and repair processes to minimize the amount of hazardous waste they produced. For example, one installation had installed an on-line recovery process for solvents used during production. Other installations had also substituted hazardous materials with less hazardous ones; for example, water-based paint primers were used rather than toxic primers.

The services will have difficulty monitoring their progress in meeting their goal to reduce hazardous waste generation by 50 percent because their data are unreliable. In our February 1989 report, we recommended that DOD establish a standard methodology for collecting and reporting hazardous waste generation data so the services would have more accurate, consistent, and comparable data to monitor how successfully they meet their minimization goals. In response to our recommendation, DOD initiated a study to determine how to better report on its hazardous waste minimization programs and how well the services are accomplishing their goals.

Army units throughout the continental United States and overseas are continuing to purchase large quantities of DS2, even though

Army tests have shown that DS2 can damage current weapon systems, making them inoperable. The Army's DS2 storage facilities did not conform to DOD regulations, resulting in potential danger to humans and the environment.

The Training and Doctrine Command has recommended that the Army replace DS2 with a less damaging decontaminant. The Army's tests have indicated that household bleaches were just as effective as DS2. Nevertheless, the Army continues to buy DS2, and its technical manual continues to instruct personnel to use it. Because of the many problems associated with DS2, the Air Force and the Navy are using effective, less toxic alternatives. The Air Force uses hot, soapy water as its overall decontaminant, and the Navy uses a hypochlorite (a bleaching agent) to decontaminate its ships.

Inventory Management Techniques

During fiscal years 1986 through 1988, DOD purchased an average of about $250 million per year of hazardous mat ·ials in the 13 stock classes we reviewed, which include paints, adhesives, preservatives, batteries, and chemicals. If these materials are not properly stored and managed while in the inventory, they may become surplus to the services' needs, their containers may become damaged, or their shelf life may expire. If the materials are not

used by another government agency or sold to the public, they will be disposed of as hazardous waste.

At 10 installations we visited, we found that 40 percent of the hazardous materials to be disposed of were unused. Some hazardous materials had very short shelf lives, and if they were not used before their useful life expired, they would be transferred to the disposal process in an unused condition. A number of exceptions permit newer materials in the inventory to be issued before some of the older materials whose useful life may expire sooner. The condition of hazardous materials was not always evaluated during extended storage or before the materials were transferred for disposal to see if their shelf life can be extended.

In our November 1989 report, we recommended that the Secretary of Defense issue instructions to the services to provide special attention to inventory management procedures for hazardous materials that will minimize the hazardous waste generation from hazardous material inventories. DOD has advised us that it concurred with our recommendation and that it will publish a new shelf life policy in July 1990, which will permit activities to place orders directly with vendors for items with short shelf life for direct delivery to the user. It also stated that exceptions to the first-in first-out issue control technique were evaluated at a DOD meeting in March 1990 and that internal management controls were developed in February 1990 to ensure that material whose shelf

life can be extended will be inspected and tested in accordance with storage standards. We have not obtained any information from DOD on these actions, because you, Mr. Chairman, have requested specific details on these matters.

All five of the Army facilities we visited in the United States stored DS2 improperly. The DS2 was stored in open-sided sheds, shipping containers, wall lockers, or buildings that do not conform to regulations, none of which meet the DOD's requirements for hazardous material storage. In addition, we found deteriorating and leaking cans at every installation and depot we visited. Some of our findings are listed below.

-- At Fort Sill, Oklahoma, four units in one battalion had leaking DS2 cans, and one unit had stored DS2 with supertropical bleach. DS2 can ignite on contact with supertropical bleach, and an explosion may result.

-- At Fort Lewis, Washington, one battalion was storing cans o DS2 in a shed without walls, exposing them to weather elements. Some of the cans were wrapped in plastic, which caused moisture to condense and could have hastened the deterioration of the cans. Some of the other units were also storing DS2 in buildings that did not conform to DOD regulations for storing hazardous materials.

-- At Fort Hood, Texas, 1,383 1-1/3-quart cans and 57 5-gallon cans of DS2 were found to be leaking. The III Corps Chemical Officer stated, in a June 8, 1989, memorandum to the Commander of III Corps, that proper facilities for DS2 storage were not available. The officer also stated that DS2 storage at Fort Hood during peacetime is unnecessary.

