United States
Environmental Protection
Agency

National Risk Management
Research Laboratory
Cincinnati, OH 45268

Research and Development

EPA/600/SR-96/115 September 1996

EPA

Project Summary

Pollution Prevention Assessment U.S. Postal Service Materials Distribution Center Topeka, KS

Carole O. Bell, Mary Hoel, Henry Huppert, and Steven Rolander

As part of its Waste Reduction Evaluation at Federal Sites (WREAFS) Program, the U.S. Environmental Protection Agency (USEPA) National Risk Management Research Laboratory (NRMRL) worked cooperatively with the U.S. Postal Service (USPS) to integrate waste prevention and recycling activities into the waste management programs at various postal facilities through conduct of pollution prevention opportunity assessments (PPOA). The PPOA summarized here was conducted at a USPS facility in Topeka, KS.

The PPOA documented and quantified waste generation at the USPS Service Materials Distribution Center, which consists of the Materials Distribution Center, Central Repair Facility, and Label Printing Center located in Topeka, KS. The report makes recommendations concerning the procurement of office supplies, maintenance supplies and hazardous materials; management of hazardous materials and wastes; purchase of chemicals on USEPA's 33/50 list; improvement of source separation and recycling of paper and paper products, metals and plastics; management of unwanted equipment; and other options for reducing or eliminating pollution.

This Project Summary was developed by USEPA's National Risk Management Research Laboratory (NRMRL), Cincinnati, OH, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Introduction

Since 1988, EPA's National Risk Management Research Laboratory (NRMRL) has managed a technical support effort known as the Waste Reduction Evaluations at Federal Sites (WREAFS) Program. WREAFS was established to provide pollution prevention solutions to environmental issues through research, development and demonstration of pollution prevention techniques and technologies, and transferring lessons learned within the federal community and related private sector industries.

The United States Postal Service (USPS), in cooperation with NRMRL's WREAFS Program is engaged in an effort to integrate pollution prevention and recycling activities into the waste management programs at postal facilities. The purpose of this project was to perform pollution prevention opportunity assessments (PPOAs) at Postal Service facilities, recommend implementation strategies, and develop facility guidance that can be incorporated into a revision of the USPS *Waste Reduction Guide*. The project was funded by the U.S. Postal Service through an interagency agreement with EPA NRMRL.

In this report, the findings of the PPOA conducted for the United States Postal Service at the facilities associated with the Materials Distribution Center in Topeka, KS are described. The PPOA was conducted during the week of March 6, 1995.

Facility Description

The Materials Distribution Center (MDC) is located in Topeka, KS. The USPS operations occupy eight buildings on the site. Four buildings are owned by the USPS and four are leased.

The mission of the MDC is the specification, acquisition, storage, distribution and maintenance of more than 16,000 parts, supplies, and pieces of equipment for the USPS automation and computer systems, nationwide. The MDC encompasses five distinct operations: Materials Distribution Center, Inventory Control, Inventory Support, Systems Integration, and the Topeka Purchasing Center.

The Label Printing Center (LPC) produces variable data bag and tray labels for 40,000 customers, including USPS nationwide and a variety of bulk mailers. The mission of the Central Repair Facility (CRF) is to repair electronic equipment, including circuit boards, monitors, printers and motors from USPS facilities nationwide.

Waste Management

Facility-wide, monthly solid waste management fees are estimated at $5,034 for an annual expense in excess of $60,000. These charges are divided among the three organizational groups: the Material Distribution Center which pays three-fifths of the total, the Label Printing Center one-fifth, and the Central Repair Facility one-fifth.

The MDC generates limited quantities of hazardous waste. In the past year two drums of waste paint were inadvertently shipped to the MDC and disposed of as hazardous waste.

The LPC generates several hazardous wastes. These include gear oil, hydraulic oil, and cleaners, degreasers, and chemicals associated with the operation of the offset lithography presses.

The offset presses generate three waste streams which are hazardous when spent. These include: Blanket wash (Blankrola) which contains tetrachloroethylene (F002 when spent); Electrostatic solution containing potassium hexacyanoferrate (potentially D003); and liquid developer containing isoparaffinic hydrocarbons (D001 if spent). The LPC generates approximately one gallon of each per week.

