



CLOSING THE SOLID WASTE CIRCLE:

A GUIDE FOR OPERATING QUALIFIED RECYCLING PROGRAMS

DEPARTMENT OF DEFENSE
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FOREWORD

Closing the Solid Waste Circle: A Guide for Operating Qualified Recycling Programs provides guidance regarding the establishment, implementation, and oversight of Qualified Recycling Programs (QRPs).

This Guide is intended as guidance for operating a QRP. In instances where statutory, regulatory, executive order, and DoD policy requirements exist, the reference is cited. The Guide is intended for use by all of the DoD Components, worldwide. Refer to supplementary guidance provided by the DoD Components for unique requirements within their organizations. It is also important to check state or country laws and regulations that may be applicable to DoD recycling activities and adapt this guidance where necessary.

Questions or clarifications concerning this Guide may be resolved by directing correspondence through your Military Department's chain of command to: Chairman of the DoD Pollution Prevention Committee (DUSD(ES)), 3400 Defense Pentagon, Washington, DC 20301 -3400.

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- (c) Section 2577 of title 10, United States Code
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- (d) Resource Conservation and Recovery Act, as amended, section 6901 of title 42, United States Code
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- (f) Section 484 of title 40, United States Code
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ABBREVIATIONS AND ACRONYMS ¹

AEDA	Ammunition, Explosives, and Dangerous Articles ²
AFI	Air Force Instruction
ALMC	Army Logistics Management College
APF	Appropriated Funds
APP	Affirmative Procurement Program
AR	Army Regulation
BCE	Base Civil Engineer
CCLI	Commerce Control List Item
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C&D	Construction and Demolition
CFR	Code of Federal Regulations
CNO	Chief of Naval Operations
CONUS	Continental United States
CSRWG	Combined Services Recycling Work Group
DEMIL	Demilitarization
DWCF	Defense Working Capital Fund
DFAS	Defense Finance and Accounting Service
DLA	Defense Logistics Agency
DoD	Department of Defense
DPW	Director of Public Works
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DSCR	Defense Supply Center Richmond
DTID	Disposal Turn-In Document
DUSD(ES)	Deputy Under Secretary of Defense for Environmental Security
E.O.	Executive Order
EPA	U.S. Environmental Protection Agency
FSCAP	Flight Safety Critical Aircraft Parts
FY	Fiscal Year
GFM	Government Furnished Material
GOCO	Government owned, contractor operated
GSA	U.S. General Services Administration
ISWM	Integrated Solid Waste Management
ITAR	International Traffic in Arms Regulation
LCC	Life Cycle Cost
MLI	Munitions List Item
MOA	Memorandum of Agreement
MOM	Measure of Merit
MWR	Morale, Welfare, and Recreation
NAF	Non-Appropriated Funds

¹ Appendix 1 contains definitions of terms as used for the purposed of this Guide.

² The Operational and Environmental Executive Steering Committee for Muntions (OEESCM) is currently discussing whether to change AEDA to Materials that Potentially Present an Explosive Hazard (MPPEH).

NRC	National Recycling Coalition
NSA	National Security Agency
OCC	Old Corrugated Cardboard
OCONUS	Outside Continental United States
OGC	Office of General Counsel
OFEE	Office of Federal Environment Executive
O&M	Operation and Maintenance
ONP	Old Newspapers
OSD	Office of the Secretary of Defense
P2	Pollution Prevention
PBD	Policy Budget Directive
PMRP	Precious Metal Recovery Program
POC	Point of Contact
POL	Petroleum, Oil, Lubricants
PPE	Personal Protective Equipment
PWO	Public Works Officer
QRP	Qualified Recycling Program
RCRA	Resource Conservation and Recovery Act
SJA	Staff Judge Advocate
SLI	Strategic Listed Item
SWAR	Solid Waste Annual Report
SWARS	Solid Waste Annual Report System
TDA	Table of Distribution and Allowances
TSC	Trade Security Control
U.S.C.	United States Code
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology & Logistics

CHAPTER 1: INTRODUCTION

Summary For Commanders

In accordance with 10 U.S.C. 2577 (reference (c)) as implemented through DoD Instruction 4715.4, all installations shall have or participate in a recycling program, where cost-effective because:

- ?? Recycling turns materials that would otherwise become waste into valuable resources and generates a host of environmental, financial, and social benefits. By recycling we conserve resources, prevent emissions of greenhouse gases and water pollutants, save energy, supply industry with valuable raw materials, and reduce the need for new landfills and incinerators.
- ?? Recycling is economically advantageous to DoD. Recyclable materials can be sold, often for substantial amounts. In addition, recycling avoids many costs associated with solid waste disposal.

The general rule of law reflected in the Federal Property Management Regulation is that when U.S. Government property is sold, the proceeds must be returned to the U.S. Treasury. There are statutory exemptions to this general rule, including the exemption at 10 U.S.C. 2577 for DoD qualified recycling programs (QRPs). Under this exemption, DoD recycling programs that operate as “QRPs.” may retain the proceeds when they sell recyclable materials. What is a “QRP?” It is simply a recycling program that operates in accordance with statutory, regulatory, and DoD policy requirements.

Under 10 U.S.C. 2577, a QRP may use sales proceeds from recyclables for only three purposes:

- 1.) Cover the costs of the QRP;
- 2.) Up to 50% of any remaining balance may be used to pay for certain other environmental programs (pollution abatement, energy conservation, and occupational safety and health activities);
- 3.) The remaining balance may be used for any morale or welfare activity.

A QRP is an essential part of a cost-effective recycling program. This Guide is primarily designed to help your recycling manager establish and operate a QRP that is efficient and cost-effective, and that meets legal and policy requirements.

Background

On September 14, 1998, the President issued Executive Order 13101, "Federal Acquisition, Recycling, and Waste Prevention" (reference (a)). This executive order states that each executive agency shall initiate a program to promote cost-effective waste prevention and recycling of reusable materials in all of its facilities. DoD Components have welcomed the challenge of implementing the President's Order and have become leaders of the Federal Government's waste prevention and recycling efforts. Through its programs, DoD has made significant progress in waste minimization, source reduction, and recycling as shown in Figures 1-1 and 1-2.

Figure 1-1. DoD Solid Waste Diversion Rate for Calendar Year 1998

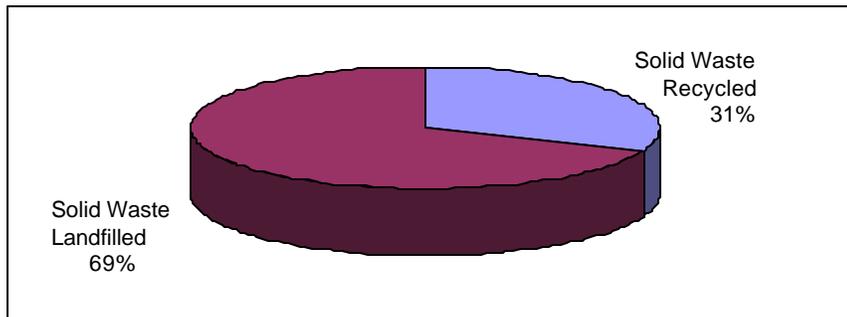
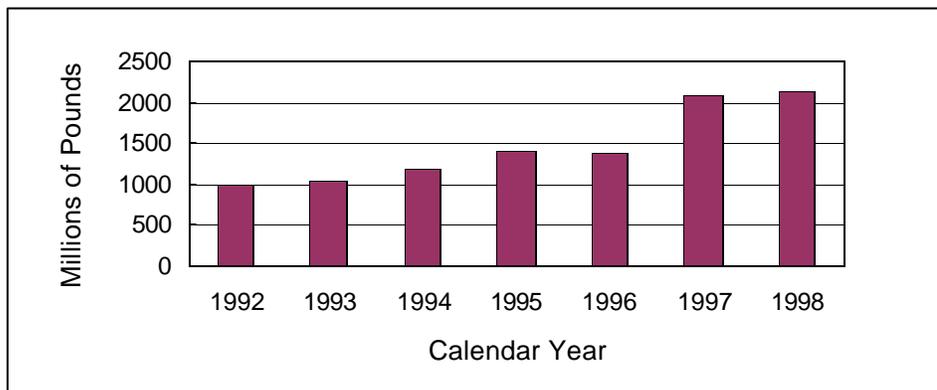


Figure 1-2. DoD Solid Waste Recycling



Qualified Recycling Programs

DoD Instruction 4715.4 defines QRPs as “[o]rganized operations that require concerted efforts to divert or recover scrap or waste, as well as efforts to identify, segregate, and maintain the integrity of the recyclable materials in order to maintain or enhance their marketability. If the program is administered by a DoD Component, a QRP includes adherence to a control process providing accountability for all materials processed through program operations.” QRPs are further defined by 32 CFR Part 172 and Chapter 3 of this document. In accordance with DoD Instruction 4715.4, where cost effective each installation shall have a QRP that shall serve all host and tenant organizations occupying space on the installation, including leased space. DoD recommends only one QRP per installation, but accepts that there may be unusual circumstances at an installation that make it cost effective to establish more than one. Contracts covering government owned, contractor operated (GOCO) facilities will include provisions that obligate the contractor to participate with a QRP or establish their own recycling program.

