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Report to Rep. John D. Dingell, Chairman, House Committee on Interstate and Foreign Commerce: Energy and Power Subcommittee; by Elmer B. Staats, Comptroller General.

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General Services Administration officials estimated that about 170,000 tons of waste were generated annually in buildings they operate; about 85% of civilian agencies' waste is paper or paper products. Department of Defense officials estimated that from 42% to 75% of the 2 million tons of solid waste they generated was paper or paper products. Where specific wastepaper products have been abundant, Federal agencies have generally done a good job of collecting and selling this wastepaper. Government agencies and installations have also been generating revenue from general paper wastes that have remained after high-value paper wastes have been removed. However, the greatest majority of Government wastepaper is still treated as solid waste or trash and is incinerated or landfilled. Source separation programs established to separate high-grade paper from other wastes have been generally successful in getting higher grade paper out of the trash cycle and into the paper recycling industry. Two major obstacles to the viability of using Government wastepaper as insulation are the high density and dustiness of such paper and the current shortage of boric acid. Newsprint is the preferred source of paper for producing cellulose insulation; the characteristics of high-grade paper render it less appropriate for insulation than newspapers. Other uses for recycled wastepaper include high-temperature pipe insulation and producing heat from incineration. (RRS)

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

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B-166506

April 6, 1978

The Honorable John D. Dingell, Chairman
Subcommittee on Energy and Power
Committee on Interstate and Foreign
Commerce
House of Representatives

Dear Mr. Chairman:

This is our second report in response to your June 21, 1977, request for information on using Government wastepaper to achieve economically, environmentally, and socially desirable goals. In our December 2, 1977, interim report (enc. I), we discussed the three primary methods of destroying classified wastepaper, security requirements for its disposal, and the amount of classified wastepaper disposed by selected Government activities. The additional information provided in this report should answer the remaining questions in your request.

We obtained information from officials of the Department of Defense (DOD) headquarters; the Departments of the Army, Navy, Air Force, and Commerce; the Defense Logistics Agency; the Central Intelligence Agency; the National Security Agency; the General Services Administration; and the Environmental Protection Agency. We also consulted with officials of the American Paper Institute; National Association of Recycling Industries, Inc.; National Cellulose Insulation Manufacturers Association; and other representatives from private industry. As discussed with your staff, we did not review the Legislative branch agencies' wastepaper disposal practices.

Our review was hampered by a scarcity of specific, firm data on the amounts of paper wastes generated by the Government. Consequently, we are unable to be very specific when talking about tonnages of wastepaper in general or even about revenue received from paper sales in recent years. For example, DOD has computerized data on the amounts of solid waste generated at each of its installations but does not know specifically how much of

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this total is comprised of wastepaper or paper products. Our very limited work with this data indicates that for our purposes, it is not reliable. Similarly, the General Services Administration has waste data on Government-owned-and-operated buildings, but not on the thousands of buildings that the Government leases. Notwithstanding these limitations, we were able to get some idea of what is happening to the Government's wastepaper. The Environmental Protection Agency now requires feasibility studies on the potential for wastepaper recovery at Federal facilities. Once completed, these studies should provide additional data on the Government's wastepaper volume.

Although your initial request asked about classified wastes in particular, we could not determine precisely the annual amount of classified wastepaper that the Government generates. However, our work does indicate that classified paper is only a very small portion of all Government wastepaper. Therefore, we have limited our discussion to Government paper wastes in general.

GOVERNMENT WASTEPAPER

General Services Administration officials estimated that about 170,000 tons of waste were generated annually in buildings that they operate (about 15 percent of the total civilian agency work locations). They judged that about 85 percent of civilian agencies' waste is paper or paper products. DOD had computerized data which reported that military organizations had generated just over 2 million tons of solid waste in fiscal year 1976. No specific data was available on paper wastes, but officials estimated that from 42 to 75 percent of the total solid wastes would be paper or paper products.

Our work indicates that where specific wastepaper products have been abundant (and relatively free of contaminants), such as used manila tab cards and computer printouts from large computer operations, defense and civilian agencies alike have generally done a good job of collecting this wastepaper and selling it. It is not unusual for used manila tab cards to sell for $150 per ton. In fiscal year 1977, the General Services Administration had sales of about $1 million from this type of civil agencies' wastepaper. DOD sold about 6,000 tons of such paper wastes in fiscal year 1977, yielding revenue exceeding $500,000.