Facility-Wide Recommendations

Pollution prevention recommendations applicable to the entire facility include options in several categories as discussed below.

General Rnvironmental Management

- Appoint environmental coordinators to monitor the environmental issues at the facilities and identify opportunities to either reduce or recycle the wastes generated at the facility.
- Reallocate waste disposal costs based on waste volume to provide incentives to reduce waste.
- Determine the cost/benefit of replacing single-use corrugated boxes and jiffy bags in certain USPS shipping operations with distribution packaging that can be reused hundreds of times.
- Use software to store information on all items purchased in a database that includes fields for tracking monthly use, quantity on-hand, price, vendor, and storage location.
- Establish preference programs and adopt specifications for the purchase of products made with the percentages of recovered materials specified in EPA Guidelines.

Cardboard

For the cardboard that cannot be reduced at the source, recycling is recommended as discussed below. Exhibit 1 presents a summary of facility-wide corrugated cardboard recycling options.

Exhibit 1. *Corrugated Cardboard Recycling*

Maximize corrugated cardboard recycling	*Option 1: Continue current arrangement with Topeka Waste and Republic Paper*	*Option 2: Negotiate a contract with another paper recycler*
Total additional pulls of dedicated 40 cu yds compacted corrugated per year	*50*	*50*
Annual weight of corrugated	*300 tons*	*300 tons*
Annual collection costs	*$15,250 ($305/pull)*	*0*
Annual avoided disposal	*$15,650*	*$30,900*
Revenues from sale of corrugated	*$6,250 ($125/pull)*	*$22,500 - $30,000 ($75-100/ton)*
Total Savings	*$21,900*	*$53,400 - 60,900*

- Establish a corrugated cardboard source separation policy, designate containers for cardboard only and train all employees to maintain separation of OCC for recycling. Continue current collection arrangement with Topeka Waste and Republic Paper.
- Establish a corrugated cardboard source separation policy, designate containers for cardboard only and train all employees to maintain separation of OCC for recycling. Establish a market with a local recycler willing to enter into a contract based on a fixed price plus a fixed percentage of current market price.

Mixed Office Paper

- Reduce computer paper usage by establishing duplex-printing policy, using electronic mail, and limiting distribution lists.
- Establish a paper recycling program and enter into a long-term paper recycling contract indexed to the paper market. If the office paper is recycled as mixed paper, recyclers generally pay between $50 and $150 per ton. However, if the computer paper is separated from the mixed paper, the computer paper may receive up to $200 per ton. Mixed-paper recycling can often maximize the amount of paper recycled, but it can lower the revenues derived. Exhibit 2 presents a summary of different mixed-paper recycling options available to the facility.
- Train employees on the kinds of paper that should be recycled.

Materials Distribution Center

The MDC pays approximately $36,000 in annual waste disposal costs. Exhibit 3 presents a summary of the MDC's wastes, the current management practices for each, and recommended pollution prevention op-

Exhibit 2. *Office Paper Recycling*

Commodity/Price	*Option 1: Mixed Paper Recycling*	*Option 2: Computer Paper Recycling/Mixed Paper Recycling*
Annual Paper Waste Generation	*18.75 tons*	*18.75 tons*
White Paper (estimated 25% of waste stream)	-	*4.75 tons*
Mixed Paper (estimated 75% of waste stream)	-	*14 tons*
Price per ton	*$100* per ton*	*$200* per ton (computer paper)* *$100* per ton (mixed paper)*
Total	*$1,875*	*$2,350*

