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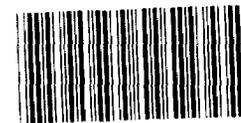
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General Accounting Office

National Stockpile: Could Recycled DOD Aluminum Be Used To Meet The Current Aluminum Need?

Half of the materials in the National Defense Stockpile are below the goals established to meet national defense needs. GAO was asked to look at whether recycled scrap generated by the federal government could provide a supplemental means of filling the stockpile. This review focused on scrap aluminum generated by the Department of Defense (DOD) because the stockpile's supply of aluminum is very low, and DOD scrap contains more aluminum than any other material needed for the stockpile.

GAO found that with reprocessing and changes in stockpile procedures, DOD scrap aluminum could make a small contribution to meeting the aluminum stockpile goal. On average, however, recycling the scrap would cost about as much as purchasing a similar amount of aluminum on the open market.



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GAO/RCED-86-23
NOVEMBER 4, 1985

533656

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UNITED STATES GENERAL ACCOUNTING OFFICE
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RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B-219320

The Honorable Charles E. Bennett
Chairman, Subcommittee on Seapower
and Strategic and Critical
Materials
Committee on Armed Services
House of Representatives

Dear Mr. Chairman:

This report responds to your request dated March 2, 1984, and subsequent changes agreed to with your office. It addresses the technical and economic feasibility of recycling Department of Defense aluminum, currently sold for scrap, for the National Defense Stockpile.

As arranged with your office, unless you publicly announce its contents earlier, we do not plan to distribute this report further until 2 days after its publication date. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. Dexter Peach".

J. Dexter Peach
Director



EXECUTIVE SUMMARY

The levels for one-half of the 90 materials in the National Defense Stockpile are below the goals established by the Federal Emergency Management Agency (FEMA) to meet national defense needs. Meeting these goals, however, could cost the federal government about \$10 billion.

The Chairman, Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, asked GAO to examine whether stockpile requirements might be met by means other than direct purchases such as surplus or scrap materials generated by the federal government. As agreed with the requester, this review considered the legal, technical, and economic feasibility of recycling scrap for the stockpile, focusing only on scrap aluminum because the stockpiled supply of aluminum is very low--2,080 tons, or less than 1 percent of the amount set as a goal. While this deficit exists, the scrap generated by the Department of Defense (DOD) contains more aluminum than any other material with unmet stockpile goals.

BACKGROUND

Following World War II, the federal government created a strategic stockpile of essential materials, mostly minerals. In 1980, FEMA--the agency responsible for stockpile policy and planning--established a new set of goals for each of the materials, as well as specifications for the forms in which materials are to be stored. While the stores of some materials equal or exceed the goals set for them, the stockpiled supplies of 45 materials are below their targets. In 1984, it was estimated that about \$10 billion would be needed to acquire all the materials required to fill the stockpile goals. By contrast, the federal government has spent only \$359 million on stockpile purchases since 1979.

EXECUTIVE SUMMARY

At the same time, the federal government generates large quantities of scrap and excess materials that could be recycled to meet stockpile goals. For example, DOD sells about 16,000 tons of aluminum scrap a year for about \$7 million through the Defense Property Disposal Service. Most of the sale proceeds are now returned to the Department of the Treasury, but under recent legislation, these moneys may be returned to military installations. A portion of the proceeds are also returned to military maintenance facilities to defray their expenses.

RESULTS IN BRIEF

With reprocessing and changes in stockpile procedures, recycled DOD scrap aluminum could make a small contribution to meeting the aluminum stockpile goal. On average, recycling the scrap would cost about as much as purchasing a similar amount of aluminum on the open market, but the source of funds in the federal budget may be different. Purchases would require outlays from the stockpile transaction fund, a special fund created for stockpile material sales and purchases, while recycling could require additional DOD appropriations to make up for program funds provided by current scrap sale proceeds.

PRINCIPAL FINDINGS**Feasibility of Using Scrap**

With certain technical and administrative changes, DOD aluminum scrap could be used for the stockpile. Scrap itself is unwieldy to store, and its content can only be analyzed precisely once it has been melted. Consequently, the scrap would have to be melted down to produce what is called secondary aluminum.

Specifications for aluminum in the stockpile would also have to be modified to allow for storage of secondary aluminum. Currently,

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specifications call for primary aluminum, or pure unalloyed aluminum. FEMA officials estimate that at least 70 percent of the current goal for stockpile aluminum could be met by secondary aluminum, although in this form, it affords less flexibility of use and is more likely to become technically obsolete (possible changes to secondary alloy specifications now used by industry may require stockpiled secondary aluminum to be reprocessed before it could be used).

In GAO's view, it would be impractical to recycle 5,000 of the 16,000 tons of aluminum scrap annually sold by DOD because this scrap would either have to be collected from many locations or transported from overseas. Of the remaining 11,000 tons, GAO estimated that recycling could add about 4,500 tons a year, on average, to the stockpile, or less than 1 percent of the 700,000-ton goal for aluminum. This fill rate is based on smelters' estimates that they could recover about two-thirds of the scrap as aluminum and that they would keep about one-third to one-half of the aluminum produced as payment for their services.

Recycling vs. Direct Purchase

On average, the cost of recycling DOD scrap aluminum for the stockpile is about the same as purchasing a similar amount of aluminum on the open market. If the aluminum scrap suitable for recycling is diverted to the stockpile, the federal government would not receive about \$5.1 million a year in what it now receives from scrap sales.

For this same amount of money, the government could buy about 4,300 to 4,400 tons of either unalloyed primary or secondary aluminum, or roughly the same amount of aluminum that could be made available through recycling DOD scrap.

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The main difference between recycling and direct purchase is in their effects on the federal budget. Direct purchases are made with moneys in the stockpile transaction fund, which is managed by the General Services Administration (GSA). DOD officials stated the Department would seek additional appropriations, if recycling was undertaken, to make up for the loss of program funds now provided by scrap sale proceeds.

RECOMMENDATIONS

GAO is making no recommendations.

**AGENCY/INDUSTRY
COMMENTS**

DOD, GSA, FEMA, and the Department of the Interior provided written comments that express agreement with the report. FEMA made two suggestions to improve technical clarity. Other nongovernmental parties, including industry associations and secondary smelters, provided minor technical comments on the report. GAO made changes on the basis of comments provided where appropriate.