Government agencies and installations have also been generating revenue from general paper wastes that remained after the high-value paper wastes (i.e., computer printouts, manila tab cards, cardboard boxes, etc.) were removed. Many agencies and installations also operate baling machines and sell their paper trash as "mixed" paper. Prices vary, but approximately $10 per ton is received for this type of paper. However, the greatest majority of Government wastepaper is still treated as solid waste or trash and is either incinerated or landfilled--providing little or no ecological, financial, or energy benefits.

In order to redress this condition and in response to legislative mandates to recycle more of our valuable resources, the Environmental Protection Agency established a source-separation program in mid-1976 that requires Government offices with over 100 workers to separate high-grade paper from other wastes at its source, so that it can be collected and sold for recycling. Considerable emphasis was given to the program as a result of a Presidential memo on the subject in 1977. By late 1977, source-separation programs had begun in 65 buildings or complexes in 9 out of 10 General Services Administration regions. Many more programs are expected to start this year.

In addition to the $1 million in sales of specific wastepaper products discussed previously, in fiscal year 1977, the General Services Administration also sold 615 tons of high-grade wastepaper collected under its new source-separation program. Revenue from these high-grade wastepaper sales totaled $36,500. DOD did not report separate information on the sale of high-grade wastepaper but included it in its data on all paper waste sales.

We found that these newly formed source-separation programs were generally successful in getting higher grade paper out of the trash cycle and into the paper recycling industry. There have been two different contractual approaches to these programs in civilian agencies--a full-service contract in which an outside firm provides the necessary desk top containers, training, and, in some cases, other services relating to the separated papers, and a straight sales contract in which the agencies provide collection devices, training, and preparation of the paper for pickup by the paper dealer. Our analysis indicates that straight sales contracts will generally

yield higher revenue after initial startup costs are recovered. However, according to General Services Administration officials, full-service contracts have generally been used whenever acceptable bids are received. Most Federal agencies are reluctant to use the straight sales contracts because, under existing legislation (40 U.S.C. 485), all revenue from the sale of wastepaper must be turned over to the Department of the Treasury. Federal agencies, which must comply with this law, cannot recover necessary startup costs for the desk top and intermediate collection devices and employee training.

DOD does not have this problem since DOD Directive 4165.60 (Oct. 4, 1976) provides financial incentives for installations to implement resource recovery programs. This directive provides that the proceeds from the sale of commercial, residential, and institutional waste (includes high-value paper and computer printouts and cards) go to a base's recycling activity to help recover operating costs. The DOD directive is consistent with section 612 of the fiscal year 1975 Military Construction Authorization Act (Public Law 93-552, 88 Stat. 1765-66, Dec. 27, 1974), relieving DOD of compliance with the requirements of 40 U.S.C. 485.

It would appear that similar financial incentives to the civilian agencies would give them more encouragement to start paper recovery programs and, where feasible, to use straight sales contracts rather than full-service contracts to optimize the Government's economic benefits from such programs.

As shown above, the Government has recently been getting more involved in recycling its wastepaper resources. The Environmental Protection Agency, the General Services Administration, and DOD officials that we talked with are optimistic that more and more recycling will take place. The pace at which this happens, however, is subject to such outside factors as the general market demand for recovered paper and continuing emphasis on such programs by the President and the Congress. The industry officials involved in paper recovery that we talked with were generally very optimistic on the long-term outlook for their industry, especially if tax incentives were enacted to favor recycled fibers versus virgin material.

Because of the newness of the source-separation programs and the lack of specific data to analyze the Government's paper waste stream, we cannot conclude that current Government efforts to recycle wastepaper are enough. When viewed in a strictly economic sense, these programs are currently yielding revenue in today's paper market. The market, however, is highly volatile and economic benefits may not always be possible. Your Subcommittee may want to endorse, encourage, or demand more Government paper recycling programs, regardless of the market's unpredictability because of their ecological or energy savings concerns.