Summary of Regulatory Requirements

Various public laws and regulations have been enacted over the years aimed at minimizing waste through maximizing recycling. The Resource Conservation and Recovery Act (RCRA) (reference (d)) and a number of Executive Orders have been issued with the same directive: focus Federal efforts on recycling and waste prevention.

The requirements for QRPs within DoD Components are based on statutes, regulations, and executive orders, and DoD policy. The most significant QRP requirements in this Guide are summarized below.

?? 10 U.S.C. 2577 defines the provisions that form the basis for QRPs. Section 2577 of 10 U.S.C. is included in its entirety below.

(a)(1) The Secretary of Defense shall prescribe regulations to provide for the sale of recyclable materials held by a Military Department or Defense Agency and for the operation of recycling programs at military installations.

(a)(2) Any sale of recyclable materials by a Military Department shall be in accordance with the procedures in Section 203 of the Federal Property Administration Services Act of 1949 (reference (e)) and 40 U.S.C. 484 (reference (f)) for the sale of surplus property.

(b)(1) Proceeds from the sale of recyclable materials shall be credited to funds available for operations and maintenance at that installation in amounts sufficient to cover the costs of operations, maintenance, and overhead for processing recyclable materials at the installation (including the cost of any equipment purchased for recycling purposes).

(b)(2) If after such funds are credited, and a balance remains available to a military installation, and such installation has a **qualifying recycling program** (emphasis added), not more than 50 percent of that balance may be used at the installation for projects for pollution abatement, energy conservation, and occupational safety and health activities. A project may not be carried under the preceding sentence for an amount greater than 50 percent of the amount established by law as the maximum amount for a minor construction project.

(b)(3) The remaining balance available to a military installation may be transferred to the non-appropriated morale and welfare account of the installation to be used for any morale or welfare activity.

(c) If the balance available to a military installation under this section at the end of any fiscal year (FY) is in excess of \$2 million the amount of that excess shall be deposited into the Treasury as miscellaneous receipts.

?? 32 CFR Part 172, "Disposition of Proceeds from DoD Sales of Surplus Property" (reference (g)) DoD regulations concerning the sale of surplus property, including the sale of recyclables, have been codified. The disposition of proceeds is determined by whether your recycling program is a "qualified" recycling program. If you follow the requirements provided in 32 CFR Part 172, and otherwise meet the definition of a QRP, you are operating a qualified recycling program. If you do not follow those requirements, all cash and cash equivalents resulting from the sale of recyclables must be deposited directly into the U.S. Treasury.

?? DoD Instruction 4715.4, "Pollution Prevention" contains DoD's policy for QRPs.

The pollution prevention instruction requires DoD Components to establish procedures that ensure, where cost-effective, all installations have, or participate in, a QRP. It also requires Military Departments to ensure that GOCO and other types of contracts are modified where cost-effective to include recycling programs. The instruction:

?? Provides that QRP procedures address recyclable materials, excluded materials, and other qualified recycling program materials, and controls are in place to ensure that 32 CFR Part 172.2(b)(3) excluded materials are not sold through a QRP.

?? Authorizes installations to sell directly recyclable and other qualified recycling program materials, or to consign them to a Defense Reutilization and Marketing Office (DRMO) for sale. DoD Instruction 4715.4 also ensures that the distribution of recycling proceeds is consistent with 10 U.S.C. 2577 such that sales proceeds are distributed in accordance with 32 CFR Part 172.2(b)(3).

?? Requires establishment of QRP accounting and control systems for management and audit information, materials and sales, cost, and expenditure tracking.

?? Requires that installations operate, or participate in, a composting program, if practicable.

?? C1.4.5. E.O. 13101, "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition"

Consistent with the demands of efficiency and cost effectiveness, the head of each Executive Agency shall incorporate waste prevention and recycling in the Agency's daily operations by maximizing recycling and preventing waste wherever possible.

Figure 1-3. DoD Installations are using QRP proceeds for environmental and morale, welfare, and recreation projects.



Resource Conservation and Recovery Act of 1976 (reference (h))

- ?? Eliminates unnecessary virgin materials and prohibitions against recovered materials in specifications;
- ?? Adds preference for recovered materials; and
- ?? Requires affirmative procurement program for Environmental Protection Agency (EPA) (recycled) Guideline items.

Sales Proceeds From a QRP

All personal property purchased by the Federal government with appropriated funds is considered government property, even when thrown away. This surplus property must be disposed of properly. Most waste results from disposal of surplus items that were originally purchased with appropriated funds. The proceeds resulting from the sale of surplus material purchased with appropriated funds must be returned to the U.S. Treasury, unless a specific statutory exception applies.

Congress enacted 10 U.S.C. 2577 as part of the "Military Construction Codification Act of 1982" to provide an exception from the general rule regarding disposition of sales proceeds from the disposal of surplus items. If the surplus items meet the definition of qualified recycling materials, and if DoD disposes of those surplus items through a QRP, then, according to 10 U.S.C. 2577, QRPs can use the proceeds for covering the cost of operating a recycling program. Up to half of any balance remaining is then available for pollution abatement, energy conservation, and occupational, safety, and health activities. The remaining balance may be used for any morale or welfare activity.

The DoD established additional policies addressing the operations of QRP, such as items excluded from being sold through a QRP, in DoD Instruction 4715.4, 32 CFR Part 172, and DoD Instruction 7310.1 of 10 July 1989.

To take advantage of the opportunity provided in 10 U.S.C. 2577, installations must establish a QRP, which must be operated in accordance with DoD Instruction 4715.4. DoD installations might find it economical to operate a non-QRP recycling program that sells its recyclable materials through a DRMO as long as sales proceeds, less the costs of recycling, are returned to the U.S. Treasury.

In the past, some DoD installations failed to operate QRPs strictly in accordance with the law and DoD policies. Evidence of these failures is found in reviews performed by the General Accounting Office, the DoD Inspector General, and the Military Department Inspectors General. For DoD to retain the privilege provided in 10 U.S.C. 2577 regarding the retention of sales proceeds, the commanders and QRP managers must operate QRPs strictly in accordance with applicable laws and regulations listed above.

Recycling and Solid Waste Management

Given a little resourcefulness in obtaining information and creative ingenuity for waste minimization and recycling, there is no limit to meaningful recycling opportunities. DoD has made considerable progress in the use of on-site recycling and integrated waste management programs, and has become the Federal government's flagship for recycling. The DoD Components continue to maximize their efforts and demonstrate their commitment to enhance the management of integrated waste streams.

Solid waste collection, disposal, and resource recovery programs shall be implemented in the most cost-effective manner and periodically reviewed to assure continuing cost-effective operations. Alternative methods of processing solid waste must be considered in the establishment of local programs and implemented singly or in combination, if beneficial.

Installations should integrate cost-effective waste reduction and recycling programs into their solid waste management program. Installations should ensure that receptacles, collection routes, collection schedules, and collection equipment meet 40 CFR 243 (reference (j)), as well as other DoD, Federal, state and local requirements.

Solid Waste Annual Reporting System

The Solid Waste Annual Reporting System (SWARS) is a computer program that helps track information regarding the collection, generation, disposal, and recycling of solid waste. It assists managers in keeping track of costs and diversion rates. SWARS is used to assess compliance with DoD Measures of Merit (MOM) reporting requirements, other DoD policies, and RCRA regulation of solid waste. For support using SWARS, QRP managers may contact the DESCIM Program Manager's Office at (703) 325-0002, or the help desk at 1-800-766-1319, (703) 354-0144, or helpdesk@descim.osd.mil. The program may be downloaded online from:

<http://www.denix.osd.mil/denix/DOD/DESCIM/SWARBASE/swarbase.html>

Education, Training, and Computer Support

One of the most important ways to support DoD's efforts to protect the environment is through education and training of our personnel who operate day-to-day recycling programs. QRP proceeds can be used for courses, conferences, training, and equipment for recycling personnel. (See Appendix 2 for Army Logistics Management College (ALMC) and other training opportunities.)

In addition, computer equipment and software may be a useful management tool to facilitate the QRP's adherence to the new DoD MOM (reference (k)), Solid Waste Annual Reports (SWARs), and auditing requirements for the QRP. The proceeds from the QRP may be used to purchase or upgrade computer equipment directly supporting the QRP.

Closing the Circle

The Department of Defense is committed to improving recycling programs and to becoming better a steward of our environment. It will be necessary for Commanding Officers, Environmental Officers, Facilities Officers, Procurement Officers, Supply Managers, Recycling and Solid Waste Managers, and policymakers to embrace a business approach in order to have effective Integrated Solid Waste Management (ISWM). The Department of Defense can no longer afford to be passive in waste management and minimization programs. The intent of this Guide and the spirit of Environmental Security are to remove boundaries, establish goals that are achievable, and invoke an attitude of excellence in closing the circle.

CHAPTER 2: GENERAL INFORMATION

Purpose

This Guide is intended to assist pollution prevention (P2) efforts by describing efficient and cost-effective recycling programs and waste reduction practices. While waste minimization and recycling efforts are inherently site-specific, a number of generic approaches and techniques have proven especially worthwhile to implement. This Guide summarizes these approaches and techniques to aid the development or enhancement of recycling and waste reduction initiatives. We have made an effort to use generally accepted terms; however, some terms may have different meanings among the DoD Components. Appendix 1 contains definitions of terms as they are used in this Guide.