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ABBREVIATIONS

DCASMA	Defense Contract Administration Services Management Area
DOD	Department of Defense
DPDO	Defense Property Disposal Office
DPDS	Defense Property Disposal Service
FEMA	Federal Emergency Management Agency
GAO	General Accounting Office
GSA	General Services Administration

CHAPTER 1

INTRODUCTION

Although the United States can meet some of its requirements for raw materials from domestic sources, it must import many materials considered vital to the nation's defense. The Congress created a National Defense Stockpile to safeguard against shortages in a national emergency. While the stockpile contains 90 materials, the stores of 45 fall short of their goals. Making up these deficits could require spending about \$10 billion, at September 30, 1984, prices.

Concerned about how slowly stockpile goals are being met, the Chairman, Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, asked us to examine the potential for using federal government-generated scrap material for the stockpile.

THE NATIONAL DEFENSE STOCKPILE

The Strategic and Critical Materials Stock Piling Revision Act of 1979 (50 U.S.C. 98 et seq.) provides for the acquisition and storage of certain strategic and critical materials--materials that are not found or produced in the United States in sufficient quantities but are necessary to supply the nation's military, industrial, and essential civilian needs during a national emergency. Concern for maintaining adequate stores of materials dates as far back as 1939, when the Strategic War Materials Act authorized a government survey of strategic and critical materials to be stockpiled. In 1946 the Congress enacted the Strategic and Critical Materials Stock Piling Act, which authorized the present stockpile.

The Revision Act, as amended, changed the stockpile program, consolidating three separate stockpiles and setting a 3-year military contingency as the basis for determining stockpile goals. The act, as amended, also set up the National Defense Stockpile Transaction Fund to hold the proceeds from the sale of stockpile materials until appropriated for the purchases of new materials. All sales and acquisitions, with a few exceptions, must be authorized by the Congress.¹

At the end of 1984, the General Services Administration (GSA), the agency responsible for acquisition, maintenance, and sale of stockpile materials, maintained these materials at 111

¹The President may sell materials from the stockpile if they are to be replaced with equivalent material or if they are excess and could cause a loss to the government if allowed to deteriorate.

locations throughout the United States. Most of the materials are minerals, but the stockpile includes agricultural products and pharmaceuticals as well. Each mineral group, in turn, may be further defined by grade and stage of processing; hence, separate requirements may exist for ore, processed metal, and alloyed metal.

The amounts of each material that are required to meet the 3-year contingency are determined by the Federal Emergency Management Agency (FEMA), to whom the President has delegated responsibility for stockpile planning and policy. Current stockpile goals were developed in 1980, and according to the Stock Piling Act, are to be periodically revised by the President. In 1983 the administration undertook such a review, which it completed in 1985. On the basis of that review, the President issued a press release on July 8, 1985, proposing changes that could eliminate the existing unmet stockpile goals.

As of September 30, 1984, the stockpile inventory was valued at \$10.4 billion. Some of this inventory, about \$3.3 billion worth, is considered excess to stockpile needs. As stated earlier, the inventories for 45 materials are below stockpile goals. About \$9.9 billion worth of materials would be needed to bring the inventories for these 45 materials up to current goals. Even if excess materials were sold, another \$6.6 billion would have to be appropriated to fill the stockpile. However, the administration and the Congress have been slow to fill these gaps; only \$359 million has been spent for purchases since 1979.

One of the stockpile materials for which supplies are well below goals is aluminum. Separate goals were set for bauxite (the ore from which aluminum is derived). The stockpile goals include 700,000 tons of primary aluminum, which is aluminum metal that has not yet been alloyed. At the present, the stockpile contains only 2,080 tons of primary aluminum. Under the President's proposal, this goal may be eliminated.

FEDERAL GOVERNMENT SCRAP DISPOSAL

The Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 471), authorizes GSA to dispose of all government surplus materials. According to DOD officials, however, GSA delegated the Department of Defense (DOD), the authority to dispose of its own surplus or scrap property. For metals alone, DOD's scrap far exceeds that of the rest of the government's, amounting to a few hundred thousand tons a year, compared with a few thousand tons a year handled by GSA. In addition, the Military Construction Codification Act required DOD to promulgate regulations to provide for the sale of recyclable materials held by the military departments and defense agencies.

Existing legislation provides that federal agencies transfer to the stockpile materials, excess to its needs, that are needed for the stockpile. Under section 4(b) of the Stock Piling Act,

". . . any material that . . . is determined by the head of (a) department or agency to be excess to its needs and responsibilities and

. . . is required for the stockpile shall be transferred to the stockpile . . . without reimbursement"

Within DOD, scrap is disposed of by the Defense Property Disposal Service (DPDS). DPDS is made up of 139 Defense Property Disposal Offices (DPDOs) in the United States, Europe, and the Pacific; each one is responsible for collecting and sorting surplus or scrap material, and then selling, redistributing, or disposing of the materials.

Currently, when the DPDOs sell scrap materials, the proceeds are returned to the general fund of the Department of the Treasury, except for proceeds from the sale of some scrap generated by military maintenance facilities that are returned to those facilities to be deposited into their operating funds. Under section 6(b)(1) of the Military Construction Codification Act of 1982 (10 U.S.C. 2577), however, sale proceeds from recyclable scrap may be returned to military installations from which the scrap originated. To encourage resource recovery and conservation, military installations with an approved recycling program are to receive the proceeds from the sale of recyclable materials, up to \$2 million annually. First, moneys are supposed to cover the costs of operating the recycling program; some of the balance is available for pollution control and energy conservation projects and for the installation's "morale and welfare account."

Aluminum scrap

During fiscal years 1982 through 1984, the DPDS sold about 119,000 tons of scrap containing materials that are below stockpile goals. Among these, aluminum accounted for the greatest quantity of scrap materials sold: about 16,000 tons of scrap aluminum a year sold for about \$7.4 million, on average.

The scrap is eventually sold to smelters for conversion to secondary aluminum, that is, aluminum that has been melted down. The recycling of aluminum scrap started before World War I, began expanding after the war, and has continued to grow since that time. Recovered metal has generally been used for casting aluminum products.

OBJECTIVES, SCOPE, AND METHODOLOGY

The Chairman, Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, told us in a letter dated March 2, 1984 (See app. I.), that many years may pass before the stockpile is adequate unless supplemental methods of filling it--that is, means other than direct purchases--are explored. Observing that federal agencies generate large quantities of scrap materials, the committee was interested in knowing whether it might be more advantageous for the government to continue selling these materials as scrap, or to transfer them to the stockpile. Consequently, the Chairman asked us to prepare two reports based on

- a survey of federal agencies and departments indicating how much material has been disposed of, the means of disposal, and the proceeds realized and
- an evaluation of the technical and economic feasibility of recycling and/or bartering materials for transfer to the stockpile along with legislative and/or administrative changes necessary to accomplish this.