The Army depots we visited in Europe stored DS2 under conditions that violate Army directives regarding DS2 storage in both outside and indoor facilities. In Germersheim, West Germany, DS2 cans were stored in a structure with a roof but no walls, thus exposing the cans to weather elements, such as temperature changes, rain, and snow. This was in violation of a 1978 memorandum issued by the 21st Theater Area Army Command, which stated that DS2 must be stored in a manner that prevents the deterioration of cans from exposure to weather elements. It was also in violation of a 1982 letter issued by the Armament, Munitions, and Chemical Command, which stated that to prevent can deterioration, DS2 should not be stored in a damp, humid environment. According to a March 1988 Army Materiel Command report, most of the corrosion to DS2 cans in Germersheim occurred during the summer when changes in temperature caused the metal cans to sweat.

SALES OF HAZARDOUS MATERIALS TO THE PUBLIC

Despite efforts to reduce the amount of hazardous materials originally bought and to manage hazardous materials in its inventories better, DOD transfers large amounts of hazardous materials to the disposal process every year. The disposal process for hazardous materials includes reuse within the procuring agency, transfer to another federal agency, or donation to state governments or other authorized nongovernment entities. If no use is found for the materials, they are considered surplus and can be sold to the public. If the materials are not sold to the public, they will have to be transferred for disposal.

During fiscal years 1986 through the first half of 1989, DOD sold surplus hazardous materials with an acquisition value of over $104 million to the public. Although the net proceeds from these sales were only $5 million, DOD avoided the expense of paying $170 million for hazardous waste disposal. Also, DOD officials stated that by selling the materials, they prevented a resource from being sent to disposal.

Lack of Regulations and Controls Over Sales of Hazardous Materials

There are virtually no statutory or regulatory restrictions over DOD sales of hazardous materials, including limits on who can buy the materials. We found instances in which DOD sold some

hazardous materials to buyers who have improperly transported, handled, used, stored, or disposed of the materials.

The Federal Property and Administrative Services Act of 1949, as amended, states that surplus federal property can be made available to the public through sales. The hazardous materials sold by DOD ranged from common paint and lubricants, similar to those that can be bought in local hardware stores, to DS2.

DOD officials told us that they interpret the act to mean that they cannot restrict anyone from buying surplus property, including hazardous materials. They believe that any restrictions placed on buyers, except on those that are not responsible or not responsive[3], would be contrary to the intent of the act.

The Environmental Protection Agency's environmental regulations restrict the sales of hazardous waste, but they do not restrict the sales of hazardous materials. Department of Transportation regulations require transporters of hazardous waste but not transporters of hazardous materials to obtain an Environmental Protection Agency identification number.

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[3]Buyers that are not responsible buyers are those who, for example, have failed to pay for previous sales or have been convicted of criminal negligence as a result of their actions in a prior sale. Buyers that are not responsive are those who submit bids that do not conform with the government's invitation for bids.

Controls Over the Sales and Handling of Hazardous Materials

DOD has some internal controls over the sale of hazardous materials. For hazardous materials sold through DOD's national sales program, contracts contain a clause granting, as a condition of sale, the right of government surveillance over the use and disposal of the materials. DOD also requires the contracting officer to survey potential buyers to determine if the buyer is responsible before a sale is made. The potential buyer must also submit a Statement of Intent, which states what the buyer plans to do with the material. This statement is reviewed by DOD, and, if a negative determination is made, the sale is to be rejected.

The Defense Reutilization and Marketing Offices reserve the right, by a clause in the sales contract, to inspect the buyer's transportation equipment that will be used to remove the hazardous materials as well as the treatment, storage, or disposal facilities. We were told that the sale can be canceled or terminated if the inspection discloses that the buyer is not responsible.

DOD sales program officials stated that their surveys of potential buyers consist largely of no more than a desk review of the Statement of Intent submitted by the highest bidder and, as we observed, are seldom documented. We noted that some Statements of Intent submitted for DOD's review contained only the potential

buyer's signature with no other information filled in, but no action was taken by the DOD officials to question the potential buyers' responsibility.

Even though DOD regulations require surveys of potential buyers and follow-up reviews of buyers, DOD officials told us that they are not sure they have a legal basis for doing post-award surveillance. They also stated that this may be one reason why some of the surveillance is not done.