Policy

As referenced in DoD Instruction 4715.4, DoD Components must comply with applicable Federal, state, interstate, regional, and local environmental laws, regulations, and standards in the United States, and with relevant Executive Orders. The DoD Components are required to emphasize P2 in all phases of acquisition, operations, maintenance, support, and ultimate disposal of equipment and materials over a system's life cycle. The DoD Components should promote pollution prevention through public and private partnerships and develop, demonstrate, and implement innovative P2 technologies and business practices.

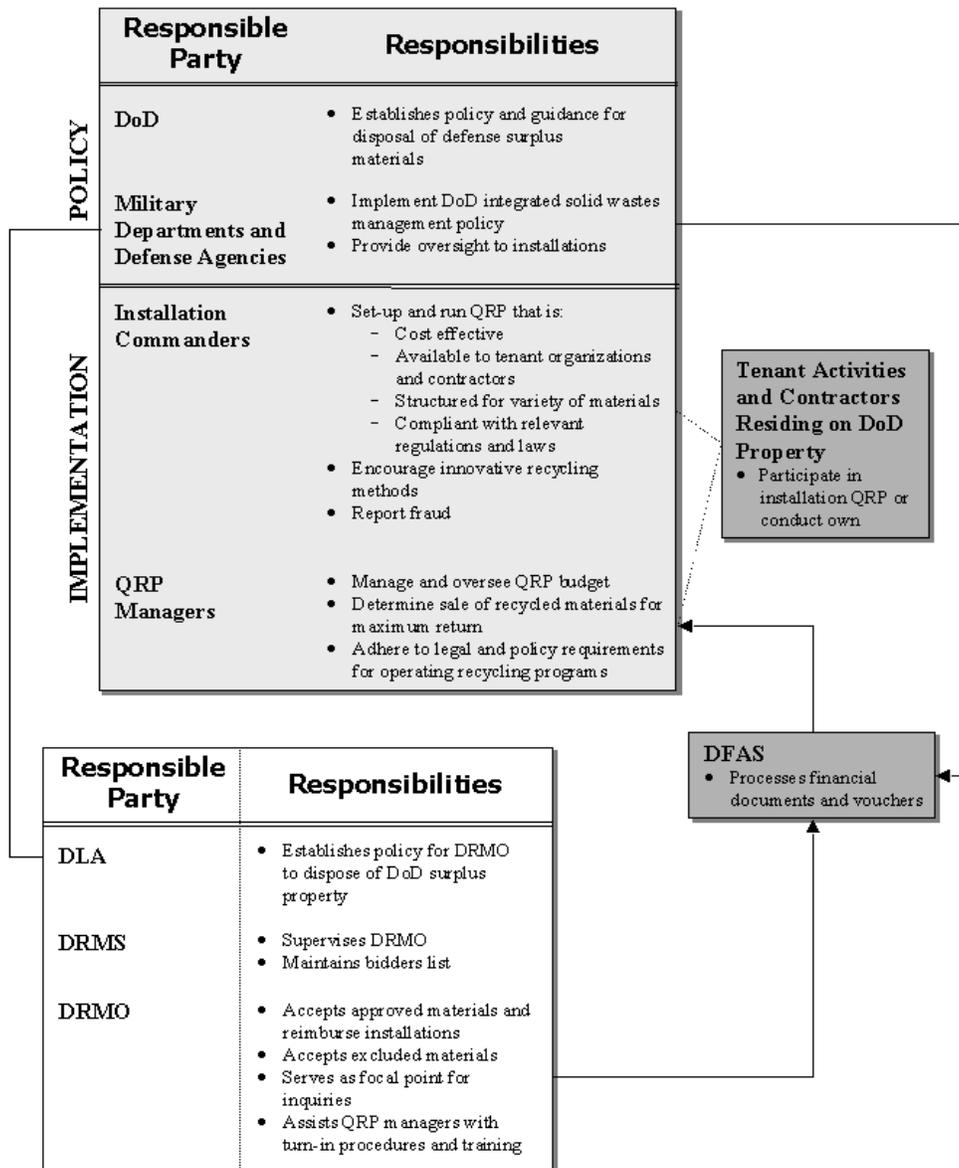
Responsibilities

Organizational responsibilities are detailed below and outlined in Figure 2 -1.

Department of Defense

~~2.2~~ The Department of Defense establishes policy and guidance for the disposal of defense surplus materials. The DoD must comply with all statutes and Executive Orders concerning solid waste reduction and recycling. DoD Instruction 4715.4 directs heads of the DoD Components to establish recycling programs and procedures that authorize installation commanders to directly sell recyclables and "other qualified recycling program materials." DoD Instruction 4715.4 also authorizes installation commanders to consign recyclables and other QRP materials to the Defense Reutilization and Marketing Service (DRMS) for sale.

Figure 2-1. QRP Organizational Chart¹



¹The guidelines outlined here are general. Recycling specific items, such as AEDA, may involve other organizations.

Military Departments and Defense Agencies

≪≪ The Military Departments and Defense Agencies and their organizations implement DoD integrated solid waste management policy. These organizations are also responsible for instituting oversight mechanisms for ensuring that installations establish recycling programs in accordance with 10 U.S.C. 2577 and DoD Instruction 4715.4.

Installation Commanders

≪≪ Commanders establish a QRP in accordance with reference (b) and (c) and designate a QRP manager. They:

- ?? Make QRPs available to all tenant organizations and tenant contractors.
- ?? Structure the program for a variety of recyclables with emphasis on total waste stream reduction.
- ?? Ensure QRPs comply with all applicable public laws, Executive Orders, DoD and respective Military Department policies and regulations, as well as state and local requirements.
- ?? Encourage and support the expansion of existing recycling programs to take on new commodities.
- ?? Encourage new and innovative methods of recycling both existing and new recyclables.
- ?? Establish management controls to correct program weaknesses and comply with major command/major claimant oversight.
- ?? Establish an annual incentives and awards program for enhancements to recycling programs.
- ?? Encourage participation in partnership programs with other services, other DoD activities, Federal Agencies, municipalities, and community organizations.
- ?? Encourage regional plans to improve cost-effective recycling programs.
- ?? Investigate complaints and, if appropriate, alert investigative activities.
- ?? Ensure that proceeds from the QRP are used in accordance with PL152 and DoD Instruction 7310.1.

QRP Managers

?? QRP Managers responsibilities include managing the QRP and overseeing the QRP budget.

They also:

- ?? Properly screen “Other Qualified Recyclable Program Materials” through an informal process or coordinate with the local DRMO prior to sale.

- ?? Designate a trained individual (including the QRP Manager) to conduct local sales (term and spot sales) and award contracts.
- ?? Investigate complaints and report to the commander or appropriate activity.
- ?? Require the designated contracting sales officer to sign all documents requiring signature for the Federal Government.
- ?? Ensure excluded materials are not sold through the QRP. Consult with DRMO on questionable items.
- ?? Perform contract administrative actions.
- ?? Track and maintain records of recyclable weights. Report Measure of Merit data to MAJCOM or major claimant.

Tenant Activities and Contractors Residing on DoD Property

In accordance with DoD Instruction 4715.4, tenant activities and contractors residing on DoD properties participate in the installation's QRP unless permitted to conduct their own QRP. Tenant activities must provide solid waste management data to the host installation for summary reporting. Contracting Officers may need to modify existing contracts to specifically outline recycling and QRP participation and solid waste management data reporting requirements. Future contract awards also require such provisions.

Defense Logistics Agency (DLA)

- ?? DLA establishes policy for the DRMO to dispose of DoD surplus property.

Defense Reutilization and Marketing Offices (DRMOs)

- ?? DRMOs accept qualified recyclable materials from the QRP and reimburse installations their processing costs from the sale of recyclables in accordance with current DLA policy (reference (l)) and the DoD Financial Management Regulation (reference (m)).
- ?? DRMOs accept materials excluded from QRPs in accordance with DoD Instruction 4715.4 for recycling or other disposal, deposit the recycling proceeds, if any, to the U.S. Treasury, and report material sales data to the appropriate host installation as requested.
- ?? DRMOs serve as the DoD focal point for inquiries pertaining to the sale of recyclable property and make the DoD bidders list available to activities conducting direct sales of recyclables.
- ?? DRMOs dispose of hazardous property as delegated by DLA.

?? DRMOs inspect and classify government property, verify identity and quantity, determine disposal condition code, and process recyclables for disposal.

?? DRMOs make the final determinations on disposition of property if processed through DRMOs.

?? Finally, DRMOs assist QRP Managers by explaining turn-in procedures and training installation QRP personnel in recycling scrap segregation practices consistent with this Guide.

Defense Reutilization and Marketing Service (DRMS)

?? DRMS exercises operational supervision of DRMO, and maintains and controls the consolidated DoD bidders list.

Defense Finance and Accounting Service

The Defense Finance and Accounting Service (DFAS) processes financial documents and vouchers forwarded from the DRMO or the DoD Components. The proceeds are deposited into the installation QRP account as directed in accordance with 10 U.S.C. 2577 and 32 CFR 172. DFAS also tracks DD Form 1348-1, Disposal Turn-In Document (DTID), and ensures timely and accurate financial recording of sales of recyclables.