Following the request, it was agreed with his office that we would in lieu of the first report, provide a briefing and briefing paper; this was done in August 1984. Subsequently, the Chairman's office agreed that we focus the second part of our review on the feasibility of recycling DOD aluminum scrap. Aluminum was chosen because (1) the stockpile has a large aluminum deficit, (2) DOD sells more scrap aluminum than any other scrap material that could be used in the stockpile, and (3) private industry commonly recycles and uses aluminum scrap. Scrap aluminum sold by GSA was not included because the quantities were relatively small. It was also agreed that we would not include DPDOs outside the United States or those that generate less than 50 tons of aluminum scrap a year, since these offices account for about one-third of the scrap aluminum DOD sells and it would not be practical to include them in our review.

Federal agencies authorized to dispose of surplus property have the discretion to accept, in lieu of cash, any material needed for the stockpile. It was agreed with the Chairman's office that since we had recently issued a report on barter and exchange² identifying various conditions that limit using these methods we would not address them in our review. This was agreed to although functionally, if not legally, exchange and recycling would appear to be similar transactions in that both would result in DOD's giving up scrap aluminum and receiving secondary aluminum in return.

To determine whether scrap aluminum could be recycled for use in the stockpile, we examined stockpile legislation and interviewed officials of GSA, the agency responsible for maintenance of the stockpile, and officials of FEMA, the agency responsible for stockpile policy and planning. We also consulted officials of the Bureau of Mines on technical aspects of recycling.

²Conditions That Limit Using Barter and Exchange to Acquire National Defense Stockpile Materials (GAO/RCED-84-24, Oct. 19, 1983).

We obtained information on scrap amounts and disposal methods from DPDS records and publications and from interviews with officials of the Defense Logistics Agency (in which the DPDS is located) as well as officials of DPDS at their headquarters in Battle Creek, Michigan, and field offices in San Antonio, Texas, and Tucson, Arizona. We also talked to officials in the Office of the Assistant Secretary of Defense regarding DOD policy toward programs supported by scrap sale proceeds.

For their views on the technical feasibility and costs of converting scrap to secondary aluminum ingot, we contacted 12 secondary smelters in the country. Five of the smelters are in the Southwest, three in the South, two on the West Coast, one in the Midwest, and one in an eastern state. Ten of the 12 gave us estimates of the possible amounts of aluminum that might be recovered from DOD scrap, and 9 told us what they would charge to process the scrap, with the understanding that their payment would be in kind. That is, as payment for converting DOD aluminum scrap to secondary aluminum, smelters would receive a portion of the aluminum produced.

We also obtained information from: (1) the American Metal Market and National Association of Recycling Industries, on market prices for primary and secondary aluminum, (2) the Interstate Commerce Commission, to check the reasonableness of smelters' estimates of freight transport rates, (3) the Aluminum Recycling Association, concerning the smelting industry's views on recycling DOD aluminum scrap for the stockpile, and (4) the Aluminum Association, on alloy specifications and other technical data.

We conducted our review between August 1984 and May 1985 in accordance with generally accepted government audit standards.

CHAPTER 2

RECYCLED DOD SCRAP COULD PROVIDE SMALL AMOUNTS OF ALUMINUM FOR THE STOCKPILE ANNUALLY

Using DOD aluminum scrap for the stockpile is technically feasible but would require certain changes. The scrap would have to be converted to secondary, or reprocessed aluminum, and stockpile specifications would have to be modified to allow for storing aluminum in this form.

With these changes, secondary aluminum obtained from recycled DOD scrap could provide small annual contributions to the stockpile. Taking into account the amount of aluminum scrap that is practical to recycle, processing losses, and the amounts claimed by smelters as payment-in-kind, DOD scrap could yield an average of 4,500 tons of aluminum a year, or less than 1 percent of the amount needed to meet the 700,000-ton stockpile goal for aluminum--500,000 tons of which could be met with secondary aluminum.

USE OF SCRAP WOULD REQUIRE REPROCESSING AND CHANGE IN STOCKPILE SPECIFICATIONS

As noted earlier, current stockpile specifications call for storing aluminum in its primary, or unalloyed form. Four grades of aluminum are specified for the stockpile; aluminum content ranges from 99.7 to 99.9 percent.

For a variety of reasons, scrap materials, including aluminum, are not considered suitable for storage in the stockpile. According to a National Materials Advisory Board study, aluminum scrap is voluminous, is somewhat unsightly, and may be unsanitary for long storage.¹ In addition, it is difficult to analyze its aluminum content and therefore, according to FEMA's Assistant Associate Director for Resource Preparedness, impossible to credit toward the stockpile goal. Further, according to this same official, diverting government scrap to the stockpile could be expected to bring charges of market disruption from the secondary aluminum industry, which views DOD scrap as an important source of supply.

Current technology does not permit recycling aluminum scrap into aluminum pure enough to meet current stockpile specifications. Bureau of Mines officials and aluminum smelters told us that magnesium is the only alloying element that can be

¹Considerations in Choice of Form for Materials for the National Stockpile, National Materials Advisory Board, National Research Council, 1982.

removed from aluminum scrap. They also said it is not technically feasible to recycle DOD scrap to meet stockpile specifications without having to add such large quantities of pure aluminum that it would not be economical or practical.

Thus, in order to use scrap aluminum, it must be converted to secondary aluminum. This form of aluminum is produced by melting down the scrap, which contains alloying elements in it, and mixing it with pure or primary aluminum to obtain certain desired alloys. Secondary aluminum is commonly used particularly in steel production, for automotive and other castings, and in wrought aluminum products.

We asked FEMA officials whether secondary aluminum could be used to meet any portion of the stockpile goal. They told us that 500,000 tons, or 71 percent of the 700,000-ton aluminum goal, could be met by about 12 types or alloys of secondary aluminum. A FEMA industrial specialist added that about 400,000 to 425,000 tons, or 80 to 85 percent of the 500,000 tons, could be met by four commonly used alloys (319, 356, 360, and 380).

According to FEMA's Assistant Associate Director for Resource Preparedness, FEMA would have to change its stockpile specifications and also notify GSA to accept secondary aluminum for the stockpile.

Advantages and disadvantages of stockpiling secondary aluminum

Stockpiling aluminum in secondary form has certain advantages and some drawbacks. Because it is already upgraded to an alloyed form, secondary aluminum is ready for use much more quickly in an emergency when time, energy, and alloying elements may be in short supply. Also, most end uses require alloyed aluminum, and secondary aluminum has generally cost about \$0.30 less per pound than comparable alloyed primary. On the other hand, because aluminum alloys are tailored to specific applications, they are at greater risk of becoming technically obsolete over the long-term and, in general, afford less flexibility of use than unalloyed primary aluminum. The problem of obsolescence could be dealt with by refining or processing materials, and GSA is already responsible for doing this.