** May 1995 paper recycling figures.*

Exhibit 3. *MDC Waste Generation*

Waste	*Current Management*	*Opportunities*
Obsolete, damaged or defective equipment	*USPS logo removed/defaced; auctioned or sold as scrap*	*Reduce generation* *Improve economics of scrap sales*
Corrugated cardboard	*Some hauled to Republic Recycling by Topeka Waste Management for net cost of $180 per compactor load*	*Reduce incoming boxes* *Improve diversion for recycling* *Improve economics of recycling*
Computer printout	*Some collected for recycling by Hunter; some discarded as waste*	*Reduce generation* *Improve diversion for recycling*
White paper	*Some collected for recycling; most discarded as waste*	*Reduce generation, divert for recycling*
Mixed paper	*Some collected for recycling; some discarded as waste*	*Reduce generation, divert for recycling*
Magazines	*Discarded as waste*	*Reduce generation divert for recycling*
Toner cartridges	*Refurbished and reused*	*Combine into single program*
Pallets	*Reused then discarded as waste*	*Reduce variety, establish recycling options*
Plastic stretch wrap	*Discarded as waste*	*Reduce generation, divert for recycling*
Strapping	*Discarded as waste*	*Divert for recycling*
Dunnage	*Discarded as waste*	*Reuse, divert for recycling*

tions. Several options are discussed in more detail in Exhibit 3.

Packaging

- Reduce multiple layers of packaging, whereever product integrity will not be threatened.
- Utilize reusable mail transport equipment rather than single-use corrugated cardboard boxes and/or jiffy bags whenever possible.

Paper

- Minimize the number of printed items that become obsolete.

Label Printing Center

Exhibit 4 presents a summary of the wastes generated by the Label Printing Center, the current management practices for each, and recommended pollution prevention opportunities.

Other pollution prevention opportunities for the Label Printing Center include

- Seek an alternative mechanism, such as bar code system, to label mail bags, boxes and reusable mail distribution equipment.
- Specify tag paper with recovered content in new procurement.
- Modify the label printing process to reduce reject rate.
- Replace degreasers and cleaners containing ODCs and EPA 33/50 chemicals.
- Replace chemicals in pressure sensitive printing with nontoxic alternatives.
- Replace petroleum-based inks with soy or aqueous-based inks.

Central Repair Facility (CRF)

A summary of the wastestreams, the current waste management practices for each, and a description of recommended pollution prevention opportunities for the CRF is presented in Exhibit 5.

Exhibit 4. *LPC Solid Waste*

Waste	*Current Management*	*Opportunities*
Corrugated cardboard	*Hauled to Republic Recycling by Topeka Waste Management for net cost of $180 per compactor load*	*Reduce incoming boxes* *Improve diversion for recycling* *Improve economics of recycling*
Computer paper	*Some collected for recycling by Hunter; some discarded as waste*	*Reduce generation* *Improve diversion for recycling*
Mixed office paper	*Discarded as waste*	*Reduce generation* *Divert for recycling*
Test runs and defective printed label stock	*Recycled*	*Reduce generation*
Banded label stock	*Recycled*	*Reduce generation*
Cores and ends	*Discarded as waste*	*Divert for reuse or recycling*
HDPE bottles	*Recycled*	*Reuse*

Exhibit 5. *CRF Waste Sources*

Waste	*Current Management*	*Opportunities*
Cardboard	*Discarded as solid waste*	*Replace with durables, reuse, recycle*
Foam	*Discarded as solid waste*	*Replace with durable, reuse*
Plastic film	*Discarded as solid waste*	*Reduce, recycle*
Tape	*Discarded as solid waste*	*Eliminate*
Strapping	*Discarded as solid waste*	*Reduce, recycle*
Metal	*Collected for recycling* *Discarded as solid waste*	*Improve source separation for recycling*
Batteries	*Accumulated for recycling through MDC* *Discarded as solid waste*	*Source separate* *Recycle*
Paper	*Discarded as solid waste*	*Reduce paper use, recycle*
Oil	*Collected for recycling*	*Dike drums to prevent runoff*
Computer parts	*Sold as scrap* *Discarded as solid waste*	*Sell to computer recycler*
Lead Solder	*Discarded as solid waste*	*Less toxic substitute*

Other pollution prevention opportunities for the CRF are highlighted below.

- Use the procurement system to track hazardous materials throughout the facility.
- Change purchasing specifications to stop purchasing materials containing chemicals on EPA 33/50 list.
- Purchase reusable foam templates to replace the Instafoam packaging material.