CHAPTER 3: ORGANIZING AND STARTING YOUR QRP

This Chapter will help installations start a QRP or refine an existing program. If a QRP is in place, the QRP Manager should review this chapter carefully to ensure compliance with all applicable rules and regulations. If a QRP does not exist, this chapter will make it easier to establish an efficient and cost-effective QRP.

Designate a Program Leader to Start Your QRP

A good QRP requires a leader who has accountability, and has the authority and responsibility for its success. Ideally, this program leader is an advocate who will follow the QRP's development from start-up to successful operation. The program leader could be anyone from a civilian employee, military member, or contractor to the installation commander.

Organize a QRP Co mmittee

The program leader should organize a QRP Committee. A QRP Committee may be a subcommittee of an Installation Recycling Committee or serve as the recycling committee, depending on the local situation. Committee members establish program objective s to maximize recycling of materials and minimize solid waste disposal. The QRP Committee oversees the operation of the QRP, serving as a Board of Directors, and advises the installation commander on program decisions and residual fund disbursements. The Committee includes the QRP Manager and representatives from a variety of installation organizations, including tenants. DoD suggests that committee members include representatives from the

Figure 3-1. Installation Recycling Center



following organizations, or their equivalent: Contracting, Base Civil Engineer (BCE), Environmental Management, Staff Judge Advocate (SJA), Public Affairs, Supply, the Public Works Officer (PWO), DFAS (appropriated funds (APF)), MWR, DRMO, fire and safety departments, and transportation.

Getting Started

When the decision has been made to operate a QRP, the initial tasks facing the QRP Manager and/or Committee are many. First, you should create a recycling plan to determine the overall program structure. A recycling plan should be part of an Integrated Solid Waste Management plan or Pollution Prevention plan, as appropriate. Guidelines for conducting a feasibility study and waste stream analysis are located in Appendix 3. The committee should review the recycling plan annually to incorporate management strategies for reducing waste streams, reusing generated waste, and recycling waste that is not reusable.

Next, you should complete a waste stream assessment to identify recyclables, recognizing the potential value of recycling waste to meet the MOM diversion rate. Following this assessment, you should identify available resources and potential markets, along with facility, equipment, and vehicle requirements. The waste stream analysis allows the QRP Manager and Committee to make intelligent choices in program startup and allocation of resources by helping designate those qualifying materials to dispose of through a QRP rather than through a solid waste disposal contract. In addition, an economic analysis will help determine the processing costs and revenue associated with each recyclable material identified in the waste stream assessment. A sample economic analysis is found in Appendix 4.

On the basis of the feasibility study data, you can develop a program startup strategy and obtain organizational support for the identified initiatives. Finally, you should promote the QRP.

Establishing Generation Rates

Recyclables are grouped into major categories such as paper, plastic, metal, glass, food, and wood. Each may have subcategories. A waste stream assessment determines how much of each disposable material is generated at the installation. Solid waste is measured by weight (tons). A sample conversion table is found in Appendix 5.

Table 3-1 provides a sample of a waste stream assessment table that can be used to estimate the generation rates, recoverable amounts, salable amounts, quantities for other disposal, and the final amounts that would end up in a landfill.

Table 3-1. Waste Stream Assessment Table

ITEM	Total Amount Generated (Tonnage)	Amount Recyclable/Divertable	Amount Salable as Recyclable	Amount Diverted by Other Means (Reused, Composted, recycled by others)	Landfill Amount
Newspaper					
Corrugated					
Metals					
Ferrous					
Aluminum					
Brass					
Glass					
Food Waste					
Wood					
Organic Materials					
Plastic					

If the amounts are tracked, the BCE or solid waste manager can provide the numbers needed for Total Amount Generated, as well as the Landfill Amount for the previous year. Another source of data would be previous solid waste studies. The Amount Recyclable/Divertable usually depends on the current or intended recycling structure. Make estimates from the best available data. Maximize recycling. Adjustments can always be made later.

Keep the following in mind: Curbside recycling generates more recyclables than drop-off centers, but may be more costly. Small desk-side collection containers for office paper (with a larger box for consolidation in the office) generate more white paper for recycling than a single large box at the end of each hall. A dumpster reserved for cardboard in a convenient location outside a loading dock will generate more cardboard than a single dumpster for all recyclable materials.

The Amount Salable as Recyclable is generally based on existing markets for the materials. The paper from magazines is recyclable. However, the market for magazines may be so small the QRP

may need to pay to have someone take them. If this is the case, magazines should not be in this column, but placed in the Amount Diverted by Other Means or Landfill Amount columns.

Diverted by Other Means simply means any method of disposal other than Salable as Recyclable that does not include landfill disposal (e.g., reusable, composting, and recyclable materials that are not salable). The last column is Landfill Amount. It covers all waste that is disposed of in any landfill, whether on or off base. The BCE or solid waste manager for the installation should have the data for this column, if the amounts are tracked.

Determining Markets

The decision of what materials a QRP should recycle is partially based on whether there is a market for those materials. Try to find or create markets that include local, regional, national, or international buyers. The more markets identified, the greater the chances the QRP will be successful. Those in the trade usually refer to the recycling market as the post-consumer materials market. Weighing the pros and cons of chasing the highest spot market price against fostering long-term relationships is important, as well as establishing formal contracts with reliable, established buyers.

Lists of buyers are located in trade publications and the Yellow Pages, and are available at the local DRMO as well as in many industry manuals. Sometimes the best sources of information about potential buyers are neighboring military installations that may be selling the same materials. See Appendix 6 for recommended Web sites for recycling.

There are three general types of buyers of recyclable materials: brokers, processors, and manufacturers. The first and most common is the broker. A broker purchases particular materials and sells them to processors, mills, and/or end users. Brokers tend to accumulate the material and then sell it to the mills and end users with a guarantee that the material meets certain specifications. Many mills and end users prefer buying their materials through brokers because of the guarantee of quantity and quality they need. Brokers can be a good option, even if they pay less than mills and end users. They often stockpile materials, waiting for market rates to go higher. Even in a down market, they may be willing to purchase recyclables and hold them for later resale.

Processors and mills smelt or convert the raw recyclable material into a form (bars, ingots, pellets, fibers) that a manufacturer can use to produce a new product. Many buy directly from installation recycling programs, but there are fewer processors and mills than brokers. There may be a mill for newsprint, but not one for metals, in the area or within reasonable transporting distance.

End users are the manufacturers that use the converted material. Some end users also have mills, such as a newsprint plant that buys newspapers, de-inks them, and reuses the fibers to make blank newsprint to sell to newspaper printing companies. Contact end users to determine if they purchase recyclable materials. If they do not, ask for a list of places where they obtain the materials that they use. This list may provide processors or mills that may be interested in purchasing recyclables.

Remember, the ability to sell recyclable materials improves with higher quantities, higher quality, and closeness of buyers. Buyers are most interested in a steady supply of material they can use immediately. A truckload of fresh, dry newsprint without coated inserts is usually salable. Small quantities, wet, or contaminated newsprint may not be salable. Contaminated newsprint may even have negative value, meaning the installation would have to pay to have it recycled. The prospective buyer's exact requirements (bundling, weight, and acceptable contamination levels) need to be determined for each type of recyclable material identified as salable.

Select Options for Operating the QRP

While the installation is ultimately responsible for managing the QRP, this does not mean that the installation must operate the program. Like other services or utilities managed by the installation, recycling may be performed through in-house resources, agreements with other government entities, or contracts with the private sector. The program may be integrated into a solid waste collection process; operated separately by appropriated entities; or contractor -operated in full or in part by a private firm.

The best option for operating a QRP may be determined the same way an A-76 commercial activities study is conducted (reference (w)). Policy on how to evaluate the outsourcing of commercial activities is stated in DoD Directive 4100.15 (reference (x)). Specific requirements regarding these evaluations varies according to the size of the program and whether employees are paid using appropriated or non-appropriated funds. Compare the cost of outsourcing with the cost of in-house performance to determine which provides the best value for the government. Consider

price and other factors, such as quality and performance, and document the basis for the program option selected. It is also good business practice to re-assess the program structure as market conditions and organizational costs change.

Determine which materials will be processed through DRMO and which the QRP will sell. Re-evaluate the factors that influenced the determination initially whenever there is a change. If DRMO sells the items, per DoD Directive 4160.21-M, DRMO is obligated by the U.S. Government to attempt to get the best value possible for each item received as surplus or scrap property. The DRMO disposal hierarchy, from most desirable to least, is as follows: (1) reuse or transfer, (2) donate, (3) recycle, (4) direct sales, and (5) disposal. For QRP managers that have suggestions or questions regarding DRMO procedures, points of contact are available through DRMS at www.drms.dla.mil/newenv/html/turn-in_services.html.

Under these constraints, DRMO will determine marketability of certain materials as required. It is in the interests of the QRP team to work closely with DRMO to determine qualification and marketability of materials turned in by the installation for recycling. Guidelines on how to conduct a recycling feasibility study to determine if materials qualify are found in Appendix 3.