WASTEPAPER AS INSULATION

Your request asked that we determine what can be done to make Government wastepaper, both classified and unclassified, useable for other purposes such as insulating buildings. As discussed in our interim report, current security regulations at some agencies provide that contractors may use classified wastes provided that their destruction is witnessed. Similarly, there is no restriction on using unclassified wastes or the source-separated high-grade paper being offered for sale by the Government from the various recycling programs discussed above.

However, two major obstacles to the viability of using Government wastepaper as insulation are (1) the high density and dustiness of such paper, particularly with classified wastes and (2) the current shortage of boric acid.

An official of the National Cellulose Manufacturers Association explained that newsprint is the preferred source of paper for producing cellulose insulation. The physical characteristics of high-grade paper render it less appropriate for insulation than newspapers. Additionally, higher grade paper creates more dust during shredding which creates a potential explosive hazard. In 1977, the Environmental Protection Agency estimated that high-grade paper represents 43 percent of general office waste. An Environmental Protection Agency report states that handling sensitive materials is similar to collection procedures for source-separated paper. Therefore, the percentage of high-grade paper in classified waste is probably more than the 43 percent found in general office waste.

Whatever paper is shredded for insulation, chemicals must be added for flame retardment. While numerous chemicals can be used, industry and the Government prefer boric acid for a number of reasons--resistance to fungus growth, thermal conductivity, and flame spread, to name a few. However, a 1977 Department of Commerce report indicates that there is a very real current shortage of boric acid in the United States which will probably extend through 1979 and that this shortage is restricting the cellulose insulation industry's production.

Moreover, the General Services Administration's Federal Supply Service is proceeding to amend its cellulose insulation specifications. According to a cellulose insulation industry spokesman, the industry may have to double its present usage of boric acid to meet some of the new specifications. The industry spokesman added that boric acid is presently not available in quantities needed to meet the proposed standards. Both Government and industry spokesmen stated that there are other chemicals or formulas that can meet the new specifications for flammability and smouldering tests; however, these could create other problems such as (1) promoting the growth of fungus in the insulation or (2) increasing the insulation's corrosiveness.

While a Government program to reinsulate Federal buildings may have merit on its own, we believe that the decision to use recycled Government wastepaper, classified or otherwise, versus recycled newspaper or other material for insulation should be left up to the marketplace. The various economic and technical advantages and disadvantages of cellulose insulation would thus compete on an equal basis with other types of insulation.

OTHER USES FOR WASTEPAPER

In addition to recycling wastepaper into paper or paper products and using it for insulating buildings, there are other uses for wastepaper. These include high-temperature pipe insulation and producing heat from incineration. Several alternative uses are currently being studied. They include turning wastepaper into energy-rich glucose sugar and other food, fuel, and chemical byproducts and refuse-derived fuel, where wastepaper is made into pellets which can be burned for energy along with coal, thus reducing coal requirements.

As alternate wastepaper uses become both technically and economically feasible, the demand for wastepaper should increase. The increased demand should provide larger markets for Government wastepaper and thus move toward satisfying your concern of achieving more economically, environmentally, and socially desirable goals for Government wastepaper.

Should you have any further questions concerning this work, we would be happy to discuss them with you or your staff.

Sincerely yours,

Elmer B. Staats

Comptroller General
of the United States

Enclosure

 ENCLOSURE I

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

DEC 2 1977

B-166506

The Honorable John D. Dingell, Chairman
Subcommittee on Energy and Power
Committee on Interstate and Foreign
Commerce
House of Representatives

Dear Mr. Chairman:

Your June 21, 1977, letter asked us to review present regulations of Federal Government agencies with respect to recycling waste paper, with principal attention to agencies disposing of classified documents. You asked whether some agencies' disposal processes involve ink removal, producing toxic chemicals; and whether ink removal is necessary to prevent disclosure of classified information. Finally, you asked us to determine (a) how much Government paper (annual tonnage) is processed in this manner; (b) whether all disposal steps are required; (c) our assessment of economic, social and environmental costs of existing disposal practices; (d) what can be done to make the waste paper usable for other purposes, such as insulation of buildings; (e) after being processed, how is the waste disposed; and (f) whether the paper could be used in other, more socially beneficial ways.