According to a FEMA industrial specialist, FEMA considered stockpiling secondary aluminum several years ago but did not see any advantage in doing so at that time. However, the specialist said that FEMA is not opposed to stockpiling secondary aluminum and would be willing to consider it again if a definite advantage were demonstrated.

ABOUT 11,000 TONS OF DOD ALUMINUM
SCRAP COULD BE RECYCLED ANNUALLY

From fiscal years 1982 through 1984, DPDS sold an average of 16,000 tons of aluminum scrap a year world-wide. (See table below.) About 11,000 tons was sold by 38 DPDOs in the United States, each selling 50 tons or more a year. The remaining 5,000 tons was sold by DPDOs in Europe and the Pacific (about 3,000 tons) and the other 75 DPDOs in the United States.

Table 2.1: Annual Sales of Scrap Aluminum

	Fiscal Year			Total	Average	Percent of total
	1982	1983	1984			
------(in tons)-----						
U.S.: DPDO's selling 50 tons or more	11,726	10,787	10,524	33,037	11,012	67
U.S.: DPDOs selling less than 50 tons	1,945	2,156	3,180	7,281	2,427	15
Europe and Pacific DPDOs	<u>3,024</u>	<u>3,203</u>	<u>2,726</u>	<u>8,953</u>	<u>2,984</u>	<u>18</u>
Total	<u>16,695</u>	<u>16,146</u>	<u>16,430</u>	<u>49,271</u>	<u>16,423</u>	<u>100</u>

Source: Compiled by GAO using DPDS data.

Because of having to transport scrap from overseas and the small quantities generated by these other DPDOs in the United States, we considered it impractical to include them in our estimates of available scrap. Consequently, we calculate that about 11,000 tons of DOD aluminum scrap a year, on average, could be recycled for the stockpile.

Defense contractor scrap

In addition to the scrap sold through the DPDS, DOD owns scrap that defense contractors generate and sell. The scrap is generated as a by-product of manufacturing and is segregated and sold by contractors at their plants. The sales are approved and monitored by on-site government plant representatives or by the Defense Contract Administration Services Management Area (DCASMA) office.

According to a DCASMA-Dallas official, proceeds from scrap sales are used as an offset to contract costs. The Defense Contract Audit Agency audits accounting transactions to make sure that the government receives full credit.

We were not able to determine the full extent of contractor-generated scrap. As agreed with subcommittee staff, our review centered on DOD aluminum scrap sold by DPDS. Extensive additional work would have been required to determine the quantities, economics, and practicalities of including contractor-generated scrap in a recycling program for the stockpile. However, on the basis of limited data, it appears that this source of aluminum scrap could be significant.

Table 2.2: Defense Contractor Sales of Scrap Aluminum

<u>Contractor</u>	<u>Year</u>			<u>Total</u>
	<u>1982</u>	<u>1983</u>	<u>1984^a</u>	
	------(in tons)-----			
General Dynamics	3,123	2,842	1,806	7,771
Vought Corp.	1,904	1,355	1,282	4,541
Rockwell International	571	414	343	1,328
McDonnell-Douglas Corp.	<u>266</u>	<u>268</u>	<u>200</u>	<u>734</u>
Total	<u>5,864</u>	<u>4,879</u>	<u>3,631</u>	<u>14,374</u>

^aThrough August 1984.

Source: DCASMA-Dallas.

Before considering contractor scrap as a potential source of material for the stockpile, however, more needs to be known about the type and amounts generated, the extent and use of sale proceeds, and the costs of recycling.

MELT LOSS AND RECYCLING FEES
COULD SUBSTANTIALLY REDUCE YIELDS

The quantity of secondary aluminum that could be ultimately transferred to the stockpile depends on how much aluminum can be recovered from the scrap and how much is claimed by smelters as

payment-in-kind for their recycling services. Estimates that smelters provided indicated that on average, from 50 to 86 percent of the scrap might be recovered as aluminum, and on average, from 32 to 45 percent of the aluminum would be taken as payment-in-kind.

Recovery rate

During the recycling process, aluminum scrap is melted and mixed, according to the chemical elements it contains, to form any number of secondary aluminum alloys. During this process, a portion of the scrap volume is lost when the aluminum is separated from the nonaluminum parts that were present in the scrap.

We asked 12 smelters across the country to estimate the recovery rate for DOD irony aluminum scrap.² Irony aluminum scrap was specified because it comprised about 75 percent of all the aluminum scrap DPDS sold over fiscal years 1982 through 1984. According to DPDS classifications, this type of scrap consists of more than 50 percent aluminum by weight and includes obsolete or rejected parts, components, or accessories from which all nonaluminum parts have not been removed, and certain manufacturing scrap containing excessive oil and other contaminants.

All but two of the smelters we contacted said the recovery rate would vary depending on the physical composition of the scrap. The rate would vary for each batch of scrap recycled, they said, depending on the amount of contaminants, nonaluminum parts, and the size of the scrap pieces.

Nevertheless, 10 smelters were willing to give us a range of recovery rates, as shown below. From these, we calculated average recovery rates ranging from 50 to 86 percent, the overall average rate being 66 percent.

²Examples of irony scrap are aircraft parts, window screens, ladders, fixtures, and shop residue.

Table 2.3: Estimated Aluminum Recovery Rates for
DOD Irony Aluminum Scrap

<u>Smelter</u>	<u>Estimated recovery rates</u>	<u>Average recovery rates</u>
1	0.25-0.90	0.58
2	.25- .90	.58
3	.40- .90	.65
4	.50	.50
5	.50- .70	.60
6	.55- .75	.65
7	.60- .90	.75
8	.65- .70	.68
9	.70- .73	.72
10	.75- .97	.86
Average recovery rate		.66

Payment-in-kind

Since we were examining scrap recycling as a means to supplement cash purchases for the stockpile, we assumed that recycling would be conducted on a payment-in-kind basis.

All 12 smelters we contacted were interested in participating in an aluminum recycling program for the stockpile and said they would accept payment-in-kind for their services. Some smelter officials told us that the amount of payment would depend on the type of scrap and their costs to process it. The amount of secondary aluminum they would keep as payment would also depend on its market value at the time of production.

We asked the smelters to estimate their costs to recycle DOD iron aluminum scrap into 380 alloy, including all costs to transport the scrap to their plants and the aluminum to stockpile locations. Number 380 alloy was specified because industry uses it widely and, according to FEMA, it is one of the four most important secondary alloys for stockpile purposes.