Identify Equipment

Equipment can be one of the most costly components of a recycling program. Carefully determine what equipment the QRP actually needs. In some cases, the proceeds received for recyclable materials are not worth the investment in equipment to process the materials. Equipment found in the largest recycling centers includes:

?? Balers. Various types exist for different materials. Materials such as newspapers, cardboard, and plastics are often baled to maximize the amount that can be hauled in a single load (compressed and bundled material is easier to stack, and takes up less room). If a QRP can afford only one



piece of equipment, get a baler. It will pay for itself by reducing storage space and transportation costs.

- ?? **Can Densifiers (Crushers).** As the name implies, these are used to crush both aluminum and steel cans to reduce their volume, making storage and transport more economical.
- ?? **Glass Crushers.** Like Can Crushers, these machines crush glass into small pieces (cullet).
- ?? **Pulverizers.** Another type of crusher, these machines reduce glass and minerals to grain size.
- ?? **Magnetic Separators.** These are large electromagnets that are passed over or through a pile of mixed metal. Ferrous (magnetic) material will stick to it, and non-ferrous (non-magnetic) metals will not. Ferrous and non-ferrous metals have different markets and market values. Therefore, if large quantities of metals are processed, QRP's receive higher prices overall if the metals are separated.
- ?? **Wood Grinders/Chippers.** These machines (also referred to as tub grinders) shred large pieces of wood, such as branches, wood left over from construction or deconstruction, and wooden pallets, into various sizes of chips that can be used for mulch and packing material. Wood chippers can also be used to prepare wood chips for composting.



- ?? **Scales.** Industrial strength scales can be used to measure the weight of recyclables. Larger units can weigh trucks, before and after a load, to compute actual weight of recyclable materials.
- ?? **Forklift.** Used to lift, move, and load bales and pallets of recyclable materials.
- ?? **Composting Equipment.** Aerators, buck loaders, compost screens, windrow turners, trommel screens, thermometers, drying oven, pH meters, and oxygen meters.

If the QRP handles unique materials or quantities, commanders should consider authorizing the non-routine use of specialized equipment (such as rough terrain forklifts, front-end loaders, etc.) from the public works office, military units.

Equipment Funds

Procure equipment for the QRP through the appropriations normally available for equipment acquisition. Pollution prevention funds and operation and maintenance funds may be available for purchasing recycling equipment for the QRP. Acquisition of new or replacement equipment related only to recycling of solid and other waste can be financed with net proceeds received from the sale of qualifying recyclable materials (i.e., net QRP proceeds). Start-up fund reimbursement is available from your QRP proceeds in accordance with 10 U.S.C. 2577. Contact acquisition personnel, the installation engineer, or the environmental office to apply for these funds. The A106 Form may be used to identify equipment-funding needs. Plan ahead. These funds may not be available in the current fiscal year. The better the recycling plan, the better chances are for getting these funds.

Equipment for recycling, such as balers and shredders, available at a DoD installation or through the Government Services Administration (GSA), should be made available for use by all recycling programs on an installation. Sharing equipment reduces overall costs and makes better business sense. Construction of holding bins and sorting platforms or other recycling facility improvements can be funded with proceeds generated by recyclable sales.

Sources of Labor

The highest single cost in any business (including a recycling program) is labor. There are a number of ways to obtain labor for recycling operations. Potential personnel sources include: military, civilian, and contracted manpower; Federal, state, county and military prisoners; physically and mentally challenged workers; and volunteers. Recycling managers must weigh various factors when deciding which labor force to use. Military and permanent civilian employees are applied against the installation personnel document, but military manpower cannot be reimbursed from program revenues. Contracted labor does not count against your manning document, but is generally more expensive. Prison labor is inexpensive, but may not be always available and may require escorts. Use of disabled workers to operate potentially dangerous equipment may not always be appropriate. Consider Federal and state grant programs such as the EPA Jobs for Recycling. Volunteers, while usually enthusiastic, are not always available, and may cause the program to incur unwanted

liabilities. Prior to accepting voluntary services, check with your legal office to ensure compliance with 31 U.S.C. 1342 (reference (y)) relating to limitations on the acceptance of voluntary services.

If the QRP is operated by MWR, only appropriated fund labor can be used. DoD Instruction 1015.1 does not permit a QRP to be operated by a non-appropriated fund instrumentality.

Recycling programs may draw from military sources for labor under the following limited categories, if otherwise appropriate:

- ?? Medical hold personnel
- ?? In-transit personnel
- ?? Legal hold personnel
- ?? Personnel awaiting separation
- ?? Personnel not assigned to a permanent billet

Under normal conditions, personnel assigned to permanent billets ordered into an activity to do specific tasks for a period of time (Tour of Duty) are not assigned to perform recycling tasks.

Figure 3-4. Importance of Training and Safety Equipment



Training and Safety

Training for QRP operations, including direct sales and operation of equipment (static and mobile), is important and must be formalized and ongoing. Training for personal protective equipment (PPE) use, shock hazard, safe working habits, and good housekeeping are also necessary. Use the installation environmental and safety departments to conduct required periodic surveys of recycling facilities. Sources of training include the Army Logistics Management College (ALMC), Huntsville Corps of Engineers Training & Development Center, Solid Waste Association of North America (SWANA), and many others. See Appendix 2 for further information.

Estimate Startup Costs

There are five kinds of startup costs to consider when developing a recycling plan.

- 1. Initial Investment Costs.** These include the cost of new or rehabilitated facilities (e.g., buildings, sheds, fenced, and paved storage areas), equipment procurement (e.g., trucks, forklifts, balers, shredders, tub grinders, conveyors, and scales), utility hook-ups (e.g., water, sewer,

telephone, and electric), management systems (e.g., administrative, operating instructions, financial records, and training), and public education and awareness programs.

2. **Recurring Operating Costs.** These include the cost of direct labor, transportation, utilities, supplies, maintenance and repairs on buildings and equipment, and public education and training campaigns.
3. **Applied Overhead Costs.** These include the installation services billed by the finance, personnel, and contracting offices.
4. **Other Overhead Costs Not Billed to a QRP.** These are installation costs, such as fire services, road maintenance, ground maintenance, security, and basic infrastructure, not applicable to a QRP.
5. **Avoidance Costs or Savings.** These are expenses for the off-site costs of waste handling, hauling, and disposal that would have been incurred by the generating activity or installation in the absence of waste prevention and/or recycling. These savings can be estimated by determining the weight or volume of the material diverted from the waste stream, then calculating the labor, prorated hauling costs and maintenance costs, landfill tipping fee, and any other disposal charges that would have been incurred. Current policy does not permit QRPs to be reimbursed directly for avoidance costs, nor do the generating activities share in the economic benefits. However, retaining such data may be helpful should the policy change.

Develop Decision Matrix

Prepare an economic analysis (Appendix 4) and present it to the installation commander for review.

Table 3-2 displays the options that should be included for consideration.

Table 3-2. Sample Decision Matrix

Option	Advantages	Disadvantages
Outsource all QRP Functions		
Perform all QRP Functions In-House		
Perform QRP functions through inter-governmental agreements or partnering arrangements.		
Perform QRP functions through a combination of the above options.		
Implementation Cost		
Recurring Costs		
Recurring Revenue/Savings		
Payback Period		

Brief the Installation Commander

Once the initial Recycling Plan is completed, including an economic analysis, brief the installation commander of the plan.

Notify Installation Finance Officer and DRMO and Set Up Suspense Account

Send a letter to the installation finance office and local DRMO notifying them that the QRP is set up with accounting data and request a QRP account. A sample letter is attached in Appendix 7.

Establish Installation QRP Instructions / Standard Operating Procedure

Once all the decisions have been made and the QRP Plan is completed, the installation commander should issue an installation regulation, directive, or policy letter regarding the QRP (Appendix 8). Copies of the Directive should be sent to the DRMO and higher levels. It should cover at least the following:

- ?? Designation of a QRP Manager and duties of other installation offices that will support recycling (e.g., the Department of Public Works (DPW), Financial Officer);
- ?? The types of recyclable and other QRP materials to be included in the QRP and how they will be handled;
- ?? Describe specific implementation procedures of the QRP;
- ?? Identify a means for tracking and maintaining records on types and quantity of materials covered by the QRP and other recyclables;
- ?? Identify a means for tracking and maintaining records for accounting of funds received and disbursed via the QRP program and other recyclables;
- ?? Provide for the payment and/or transfer of expenses associated with the QRP;
- ?? Provide for the distribution of amounts remaining in the installation recycling account for authorized purposes; and
- ?? Provide procedures for completing DD Form 1348 -1.

Other Issues To Consider When Getting Started

In addition to the issues detailed above, the following topics also provide guidance for running a successful QRP.

Measure of Merit

Because of the substantial expense associated with solid waste disposal and recycling, the Department of Defense issued a new MOM in response to requirements in Executive Order 13101. The MOM, when applied, will measure the effectiveness and associated cost of recycling and solid waste disposal. This measure assists all levels of management, from the recycling or environmental manager to the Secretary of Defense.

The new “Non-Hazardous Solid Waste Diversion Rate” MOM is: “By the end of FY 2005, ensure the diversion rate for non-hazardous solid waste is greater than 40%, while ensuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using landfilling and incineration alone.”