The Defense Logistics Agency, the responsible agency within the Department of Defense for selling excess property, told GAO it believed it had no authority to restrict or limit private entities or individuals from buying hazardous materials such as DS2. Once hazardous materials were sold, the agency did not ensure that the buyers were provided with information on how to use the materials properly. For example, the agency was selling DS2 to the general public without providing the Material Safety Data Sheet for DS2, which identifies health and environmental hazards associated with DS2. (Data sheets are available for all hazardous government-owned material.) Consequently, buyers were not being informed of the potential dangers of DS2 and of the safety precautions that need to be taken when using DS2, for example, wearing the protective equipment specified in the data sheets. However, on February 13, 1990, the Commander, Defense Reutilization and Marketing Service,

testified before you that future sales of DS2 will be restricted to recyclers.

Initiatives to Improve Safeguards for Sales

DOD has implemented or plans to implement changes in its hazardous material sales and handling procedures to avoid similar incidents in the future. For example, DOD is no longer selling hazardous materials locally, it is limiting its sales to the national program where it can have improved assurance that buyers are better informed about the use of the materials. Also, DOD now permits buyers to screen their purchases and take only what they want from any sales lot. This will minimize the amount of hazardous materials the buyers may discard because they have no use for them.

In our February 1990, report, we recommended that DOD, in cooperation with the General Services Administration, implement stronger feguards to ensure that all buyers of hazardous materials, especially buyers of extremely hazardous materials, (1) are aware of the dangers associated with such materials and the special handling and disposal requirements and (2) are able to handle the material properly after the sale. DOD concurred with this recommendation and has issued revised procedures that were effective March 1, 1990. These include a requirement that the descriptions of items being sold include information on its known use, the Department of Transportation hazardous material

classification, and relevant storage data. Pre-award procedures were expanded, and reinforced and post-award surveillance audits are conducted. In addition, the Defense Reutilization and Marketing Service implemented various reviews to ensure compliance.

DS2 Sales

Our report on DS2 noted examples of sales of DS2. These are listed below.

-- On August 17, 1988, 43 5-gallon cans of DS2 were sold by DOD's surplus sales office at Mountain Home Air Force Base, Idaho, to an individual. The chief of the sales office did not know the buyer's intended use for the DS2, and both the chief and the office's environmental specialist said they were unaware of the hazards of DS2 to humans or the environment. The buyer also was not aware of the hazards. According to the chief, the Material Safety Data Sheet for DS2 was not available.

  The buyer said he believed he was purchasing an alkali substance that could be mixed with water and used as a degreaser. DS2 becomes corrosive when it is mixed with water. The buyer said he was not aware of the hazards of using DS2; however, he had not used any of it. At his request, the DOD sales office picked up the DS2 and refunded his purchase price of $30.

-- On January 12, 1988, an individual purchased from the surplus sales office at DOD's Kirtland Air Force Base, New Mexico, 37 5-gallon cans and 274 1-1/3 quart cans, or about 275 gallons, of DS2. The buyer said that he did not know what he was buying and that the sales office did not provide him with the Material Safety Data Sheet for DS2. The buyer also told us that when he went to pick up the DS2, he believed it might be dangerous and did not want to accept it. However, contrary to DOD regulations, the sales office personnel told him that if he did not take it, they would remove his name from the bidders list and he would be barred from bidding at future auctions.

According to the buyer, two of the DS2 cans were leaking when he picked them up. He said the cans, which were stored at his home, subsequently started fuming, so he watered them down. He later gave all of the DS2 to another individual who, according to the buyer, intended to use it to kill weeds.

RECOMMENDATIONS ON DS2

In our report we recommended that the Secretary of Defense direct the Army and the Marine Corps to use a substitute for DS2 and all services to eliminate DS2 from their inventory of decontaminants and direct the Director, Defense Logistics Agency, to ensure

that DS2 is not available to the general public and that DS2 sales are restricted to recyclers. DOD, in commenting on our February 12, 1990 report, confirmed what was told to your Subcommittee on February 13, 1990, that all sales of DS2 are now restricted to purchasers that will be distilling the DS2 into its primary components for commercial use.

During our review of DS2, we also noted that units were receiving DS2, even though regulations stated that they should not be receiving it and that purchases were being made even though serviceable DS2 was being turned in for disposal. We sent a letter to the Secretary of the Army in June 1989 pointing out these matters to him and that about $46.4 million of DS2 purchases were being made or pending at the same time disposals were taking place. We have not received a reply to that letter.

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This concludes my prepared statement, Mr. Chairman. I will be pleased to answer any questions you may have.