As requested by your Subcommittee, we are providing an interim report on the status of our work to date and the additional work planned to satisfy your request.

To date we have obtained information from officials of Headquarters, Department of Defense, Central Intelligence Agency, National Security Agency, Hill Air Force Base and Wright-Patterson Air Force Base. We have also contacted the General Services Administration (GSA) which is responsible for waste paper disposal at many Federal facilities.

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In the Washington, D.C., area and the other locations visited, classified paper wastes total over 13,000 tons annually. The disposal costs identified to date total about $142,000 for these wastes. Although some wastes are sold, we have not yet obtained the revenue data.

Classified waste disposal requires destroying the documents to prevent release of their contents. There are three primary methods for destroying classified documents:

--incineration,
--shredding or milling (dry process),
--pulping (wet process).

None of these processes involves using chemicals to remove ink although the water used in the pulping process does result in some ink removal. Incineration of the waste results in total destruction and precludes any reuse for recycling. Only a limited amount of the waste paper at locations visited was processed in this manner. Shredding or milling involves cutting or dry beating the paper which is then passed through a security screen to assure that the residue is small enough to prevent disclosure of the classified information. At the locations we visited the resultant residue from the latter process is not sold, but is hauled to a landfill. The wet pulping process involves soaking and grinding the waste paper. It is then pumped into a screw press forcing the paper through a security screen. The resultant residue is approximately 75 percent water and 25 percent paper residue. The high water content of this residue prohibits baling for shipment to a recycler. Recyclers are not equipped to handle the residue in other than baled form. Consequenly, the Government must pay to haul the residue to a landfill. Most of the classified wastes identified to date are destroyed using the wet pulping process.

A demonstration project is currently underway at the Pentagon involving the removal of water from the wet pulped wastes, thus permitting sale of the residue. If this demonstration proves to be cost effective, we believe it may be applied at other wet pulping locations

Security requirements for classified waste paper destruction vary among the agencies contacted. The following table summarizes these requirements.

Requirements for Classified Waste Destruction

Agency	Size of end product must not be greater than	Recycler may destroy if the process is witnessed or certified
CIA	3/16 inch overall	No
DOD	Not specified--mutilation to prevent recognition	No reference
Air Force	1/32 inch wide strips	Yes
GSA	1/4 inch or less strips (maceration and/or pulping acceptable)	Yes
NSA	3/16 inch overall or 3/64 inch by 1/2 inch	Yes

Our work to date showed that GSA regulations on the sale of waste paper to recyclers permits the recyclers to shred or otherwise destroy the document, providing that the recyclers' processes meet security requirements. The destruction must be witnessed by Government employees, or, if cosigned to the mill, a certificate of destruction must be sent to the agency.

NSA currently transports its classified paper to a recycling firm. The recycler destroys the documents using a pulping process. The residue is then recycled into paperboard. The NSA contract also provides for reimbursing the Government when the paper market price exceeds a specified amount per ton. We believe adopting NSA's approach may permit other agencies to sell classified wastes not now sold and thus could reduce operating costs for Government shredding equipment and the cost of hauling unrecycled residue to a landfill. Also, revenues would be generated from sale of the waste and the waste would have some utility other than landfill. On the other hand, there may be some cost to transport the wastes to the contractor and witness the document destruction. We have no basis, at this time, for estimating whether the savings would more than offset this cost.

We will evaluate alternative disposal methods, including using waste paper as insulation, in the additional work planned to satisfy your request. We will include the disposal of yet

ENCLOSURE I

unidentified classified wastes and other privileged paper wastes such as those resulting from the Privacy Act of 1974. GSA officials estimate that about 3 to 5 percent of all Federal paper waste is now sold. Therefore, we also plan to consider other paper waste in our review. Our work will include additional agencies and facilities, and an evaluation of regulations impacting waste paper disposal practices. We will consider the costs and benefits of the disposal alternatives, as well as their conformity with pertinent regulations.

We trust that this interim report will be of help to your Subcommittee. We will gladly further discuss any matters with you or your staff.

Sincerely yours,

Elmer B. Staats

Comptroller General
of the United States