Military Departments began reporting the new MOM for FY 1999. Under the MOM, installations report their 1) diversion rate, and 2) cost avoidance (or additional costs) resulting from the use of ISWM, and optionally, 3) may report the amount of solid waste disposed through waste-to-energy incineration. The annual reports are prepared for fiscal year data using the following units, as appropriate: percentage, tons (2,000 pounds per ton), and dollars. In preparing reports, installations generating less than one ton of solid waste per day are exempt from reporting, but submittal may be required of solid waste metrics by other means.

Recycling and Qualified Recycling Programs

The solid waste generated at a typical DoD installation is a mixture of items of varying “recyclable” value. Some items are of such low value that they cannot be cost effectively recycled. Even taking into account avoided landfill disposal costs and proceeds from the sale of such items, recycling would be too costly. Other items in the solid waste stream are of relatively high recyclable value. For such items, the sale proceeds alone cover all costs of recycling. Such items are the best candidates for recycling through a QRP. A QRP can sell these items, pay for the costs of recycling, and retain the balance for projects that will benefit the installation. Some items may be considered “regulated items,” requiring recycling by local or state regulations. These items shall be recycled regardless of the processing and handling costs.

The reality of recycling is that most items fall into the first category — low value. With the exception of some extremely large quantity of material with maximum value requiring minimal, if

any, collection and sorting effort, QRPs cannot recover the costs of recycling. The value of QRPs is rolled into the entire program where items of high value provide sufficient revenue to compensate the collection and processing costs of all recyclables, including low value items. Most recycling decisions should be based on the overall effectiveness of the QRP and not on the economic value of each and every item processed, which in turn will help installations reach the MOM diversion rate. Items appropriate for recycling through a QRP are characterized in Table 3-3 along with non-QRP recyclables.

In accordance with DoD 4160.21-M (reference (o)), materials turned in as recyclable materials may be upgraded by the DRMO for the reutilization, transfer, and donation programs, if they are reusable. If this occurs, QRP records must be adjusted to reflect the “loss” of these materials. Any costs associated with their handling will not be charged to or recouped from the QRP.

Between those items that are clearly suitable for only landfilling, and those items suitable for recycling through a QRP, is a third set of items that may be handled through a QRP or may be recycled through a solid waste contract. The third set is characterized as follows:

- ?? Items that cannot be sold for an amount such that sale proceeds alone are sufficient to cover the cost of recycling through a QRP.
- ?? Items that can be recycled for less than the cost of disposal in a landfill that may provide a discount to a solid waste disposal contract.
- ?? Excluded materials as defined in DoD Instruction 4715.4.

TABLE 3-3. QRP Recyclables:
Materials that CAN and CANNOT be recycled by a Qualified Recycling Program

Materials that Can be Recycled Through QRP	
??	Typical recyclable materials found in the municipal solid waste stream (glass, plastic, aluminum, newspaper, etc.)
??	Scrap metal from non-Defense Working Capital Fund (DWCF) activities
??	Expended small arm firing range brass and gleanings made unusable for military firing (e.g., crushed, shredded, annealed, or otherwise rendered unusable as originally intended prior to recycling in accordance with USD(A&T) Memorandum (reference (n)))
??	Storage and beverage containers (metal, glass, and plastic)
??	Office paper (high quality, bond, computer, mixed, telephone books, and Federal Registers)
??	Commissary store cardboard and Exchange store wastes (cardboard), if the Commissary or Exchange chooses to use the QRP
??	Scrap wood and unusable pallets
??	Rags and textile wastes which have not been contaminated with hazardous material or hazardous waste
??	Electronic components defined under "Other Qualified Recycling Materials" (Appendix 1) must be recycled through the DRMS contractor (See section C3.26. Electronics)
??	Automotive and light truck -type tires
??	Used motor oil
??	Food wastes from dining facilities
??	Office-type furniture that is broken or too costly to repair
??	Donated privately-owned personal property
Materials that Cannot be Recycled Through QRP	
??	Precious metal-bearing scrap
??	Scrap metal generated from DWCF activity
??	Items that must be demilitarized at any time during its life cycle, except for small arm brass and gleanings as noted above
??	Hazardous material and waste
??	Commissary store wastes (food, scraps, bone, fats, trims, meats)
??	Materials that can be reused by the government for their original purpose without special processing
??	Repairable items (e.g., used vehicles, vehicle or machine parts)
??	Unopened containers of oil, paints, or solvents
??	Fuels (uncontaminated and contaminated)
??	Munitions List Items (MLI) or Commerce Control List Item (CCLI)
??	Printed Circuit Boards containing hazardous materials
??	Items required to be mutilated prior to sale or release to the public
??	Ammunition cans, unless they have been rendered inert by a technically qualified individual
??	Usable pallets, unless DRMS states otherwise

Installations can use Appropriated Funds to pay for recycling performed outside of the QRP. These funds are usually disbursed through the installation's solid waste disposal budget. In making the decision to recycle an item outside of the QRP, installations must ensure that the cost of disposal through recycling is less than the cost of disposal through landfilling. The cost savings must be used to discount a solid waste disposal contract and to cover the costs of recycling those items in accordance with 10 U.S.C. 2577. If this process is handled appropriately, the proceeds cannot be distributed to environmental programs or MWR when items are not recycled through a QRP.

It is also important to understand that the solid waste contract defines which materials will be disposed of under the contract. The QRP may not be able to recycle those materials for the length of the contract. However, no-cost modification changes can be made that would be determined on a case-by-case basis. It will be necessary to take an in-depth look at the market before making a final decision. On the positive side, if the market should dramatically change mid-year, the installation is only bound by the term of the disposal contract before changes can be made. Chapter 4 of this Guide goes into greater detail of this process and defines how to run a successful QRP .

Construction and Demolition Debris and “Greenwaste”

Two items that represent a large portion of the solid waste disposal problem are Construction and Demolition (C&D) debris and “greenwaste,” or organic materials. Because of their large volume, disposal in a landfill can be very expensive. Also, when these items represent a large portion of the solid waste stream, the installation will probably have difficulty in meeting recycling and solid waste goals unless an effort is made to find a cost-effective method for diversion from disposal. Finally, some state and local jurisdictions have established regulations restricting the amount of solid waste that can be disposed of in municipal landfills. Some of these regulations set fines for exceeding disposal limits, and prohibit the disposal of some types of waste, such as C&D debris and organic materials. For these reasons, installations may have to establish separate programs outside of recycling programs or QRPs to dispose of these items.



Composting

DoD Instruction 4715.4 requires that each installation will, as practicable, operate a composting program or participate in a regional composting program. Composting programs will generally be operated outside of recycling programs, but will be an important part of ISWM plans. Although operated outside of recycling programs, diversion of organic materials from landfills by means of composting will count toward meeting DoD's solid waste and recycling goals.

Precious Metals

Installations must participate in the DoD Precious Metals Recovery Program (PMRP) to the maximum extent practicable. Metals covered by the DoD Precious Metals Recovery Program and items containing any of these elements must be turned over to a servicing DRMO. Precious metal elements include:

Gold (Au)	Radium (Ra)
Silver (Ag)	Iridium (Ir)
Platinum (Pt)	Ruthenium (Ru)
Palladium (Pd)	Osmium (Os)

Precious metals may be found in circuit boards in computers and weapon systems; dental x-ray machines; or submarine batteries.

Electronics

Electronic equipment must be managed in compliance with environmental, health and safety regulations. In addition, electronics generated by DoD may also be subject to the requirements of programs designed to protect national security interests, such as demilitarization (DEMIL), Trade Security Control (TSC), and Flight Safety Critical Aircraft Parts (FSCAP). To meet these requirements, the DRMS developed and manages "demanufacturing" contracts for DoD, which specifically address the management, reuse, and recycling of electronic equipment. These contracts were designed to assure compliance with all environmental and DoD regulations.

Hazardous Materials and Waste

The prospect of hazardous materials and waste, identified as DoD-owned, being misused is too great a liability for a QRP to assume. Therefore, ALL HAZARDOUS MATERIALS AND WASTE SHOULD BE TURNED IN TO DRMO OR PROPERLY MANIFESTED AND DISPOSED AS A CONTRACTED SERVICE. Hazardous waste, as defined by RCRA, is "a solid

waste, or combination of solid wastes, which... may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed."

Lead Acid batteries and used oil have specific recycling requirements (see section C5.3, Close -loop Recycling). Lead acid batteries are hazardous wastes that have been exempted from most of the RCRA regulatory requirements (reference (p) and reference (q)). The U.S. EPA does not regulate used oil as a hazardous waste, but regulates used oil under 40 CFR 279 (reference (r)). The characteristics of used oil can vary as on-specification, off-specification, or as a hazardous waste. The characteristic depends on the types and amounts of hazardous contaminants in the oil. On -specification used oil has less stringent requirements regulating its reuse, reclamation, or recycling. Off-specification used oil has more stringent requirements regulating who can recycle or burn it.