Nine smelters gave us estimates of their fees, which averaged \$0.23 a pound. (See table below.) On the basis of a market price of \$0.605 a pound for 380 secondary alloy, the fees range from about one-third to half of the secondary aluminum produced, the average being 38 percent.

Table 2.4: Payment-in-kind Fees for Recycling DOD Irony
Aluminum Scrap into 380 Alloy

<u>Smelter</u>	<u>Recycling fee/lb.^a</u> (dollars)	<u>Average fee/lb.</u> (dollars)	<u>Average market price^b</u> (dollars)	<u>Average fee^c</u> (percentage)
1	0.19-0.20	0.195	0.605	0.32
2	.19- .20	.195	.605	.32
3	.19- .21	.200	.605	.33
4	.20- .21	.205	.605	.34
5	.22- .31	.265	.605	.44
6	.23- .24	.235	.605	.39
7	.23- .32	.275	.605	.45
8	.25	.25	.605	.41
9	.26	.26	.605	.43
	Overall average	.23		.38

^aIncludes cost to transport scrap from generation location to secondary smelter and aluminum produced to a stockpile location.

^bClosing prices listed in American Metal Market, Apr. 2, 1985.

^cAverage recycling fee per pound divided by average 380 secondary alloy market price per pound.

Source: Secondary smelters.

Potential fill rate

On the basis of the estimated recovery rates and in-kind fees, we calculated that on average, about 40 percent of the scrap, in volume, will be available for the stockpile as secondary aluminum. As shown below, from 3,000 to 6,400 tons of secondary aluminum might be obtained from DOD scrap, with the annual average being 4,500 tons. This estimate is based on the average amount of scrap aluminum sold annually by DPDOs in the United States that disposed of large quantities of this scrap.

Table 2.5: Estimated Quantities of Recoverable Secondary Aluminum

	<u>Low</u>	<u>Average</u>	<u>High</u>
Annual scrap tonnage	11,000	11,000	11,000
Average recovery rate	x <u>.50</u>	x <u>.66</u>	x <u>.86</u>
Volume recovered	<u>5,500</u>	<u>7,260</u>	<u>9,460</u>
Payment-in-kind	(<u>2,475</u>) ^a	(<u>2,759</u>) ^b	(<u>3,027</u>) ^c
Estimated annual stockpile fill rate	<u>3,025</u>	<u>4,500</u> ^d	<u>6,433</u>

^aAverage fee of 0.45.

^bAverage fee of 0.38.

^cAverage fee of 0.32.

^dRounded.

Source: Compiled by GAO using secondary smelter estimates.

CONCLUSIONS

On the basis of current stockpile specifications, which call for aluminum to be stored in primary or unalloyed form, it is not possible to use DOD aluminum scrap for the stockpile because current technology is not capable of removing most alloying elements from aluminum. However, FEMA officials say that stockpile requirements could be changed to allow for storing secondary aluminum, the product of recycling scrap.

Stockpiling secondary aluminum has some advantages and disadvantages. The amount of secondary aluminum that could go into the stockpile annually, however, would probably be relatively small in comparison to the large aluminum deficit. In our view, it would only be practical to recycle the DOD scrap generated within the United States and sold by DPDOs with large quantities of aluminum scrap. Contractor scrap might provide an additional source of recyclable aluminum scrap, but we did not assess whether it is feasible or desirable to divert it for stockpile purposes.

Our estimates of the quantities of aluminum that might be obtained through recycling are not precise. The smelters we interviewed noted that aluminum content can vary greatly from one batch of scrap to another; their estimates were also based on just one type of scrap aluminum. Given the variable recovery rates and smelters' in-kind fees, an average of 4,500 tons of aluminum might be available for stockpiling each year. When compared with the stockpile goal of 500,000 tons that secondary aluminum might fill, this seems like a small amount. Indeed, at the rate of 4,500 tons a year, it could take over 100 years to fill the stockpile. On the other hand, although modest, 4,500 tons would represent more than twice the amount of aluminum currently in the stockpile.

CHAPTER 3
ECONOMIC AND BUDGET EFFECTS
OF RECYCLING

On average, recycling DOD aluminum for the stockpile would likely cost the federal government about as much as buying a similar amount of aluminum on the open market. From a budgetary standpoint, the difference between the two approaches is in the source of funds. Direct purchases would require appropriations from the stockpile transaction fund while recycling could require appropriating additional funds for those DOD programs that are now or will shortly be supported by scrap sale proceeds.

COSTS OF RECYCLING

Assuming that DOD pays for aluminum scrap reprocessing in-kind rather than in cash, recycling costs would consist of the forgone scrap sale proceeds, which annually amount to about \$5 million on average. Additional administrative costs may be required for monitoring recycling operations, but we were unable to quantify them.

Table 3.1: Estimated Aluminum Recycling Program Costs

	<u>Fiscal Year</u>			<u>3-year average</u>
	<u>1982</u>	<u>1983</u>	<u>1984</u>	
Tons of aluminum scrap sold ^a	11,726	10,787	10,524	11,012
Sale proceeds	\$4,191,755	\$4,384,745	\$6,729,023	\$5,101,841

^aSource: Year to Date Scrap/Waste Receipt/Disposition by Weight, Defense Property Disposal Service. Data on those offices generating 50 or more tons of aluminum scrap annually.

On the basis of DPDS sales figures for fiscal years 1982 through 1984, those DPDOs generating 50 or more tons of aluminum scrap a year in the United States sold about 11,000 tons a year on average. Sales of this scrap ranged from \$4.2 million in fiscal year 1982 to \$6.7 million in fiscal year 1984; \$5.1 million was the average.

Since DOD already collects and segregates its aluminum scrap, the administrative costs of recycling would probably add little to the present costs to sell the scrap. DPDS personnel

also now estimate aluminum content, conduct sales, and generally carry out the same activities as would be involved in a recycling program.

RECYCLING VS. OPEN MARKET PURCHASE

To determine whether it is economical to recycle DOD scrap aluminum for the stockpile, we calculated the amount of secondary aluminum that could be purchased for the same cost as recycling aluminum. We then compared the amount of aluminum available through direct purchase with that available through recycling, using average recovery rates and in-kind smelter fees. Since the most commonly used secondary aluminum is 380 alloy, we used the average annual prices for that type. We also considered the amount of unalloyed primary aluminum, the form of aluminum now specified for the stockpile, that could be bought for the amount of money spent on recycling. The results are shown on the following page.