Exhibit 6 presents the pollution prevention opportunities that offer the USPS significant economic benefit in addition to reducing pollution.

Recommendations and Conclusions

The USPS has encouraged reduction and recycling activities in its facilities. By implementing many of the source reduction and recycling options identified in the assessment, the Topeka Materials Distribution Center may be able to improve facility-wide environmental management, improve record keeping, reduce waste disposal costs and generate additional revenues from the sale of paper, paper products and other recyclables. On a facility-wide basis, the Topeka facility should focus on appointing a single environmental coordinator and purchasing software to coordinate purchasing and waste management throughout the facility. Additionally, the MDC should focus on methods to reduce the disposal of obsolete forms and other printed material and the CRF should make it a priority to eliminate the use of Instafoam and replace this with reusable foam templates.

The full report was submitted in partial fulfillment of Contract No. 68-C2-0148, Work Assignment No. 3-10 by Science Applications International Corporation under the sponsorship of the U.S. Environmental Protection Agency.

Exhibit 6. *Cost-Saving Pollution Prevention Opportunities*

Item(s) of Concern	*Facility*	*Current Practice*	*Pollution Prevention Opportunity*	*Estimated Potential Savings/Revenues*
Old Corrugated Cardboard (OCC)	*MDC Warehouses LPC CRF*	*Some OCC is recycled at a net cost of $180 per compactor load every other month*	*Establish and enforce a corrugated cardboard source separation policy Continue with same recycler or contract with another firm*	*Total potential savings from avoided disposal costs and increased recycling revenues are estimated between $21,900 and $60,900.*
Obsolete forms, publications, catalogs	*MDC Supply Warehouse*	*Recycled through local recycler*	*Seek a long-term contract for paper recycling with a per-ton payment indexed to the paper market*	*Estimated revenue increase of $6,000 to $10,000 per year depending on market fluctuations.*
Mixed office paper	*MDC, LPC, CRF*	*Most disposed in trash; small amount of computer paper is recycled*	*Establish paper recycling program and seek long-term contract for paper recycling with a per-ton payment indexed to the paper market*	*Total estimated revenues range from $1,875 - $2,350*
Banded labels	*LPC*	*4,000 pounds of excess banded label stock is recycled through local recycler monthly; no revenue*	*Stop banding test runs Identify a substitute for the plastic bands*	*Reduction in contaminated label stock will reduce waste and potentially increase recycling revenues.*
Disposable shipping containers	*MDC, LPC, CRF*	*Purchase thousands of single-use corrugated boxes and jiffy bags to ship printed labels, supplies and equipment to other USPS facilities.*	*Maximize use of existing Mail Transport Equipment Inventory Purchase additional reusable shipping containers Establish equipment tracking system*	*Additional investment in capital equipment will yield long-term savings in reduced purchasing, labor and disposal expenses.*
Instafoam	*CRF*	*Sprayed into shipping containers to protect contents from shifting and breakage*	*Reusable foam templates Modify process to preserve boxes for reuse and recycling*	*Reduced liability and improved worker safety. Investment in capital equipment will yield long-term savings in reduced purchasing, labor and disposal expenses*

Carole O. Bell, Mary Hoel, Henry Huppert, and Steven Rolander are with Science Applications International Corporation, Newport, RI 02840
***James S. Bridges and Theresa T. Hoagland** are the EPA Project Officers (see below).*
The complete report, entitled "Pollution Prevention Assessment U.S. Postal Service Materials Distribution Center Topeka, KS" (Order No. PB97-100069; Cost: $38.00, subject to change) will be available only from:
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: 703-487-4650
The EPA Project Officers can be contacted at:
National Risk Management Research Laboratory
U.S. Environmental Protection Agency
Cincinnati, OH 45268

United States
Environmental Protection Agency
Center for Environmental Research Information (G-72)
Cincinnati, OH 45268

Official Business
Penalty for Private Use $300

EPA/600/SR-96/115

BULK RATE
POSTAGE & FEES PAID
EPA
PERMIT No. G-35