A QRP assumes potential risk by selling lead acid batteries and used oil to potential improper recyclers. When mismanaged, lead acid batteries and used oil are subject to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (reference (s)). As a condition to recycling lead acid batteries and used oil, QRPs should establish similar types of controls that DRMS utilizes in its hazardous sales program. At a minimum, this program should consist of an environmental responsibility determination, pre -award surveys of prospective buyers, and post sale inspections to ensure that hazardous property has been recycled properly to minimize environmental liabilities.

A QRP assumes the responsibility for any environmental costs or liability from the direct sale of these items. However, DRMS assumes this liability if these items are sold through its contractors. Records involving the direct sale of hazardous materials and waste (used oil, lead batteries) that could result in CERCLA liability should be maintained for an established length of time that is mandatory for all installations. DRMS maintains records for 50 years of sales of hazardous property that could result in CERCLA actions.

Gleaning of Range Munitions Residue

The gleaning of range residue, as defined by the DoD Instruction 4715.4, was authorized to aid QRPs by increasing revenues through direct sales of high quality expended brass, and to stimulate more aggressive management of range cleanup. According to the Department of Defense, it was never the intention, nor is it now, a license to sell anything other than firing-range scrap consisting of expended brass and mixed metals gleaned from firing range clearance. DoD Instruction 4715.4 and the DUSD(ES) Memorandum of 15 May 1998 define “mixed metals gleaned from firing range clearance” as material (e.g., shrapnel) that is in a form that is unrecognizable from its original configuration and does not require further demilitarization, and that is not a MLI or Commerce Control List Item (CCLI). Only firing-range scrap consisting of expended brass or aluminum and mixed metals gleaned from firing-range clearance that have been certified as safe may be recycled as scrap metal and not sold to reloaders through a QRP. All other scrap from ammunition, explosives, and dangerous articles (AEDA), even if certified safe, shall be sold through the DRMS.

DLA is drafting policy that strengthens the procedures the DoD Components must take when preparing firing-range scrap for sale to scrap dealers. This draft policy primarily makes changes to the disposal of range residue — which includes any material that is fired or is a target on a range.

DoD is also in the process of drafting policy for the management and disposition of material that potentially presents an explosives hazard. Recognizing that there are varying levels of risk associated with this type of material, the policy is intended to aid in the recycling and resale of the material in a safe manner, where appropriate.

DLA requires the use of Memoranda of Agreement (MOAs) between DRMS and the range commander to delineate the DRMO and generating activity’s responsibilities for the disposal processing of range residue materials. MOAs serve as a checks-and-balance system for DRMOs and generating activities to ensure each party knows its responsibility.

Under a MOA, the generating activity has the responsibility for a number of actions, such as segregating and safeguarding range residue, listing ordnance used on a range, inspecting and certifying the material as safe or inert, and ensuring that material has been demilitarized and contains no radioactive residue. The DRMO is responsible for handling the sales procedures, providing

technical assistance in identifying property needing demilitarization, and reviewing the adequacy of demilitarization actions. Scrap dealers must receive a thorough briefing by the military, which will include surveying the buyers, telling them the types of munitions that were cleared from a range and proper handling procedures. EPA's Military Munitions Rule (reference (t)) applies to the disposal process. The specific application will depend on the state's interpretation of the rule. Agencies that engage in dismantling munitions as a business are strictly prohibited from selling expended brass through a QRP. Refer to Chapter 7.

Demilitarization

Current DoD policy prohibits QRPs from selling items requiring demilitarization. These items must be turned in to DRMO for disposal. (See DoD Manual 4160.21 -M).

OCONUS Policy For Expended Firing-Range Brass — The Exception

OCONUS QRPs *must* recycle expended firing-range brass through DRMO. However, due to strict requirements under the Arms Export Control Act (reference (u)) and the International Traffic in Arms Regulation (ITAR) (reference (v)), the recycling efforts of expended firing range brass or aluminum must be conducted by DRMO for overseas QRPs. If an overseas activity wants to receive reimbursement for expended firing-range brass, the brass must first be demilitarized, or made unusable for its intended purpose, and then turned into DRMO along with a properly certified demilitarization certificate. OCONUS QRPs are required to demilitarize firing-range brass. The DRMO will sell the expended firing-range brass and apply all sales and end-use controls. Proceeds are returned to the OCONUS QRP in accordance with current D LA reimbursement policy.

Recycling Ammo Cans, Ammo Boxes, and Powder Tubes

The QRP can recycle these items as long as they are not listed on a demilitarization list and are certified INERT by a technically qualified individual.

Selling Weapon System Scrap Through a QRP

All MLI and CCLI are restricted from direct sales. All weaponry must be turned into DRMO.

Recyclables from Special Funding Categories

Commissaries, Base/Post Exchanges, DWCF, and industrial, commercial, and support activities operate under special funding categories. They have the option of contributing to the QRP, but are not required to. However, the data on the amount of materials recycled separately by these organizations must be turned in to the installation for SWAR-based accounting and meeting the MOM for landfill diversion. DRMS policy effective 20 August 1998 is that DRMS will retain

proceeds from the sale of commissary cardboard. Therefore, commissaries may find it preferable to recycle cardboard through the QRP rather than DRMO.

Reminders

When operating a QRP and other waste disposal programs, the three most important recycling factors to remember are:

1. If something is recyclable, that does not mean it **MUST** be recycled, depending on state law.
Base your business decisions on facts and analyses.
2. If someone labels a material for recycling that does not mean it belongs to the QRP. However, check it out before the decision is made one way or the other.
3. There is nothing wrong with having recycling programs outside the QRP. However, remember: only a QRP can use the net proceeds from the sale of recyclable materials for installation programs.

CHAPTER 4: OPERATING YOUR QRP

Once you have your equipment, labor, and space, you are ready to begin operating.

Solid Waste and Recyclables Collection

Your first concern is collecting the materials and transporting them to a recycling center or staging area. In your recycling plan, you identified the materials you plan to recycle through a QRP. Your job is to choose the best way to collect your solid waste. There are many methods of collecting solid waste, including recyclables (non-QRP and QRP). The differences are usually the frequency of collection and the type of waste collected during each trip. Every approach has its advantages and disadvantages. The conventional approach, particularly when recycling is first started, is to schedule an additional collection for recyclables. The frequency and type of collections will have a substantial impact on the cost of operating your QRP. Consequently, you should frequently evaluate your method of collecting recyclables to ensure that the method you have selected is the most cost-effective. Table 4-1 below illustrates some of the collection variations.

Table 4-1. Methods for Picking up Solid Waste

Type of Service	Truck 1 ¹	Truck 2	Truck 3
Conventional Approach	Mixed Solid Waste	Recyclables	Yard Waste
Modified Conventional Approach	Mixed Solid Waste	Recyclables Organic Materials ²	
Integrated Approach	Mixed Solid Waste Recyclables Organic Materials ²		

¹ May use a single truck with separate compartments for mixed solid wastes and recyclables, or commingle them in a single compartment and “bag” the recyclables for easier sorting at the Recycling Center.

² Organic Materials should generally be in a separate compartment so they do not contaminate other recyclables.

Select the Most Efficient Method of Collecting Recyclables

Recyclables can be collected in a number of ways. Each installation is unique and may use different collection methods for different items. You have to balance this with the need to consolidate the

items and move them to the loading area. Enlist the building recycling coordinator along with barracks and military family housing residents to do as much of this as possible to reduce your costs. You need to determine the best methods for collecting recyclables at your installation. Separation at the source is usually the most cost-effective means of collection and results in the highest quality product. Some suggestions for collection are shown in Table 4-2.

Table 4-2. Examples of Possible Collection Methods

Areas	Individual Pickup	Multi-Location Drop-Off	Central Drop-Off
Housing Area	Curbside pickup	Neighborhood drop-off containers	QRP or other location drop-off center
Barracks (cans, paper, newspapers)	Room pickup	Floor or building bins	Central barrack area drop-off bins
Offices (paper)	Desk-side bins	Room bins	Floor bins
Offices (aluminum cans, newspapers)	Room bins	Room bins	Floor bins
Supply/Warehouse	Dumpsters for cardboard outside each main door	Dumpster for cardboard near each building	Dumpster for cardboard near each building complex
Food Service	Steel can bin for each kitchen food compactors, and dehydrators	Bin for steel cans in each area	Single bin for steel cans

Based on the information in Table 4-2, consider the following factors in selecting the best collection method: (1) quality and quantity of recyclable waste in an area and (2) degree of participation in recycling efforts in the area. You may find you get the most cans and bottles from a barracks if you place recycling bins on each floor rather than having a central drop-off point. You may find the best participation from the housing area if you provide curbside pickup. Assign ratings of highest, high, medium, low, and lowest to the quality and quantity of the recyclable materials and to the amount of participation in recycling efforts in the area you are evaluating as shown in the Table 4-3.

Table 4-3. Quality, Quantity, and Participation Rates for a Housing Area Example

Collection Method	Service Option	Estimated Results		
		Quality	Quantity	Participation Rate
Individual PickUp	Curbside PickUp	Medium to High	Highest	High
Multi-Location Drop-Off	Neighborhood Drop-Off Containers (Compartments)	High	Medium to Low	Low
Central Drop-Off	Central Drop-Off	Highest	Lowest	Lowest

In the housing area sample above, curbside pickup produces high participation rates, because it is easy to participate. If the installation commander makes recycling in housing areas mandatory, you may be able to raise the participation rate to “highest.” Neighborhood drop-off bins and containers produce low participation because of the additional effort involved. A single, centrally located bin or container gets the lowest participation rate and the lowest quantity because it is inconvenient to deliver the recyclables. The best solution is the one that obtains the best quality, the most quantity, and the highest participation rate at the most reasonable cost. This can only be determined locally, and is area or item specific.