Table 3.2: Amounts of Aluminum Available From Recycling and Open Market Purchase, at Equivalent Cost

	Fiscal year (unless noted)			3-year average
	1982	1983	1984	
Estimated cost (in millions) to recycle aluminum scrap (revenues forgone)	\$4.2	\$4.4	\$6.7	\$5.1
Market price for secondary aluminum (380 alloy in dollars per pound) ^a	.48	.66	.64	.59
Market price for unalloyed primary aluminum (dollars per pound) ^b	.47	.68	.61	.59
Amount of aluminum available through recycling (in tons) ^c	4,798	4,414	4,306	4,500 ^d
Amount of secondary aluminum that could be purchased (in tons)	4,375	3,333	5,234	4,300 ^d
Amount of primary aluminum that could be purchased (in tons)	4,468	3,235	5,492	4,400 ^d

^aNational Association of Recycling Industries data for calendar years 1982-84.

^bBureau of Mines data for calendar years 1982-84.

^cBased on an average 66 percent recovery rate and 38 percent payment-in-kind fee to smelters for scrap sold by DPDOs selling 50 or more tons per year.

^dRounded to nearest 100.

As can be seen, over a 3-year period, the amount of secondary aluminum that could have been purchased for the cost of recycling varied. At market prices prevailing in 1984, one could have

bought considerably more secondary aluminum than one could have obtained at the same cost by recycling DOD scrap. In 1982 and 1983, on the other hand, recycling yielded more aluminum for the price of secondary aluminum on the open market. But on average over a 3-year period, the cost of obtaining aluminum on the open market was about the same as through recycling.

Much the same situation applies to primary aluminum, the form of aluminum that is now specified for the stockpile. However, upgrading this aluminum to a needed alloy will eventually add to its costs when compared with recycled scrap.

The estimated aluminum recovery rates and payment-in-kind fees provided by smelters were key to our analysis. These estimates were based on smelter experience in recycling aluminum scrap in general, and their "best guess" as to how this experience would apply to recycling DOD iron aluminum scrap in particular. Actual aluminum recovery rates and recycling fees for recycling DOD scrap can only be determined by conducting a pilot project.

However, the similarity in costs of recycling and direct purchases is not unexpected, and we believe it is likely that such a project would just confirm that the economic benefits of recycling DOD aluminum scrap for the stockpile are marginal.

One would expect the amount of aluminum obtained from recycling to be about the same as the amount that could be purchased with scrap sale proceeds. This equivalence results from bargaining between the government and smelters over smelting fees. Under recycling, smelters accept a portion of the aluminum in return for smelting scrap, leaving the residual aluminum to the government. In negotiating with smelters, the government would simply not agree to smelting fees that would leave it with less aluminum after recycling than could be obtained from selling scrap and buying ingot. It will not, however, get more than this amount from recycling since that would leave smelters worse off than they would be by buying scrap and keeping the aluminum themselves.

BUDGETARY IMPLICATIONS OF RECYCLING

As noted in chapter 1, a portion of DOD's scrap sale proceeds are returned to military maintenance installations and may be returned to other military installations as well. DOD officials told us that if sale proceeds are no longer available, they would have to seek other funds to continue program support, either in the form of reimbursement from the stockpile transaction fund or in direct appropriations. We should note that for the same reason, DOD has no economic incentive under current law to use its exchange authority in order to obtain aluminum for the stockpile. As a result, using DOD scrap for the stockpile, whether by

recycling or exchange, may require congressional appropriation of funds to replace funds DOD installations receive from the sale of scrap aluminum.

Program support provided
by scrap sale proceeds

The 85 maintenance facilities that overhaul and repair military equipment are supported by revolving funds, called "industrial funds." Moneys for the industrial funds come from fees charged to the military services for services performed and from the sale of scrap parts and materials generated by maintenance and overhaul operations.

The programs authorized by section 6(b)(1) of the Military Construction Codification Act could allow hundreds of DOD facilities, in addition to maintenance facilities, to receive the proceeds of recyclable scrap sales for their own use. In specifying that military installations could keep these moneys, the act provides an incentive for the installations to increase scrap recovery. Since each installation can receive up to \$2 million a year, DPDS officials expect that all scrap sale proceeds, which now total about \$45 million a year, would be returned to the installations under this law.

According to officials in the Office of the Assistant Secretary of Defense, if these sale proceeds were no longer available, DOD would seek appropriations to continue program support. They said that with the loss of scrap proceeds for their industrial funds, military maintenance facilities would have to increase the fees charged to the military services, which in turn would have to request additional appropriations from the Congress. In addition, installations with programs to sell recyclable materials would require an increase in appropriations to cover the scrap collection and disposal costs that would have been partly offset by scrap sale proceeds. Further, the loss of sale proceeds would remove any incentive to increase scrap material recovery.

CONCLUSIONS

When compared with open market purchases for the stockpile, our analysis suggested the economic benefits of recycling DOD scrap aluminum to be marginal. That is, from 1982 through 1984, for the cost of recycling scrap aluminum, on average, one could have purchased a similar amount of either unalloyed primary or secondary aluminum on the open market. Our analysis was based on industry estimates; a pilot recycling project would be needed to obtain actual data for some of the key elements involved. However, it is likely that such a project would not result in any significant differences.

The primary budgetary difference between recycling DOD scrap and direct purchases for the stockpile is in the source of funds in the federal budget, that is, whether funds come from the stockpile transaction fund or DOD appropriations. According to DOD officials, the Department would not wish to discontinue or reduce the programs that are supported by scrap sale proceeds. As a consequence, in recycling or exchange, DOD would most likely request additional appropriations. For the same reason, DOD has no economic incentive under current law to use its exchange authority to obtain aluminum for the stockpile.

AGENCY/INDUSTRY COMMENTS
AND OUR EVALUATION

DOD, GSA, FEMA, and the Department of the Interior provided written comments that express agreement with the report. (See app. II-V.) FEMA suggested a minor clarification and pointed out an error in the report that is described in the paragraph below. Other nongovernmental entities were sent copies of the draft for review and comment, including the Aluminum Association, Aluminum Recycling Association, National Association of Recycling Industries, and two secondary smelters. The comments they provided were of a minor technical nature, and we made changes where appropriate.

Our draft report stated that rotating stocks (stockpile materials) to prevent obsolescence is one way to deal with this problem. FEMA commented that the Stock Piling Act does not contain provisions for rotating stocks because of technical obsolescence. We deleted the reference to rotating stocks and revised the statement to say the problem of obsolescence could be dealt with by refining or processing materials. The act does contain provisions for doing this.

REQUEST LETTER FROM THE
CHAIRMAN, SUBCOMMITTEE ON SEAPOWER
AND STRATEGIC AND CRITICAL MATERIALS,
HOUSE COMMITTEE ON ARMED SERVICES

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U.S. House of Representatives
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Washington, D.C. 20515
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JOHN J. FORD, STAFF DIRECTOR

March 2, 1984

Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office
441 G Street, N.W.
Washington, D. C. 20548

Dear Mr. Bowsher:

For some time the Subcommittee on Seapower and Strategic and Critical Materials has been concerned with the large shortages of strategic and critical materials in our National Defense Stockpile and the lack of progress in reducing these shortages. To date, acquisitions to fill these deficiencies have been minimal, being tied solely to the appropriation of receipts from past stockpile sales. It is clear that unless supplemental methods are explored, many years will pass before the stockpile is adequate.

In this connection, the committee is deeply enmeshed in consideration of H.R. 3544, a bill to amend the Strategic and Critical Materials Stock Piling Act to facilitate the use of barter in the acquisition of strategic and critical materials for the National Defense Stockpile. The bill also provides for the transfer of excess and surplus government-owned materials to the stockpile.

The committee has observed that federal agencies, including the Department of Defense, generate and dispose of large quantities of surplus, scrap and excess materials. Many of these materials could be deposited directly into, converted to, or exchanged for, strategic and critical materials for the stockpile. To evaluate whether it is desirable to use these surplus materials for stockpile purposes, the committee is interested in knowing whether it is more advantageous to the government to continue to sell them as scrap, or to transfer them to the stockpile.

Therefore, the committee requests that the General Accounting Office prepare reports to address the following:

1. A survey of federal agencies and departments to determine the quantities of the principal materials that have been

REQUEST LETTER FROM THE
CHAIRMAN, SUBCOMMITTEE ON SEAPOWER
AND STRATEGIC AND CRITICAL MATERIALS,
HOUSE COMMITTEE ON ARMED SERVICES

Hon. Charles A. Bowsher

- 2 -

March 2, 1984

disposed of during the past five years and the estimated quantities that could be reasonably expected to be disposed of during the next five years. This report should include a synopsis of the current disposal methods employed by the agencies and departments and information on the proceeds realized and projected.

2. A second report concerning the technical and economic feasibility of recycling and/or bartering the materials for materials to be transferred to the stockpile. In addition, the report should include GAO's recommendations for legislative or administrative changes to accomplish maximum conversion of surplus, scrap and excess materials for stockpile purposes.

The initial identification of the magnitude of federal government surplus, scrap and excess materials, and their sales proceeds, would be most helpful during further consideration of H.R. 3544. The committee would, therefore, appreciate this data being compiled as quickly as possible in a basic information report. Following its receipt, we would intend to discuss with GAO priorities for the second report.

With kindest regards, I am

Sincerely,



Charles E. Bennett
Chairman, Subcommittee on Seapower and
Strategic and Critical Materials

CEB:dpc

ADVANCE COMMENTS FROM THE
DEPARTMENT OF DEFENSE



ACQUISITION AND
LOGISTICS

DASD (PS/IR)

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-8000

24 SEP 1985

Mr. Frank C. Conahan
Director, National Security
and International Division
U.S. General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to General Accounting Office (GAO) draft report, "Using Recycled Department of Defense Aluminum Scrap In the National Defense Stockpile," dated August 14, 1985 (GAO Code 005479), OSD Case 6821.

The draft report accurately describes the technical and administrative changes in National Defense Stockpile (NDS) procedures which could be used for reprocessing DoD scrap aluminum to meet the aluminum NDS goal. There were no recommendations. The DoD concurs in the draft GAO report.

Thank you for the opportunity to comment on GAO draft report.

Sincerely,

A handwritten signature in dark ink, appearing to read "James A. Wade, Jr." with a stylized flourish at the end.

James A. Wade, Jr.

ADVANCE COMMENTS FROM THE
GENERAL SERVICES ADMINISTRATION

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

General
Services
Administration Washington, DC 20405



September 13, 1985

Honorable Charles A. Bowsher
Comptroller General of the United States
General Accounting Office
Washington, DC 20548

Dear Mr. Bowsher:

We have reviewed the draft of a proposed report on the placement of recycled Department of Defense (DOD) aluminum scrap (380 alloy) in the National Defense Stockpile. The following comments are submitted as requested.

See comment 1.

The General Services Administration (GSA) is in general agreement with the principal findings in this report. We note that a separate Stockpile specification for secondary aluminum would have to be issued by the Federal Emergency Management Agency to permit acceptance of 380 alloy into the Stockpile.

Thank you for the opportunity to comment on this proposed draft report.

Sincerely,
Paul Trause
Paul K. Trause
Deputy Administrator

ADVANCE COMMENTS FROM THE
GENERAL SERVICES ADMINISTRATION

The following are GAO's comments on the General Services Administration's letter dated September 13, 1985.

GAO COMMENTS

1. The need for secondary aluminum specifications was recognized in the report on page 6.

ADVANCE COMMENTS FROM THE
FEDERAL EMERGENCY MANAGEMENT AGENCY



Federal Emergency Management Agency

Washington, D.C. 20472

SEP 17 1985

Mr. J. Dexter Peach
Director
Resources, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

Pursuant to your request of August 13, 1985, we have reviewed the General Accounting Office draft report on the feasibility of using recycled Department of Defense (DOD) aluminum scrap in the National Defense Stockpile. The findings expressed in the report are essentially in agreement with analyses which we have conducted to determine the practicality of utilizing DOD scrap to partially fill the aluminum metal stockpile goal deficit.

We would, however, like to suggest two technical clarifications for your consideration: (1) on page iii of the Executive Summary, it should be made clear that the estimated 70 percent of the current requirements for stockpile aluminum that could be met by secondary aluminum only refers to the aluminum metal portion of the goal, and (2) on page 10, with regard to the reference to rotating stocks to prevent obsolescence, it should be noted that the current Stock Piling Act does not make provisions for rotating stocks because of technical obsolescence but only for deterioration.

We appreciate having the opportunity to comment on the draft report. If you have any questions, please contact Mr. John T. Thiede, Inspector General, 646-3910.

Sincerely,

Robert H. Morris
Acting Director

Now on p. 7.

ADVANCE COMMENTS FROM THE
DEPARTMENT OF THE INTERIOR

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

SEP 17 1985

Re: 005479

Mr. J. Dexter Peach
Director
Resources, Community and Economic
Development Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

In compliance with Public Law 96-226, we have reviewed the draft report on using recycled Department of Defense aluminum scrap in the National Defense Stockpile (GAO/RCED-85-141).

In general, we found the technical information to be accurate, and are in agreement with the overall thrust of the report. We also agree that although it would appear to be feasible to use DOD aluminum scrap for the stockpile, it would not be practical to do so.

Attached are some comments that may be helpful to you in preparing your final report.

Sincerely,

Alayne M. Macdonald
Acting Deputy Assistant Secretary
for Water and Science

Attachment

ADVANCE COMMENTS FROM THE
DEPARTMENT OF THE INTERIOR

COMMENTS ON GAO DRAFT OF PROPOSED REPORT ON USING RECYCLED DEPARTMENT
OF DEFENSE ALUMINUM SCRAP IN THE NATIONAL DEFENSE STOCKPILE

The GAO report is a well prepared document of the study made by GAO on the possible use of recycled DOD aluminum for the National Defense Stockpile. It indicates clearly that no significant savings to the Government would result from attempting to stockpile recycled DOD scrap. Moreover, past experience with many other stockpile materials indicates that stockpile specifications should provide for the purest possible materials because the passage of time usually results in future industrial requirements for even purer materials, often involving test methods for analysis at parts-per million or parts-per billion levels, previously impossible to achieve.

See comment 1.

The report correctly notes that the new proposed stockpile goals listed in the White House Press Release of July 8, 1985 (attached), did not include aluminum. Consequently, further consideration of stockpiling any material should be deferred until new goals are officially established.

See comment 2.

The report passes over DOD contractor-generated scrap rather quickly. Perhaps additional studies on the use of this scrap would be useful. Such scrap is probably well segregated and much cleaner than that generated by military depots. This type of scrap could have a higher value, give a greater yield of metal, and cost less to process, thus providing a higher yield of metal to the stockpile.

DOD collects and segregates its aluminum scrap at several large depots; however, Bureau of Mines research personnel who have visited these centers indicated that scrap identification was a major problem and that a large portion of the scrap was not segregated but classified as "mixed." Such unsegregated scrap is probably sold at a minimum price. Bureau research is developing a metal identification system that could allow DOD to attain better segregation and bring a higher cash return and bigger yield to the Government.

As the report indicates, new FEMA specifications for aluminum would have to be established to include secondary metal. The Department of Commerce is now reviewing current specifications for aluminum and other material for possible updating.

ADVANCE COMMENTS FROM THE
DEPARTMENT OF THE INTERIOR

The following are GAO's comments on the Department of the Interior's letter dated September 17, 1985.

GAO COMMENTS

1. Press release not attached.
2. Although the source of DOD contractor-generated scrap could be significant, we were unable to fully address it. (See p. 9.)

ADVANCE COMMENTS FROM THE
ALUMINUM ASSOCIATION

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

the Aluminum Association
Incorporated

818 Connecticut Ave., N.W. Phone (202) 862-5100
Washington, D.C. 20006 Telex 710 822 1129



August 28, 1985

Mr. J. Dexter Peach
Director, Resources Community
and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

We have reviewed your proposed draft report on recycling Department of Defense aluminum scrap for the National Defense Stockpile, dated August 14, 1985.

We feel that we can only appropriately comment on points of a technical or statistical nature at this point.

Now on p. 7.

On page nine, paragraph three comments on how scrap aluminum could be used. In the last sentence which mentions uses of secondary aluminum, the reference to tubing would appear to give more prominence to this use than is justified by the facts. Furthermore, tubing is a wrought aluminum product itself. A significant use of secondary aluminum is for making extrusion billet (or ingot) from which rod, bar, shapes and tube is made.

Now on p. 7.

Page ten discusses the advantages and disadvantages of stockpiling secondary aluminum. The third sentence states that "secondary aluminum has generally cost about \$0.30 less per pound than comparable alloyed primary", yet the table on page 21, and the conclusions on page 24, both seem to indicate that there is no cost difference. Perhaps the report could clarify this.

Now on pp. 18 and 20.

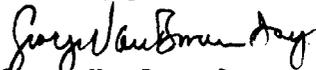
Now on p. 7.

In that same paragraph on page 10, the fourth and fifth sentences (which deal with preventing obsolescence in the stockpile) a point seems to have been overlooked. It is our understanding that the reason for stockpiling relatively "pure or primary aluminum" was for flexibility; only small amounts of alloying elements would have to be added to make it useable for whatever type of wrought or cast product would be required.

See comment 1.

We hope these few comments are of help.

Sincerely yours,


George Van Buren Day
Vice President
Economics and Statistics

GVBD/tt/S15A0002

ADVANCE COMMENTS FROM THE
ALUMINUM ASSOCIATION

The following are GAO's comments on the Aluminum Association's letter dated August 28, 1985.

GAO COMMENTS

1. We made changes in the final report where appropriate.

ADVANCE COMMENTS FROM THE
NATIONAL ASSOCIATION OF RECYCLING INDUSTRIES



NATIONAL ASSOCIATION OF RECYCLING INDUSTRIES, INC.
330 MADISON AVENUE / NEW YORK, N.Y. 10017 / (AREA CODE 212) 867-7330

September 17, 1985

Mr. George Warholic,
GAO Evaluator
General Accounting Office
Room 400, Mercury Building
1015 - 20th Street, N.W.
Washington, D.C.

Re: General Accounting Office Report
--Stockpile and Utilization of
Government Scrap

Dear Mr. Warholic:

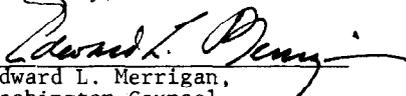
Having carefully reviewed the above report, the National Association of Recycling Industries, Inc. (NARI), the trade association for the nation's metal recycling industries, wishes to register its unqualified approval and support.

Clearly, GAO correctly concluded that "the economic benefits of recycling DOD scrap aluminum [would] be marginal", and that there is no sound budgetary reason for compelling the Department of Defense to recycle the scrap it produces instead of offering that material to private industry for recycling.

In sum and substance, therefore, NARI continues to oppose any government activity which would be competitive with, or displace and disrupt, commercial activities already being performed by, or available from, existing sources insofar as government-generated scrap materials are concerned. For obvious reasons, therefore, NARI also opposes any so-called "pilot project", such as the one mentioned in the GAO report, on the ground that all evidence available to GAO and the recycling industry indicates that the results of any such projects are readily predictable and would be of no real benefit to the United States, the Department of Defense or the stockpile.

With congratulations to you and your staff upon the issuance of what appears to be a completely accurate report and with assurances that we stand ready to cooperate with you if any further questions arise in this area, I am,

Sincerely,


Edward L. Merrigan,
Washington Counsel
6000 Connecticut Avenue, N.W.
Washington, D.C. 20815
Telephone: 656-0210

(005479)

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