Table 4-4. Options for Pre-Pickup Sorting of Recyclables (Newspapers, Glass, Plastic, Aluminum and Steel Cans)

Sorting Methods	Details
Commingled Bag	All recyclables are put in specific colored (EXCEPT FOR RED) bags for curbside pickup. Clear is preferred, to check that contents are recyclables. Bags are dumped at QRP.
Commingled Bin	Each type of recyclable is separated at the curb into the appropriate bin on the collection vehicle. Contents are dumped in trucks. Truck dumps mix at QRP.
Separated Newspaper, Commingled Other	Newspapers are separated from other items on the truck. Newspapers are dumped at one spot at the QRP, all other material is dumped at another spot.
Separated Newspaper, Glass, Plastic, and Commingled Cans	Usually requires compartmentalized truck. Each type of recyclable is separated at the curb into the appropriate bin on the truck. Offloading into the designated sort holding area at the QRP is done by item.

Recyclable Delivery to QRP — Mixed or Separated

Once you have selected a collection method, you need to decide how you want the recyclable materials delivered to a recycling center or staging area. You can pick up recyclables from residential recycling programs in a number of ways. The type of residential program used will determine what type of recyclable materials you receive. It can be commingled recyclables (generally, newspaper, glass, aluminum, and steel cans), or to lower your QRP processing cost, you may want to receive material that has already been segregated. As shown in Table 4-4, you may have a number of options available to you. The option you select should have the least impact to QRP processing costs while being the most cost-efficient to the installation.

Figure 4-1. Curbside Recycling



Sample Waste Collection Costs: Table 4-5 compares the cost for “disposal,” delivery cost to the QRP, and QRP processing costs based on the waste collection method you select.

Table 4-5. Impact on QRP Costs for Different Waste Collection Methods¹

Curb Side Collection Method	Base Cost for Disposal	Base Cost to Deliver to QRP	Savings to Base	QRP Cost to Process
Commingled Bag	\$75	\$25	\$50	\$25
Commingled Bin	\$75	\$27	\$48	\$18
Separated Newspaper, Commingled Other	\$75	\$29	\$46	\$16
Separated Newspaper, Glass, and Plastic, Commingled Cans	\$75	\$31	\$44	\$12

¹ Dollar cost data is for illustration purposes only and represents cost per ton.

Cost of delivery and savings to the base are important factors in considering collection methods. Looking at Table 4-5, the commingled bag collection row shows the greatest savings for the base at \$50/ton. Using the same collection method, QRP processing costs are \$25/ton. However, sales

from those proceeds may only net \$20 per ton and the QRP may not want to process those recyclables if it will not be cost-efficient. Decisions on a solid waste collection method should include the cost of delivery and savings to the base, but should not be based on these two factors alone.

Table 4-6 shows how the installation can maximize its disposal savings by diverting as much solid waste to the QRP as possible in a cost-efficient manner. You should evaluate all pickup methods before making a decision about collection methods.

Table 4-6. Costs for Various Collection Methods

Material	Tons	Recyclables in One Bag (Comingled)	Newspapers in Bin	New paper and Cans in Bin	All Materials Delivered to QRP (Separated)
Newspaper	2	\$150	\$ 52	\$ 58	\$ 62
Glass	1	\$ 75	\$ 75	\$ 75	\$ 31
Plastic	1	\$ 75	\$ 75	\$ 75	\$ 31
Cans	1	\$ 75	\$ 75	\$ 29	\$ 31
Total Cost to Installation	5	\$375	\$277	\$237	\$155

Note: Dollar amounts that are in italicized and bold type represent those materials that go to the QRP recycling center. The other materials go to a landfill.

Table 4-6 shows the installation spends substantially less overall if solid waste is diverted to the QRP. Again, look at the bottom line. If the QRP is eliminated, the installation disposal cost becomes \$375 for the 5 tons. If the installation delivers separated recyclables to the QRP, the installation would spend from \$155 to \$277, for five tons, depending upon the number of recyclables delivered to the QRP.

This method of analysis is the best way to determine savings to the installation through recycling. It should be used in most cases. The analysis verifies that a decision can be made that produces major savings to the installation while providing the lowest possible processing costs to the QRP. The analysis may vary based on local tipping fees, transportation, and labor costs.

Sort Recyclables

The following detail the various methods for sorting recyclables.

Pre-PickUp Sorting

Sorting recyclables at the source (i.e., housing, barracks, and offices) is usually the most cost-effective means of collection. Pre-pickup sorting reduces the processing costs of sorting at a QRP drop-off area. Start up costs for bins or bags, as well as resident acceptance and participation need to be assessed. Options for pre-pickup sorting are listed in Table 4-4 above.



Sorting at the QRP Drop-Off Area

If sorting of recyclables is handled at the QRP drop-off area, processing of the recyclables may be more costly. For example, if the “Commingled Bag” method is used, the cost to the QRP is greater than pre-pickup sorting. Bags require opening, dumping, hand picking of the contents, and sorting.

Sorting of recyclables at the source may also result in the QRP receiving a better price. For example, Table 4-7 shows sorting of office paper (computer, white ledger, and mixed office). For six tons of mixed office paper the value is \$72. On the other hand, sorting paper substantially increases its value. As Table 4-7 shows, the net increase is \$302 for the same quantity of paper sorted into paper types.

Table 4-7. Sorting Office Paper — Positive Results

Mixed Office Paper				
Paper	Quantity (tons)	Value Per Ton	Total Value	Net Increase
Mixed Office	6	\$12	\$72	\$0

Sorted Office Paper				
Paper	Quantity (tons)	Value Per Ton	Total Value	Net Increase
Computer	1	\$110	\$110	\$302 (\$374-\$72)
White Ledger	3	\$80	\$240	
Mixed Office	2	\$12	\$24	

In some cases, sorting recyclables may be more costly to a QRP than keeping the recyclables mixed. This occurs when the price of the recyclable does not vary whether mixed or sorted. Table 4 -8 shows the value of separating glass into three types (clear, green, brown).

Table 4-8. Sorting Glass – Negative Results

Mixed Glass				
Glass	Quantity (tons)	Value Per Ton	Total Value	Net Increase
Mixed Glass	6	\$18	\$108	\$0

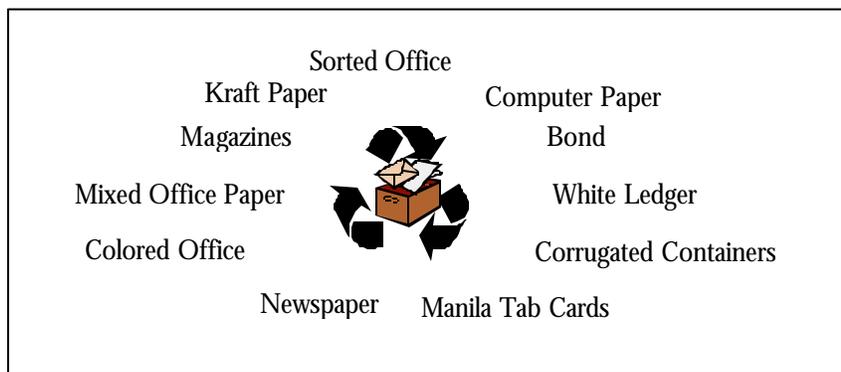
Sorted Glass				
Glass	Quantity (tons)	Value Per Ton	Total Value	Net Increase
Clear	1	\$43	\$43	\$23 (\$131-\$108)
Green	2	\$14	\$28	
Brown	3	\$20	\$60	

Sorting does increase revenues. However, if sorting costs are higher than the additional revenue generated by sorting, your best option would be to sell this as mixed glass. In the example above, if your cost to sort the glass was \$35 and you only gained \$23, then you would lose \$12 by sorting the glass. Selecting mixed or sorted recyclables depends on quantity, mixture, and type of material. The best method maximizes net proceeds.

Recyclables by Subcategory and Grade

Some recyclables seem to have an unlimited number of subcategories, and each of the subcategories may have a separate grade that will affect the price you receive. The more information you have about a specific material the more likely you are to maximize your profit.

Figure 4-9. Categories of Paper



Paper is probably the best illustration of a recyclable having numerous subcategories. These include the basic groups of old newspapers (ONP), old corrugated cardboard (OCC), office paper, and heavier stock papers such as kraft or manila. Within each basic group are subcategories, which may, in turn, have different grades. The lower the class of paper, the lower the price you will ultimately receive.

Ultimately, the sorting method at pre-pickup and at drop-off areas is an important element that can greatly affect costs associated with your QRP and should be given close consideration (See Tables 4-5 and 4-6).

Sell or Turn in Recyclables

The procedures you should use when selling recyclable materials depends on the amount of proceeds anticipated from the sales and whether the material will be provided to the DRMO for sale or be sold directly by the installation.

DRMO Sales

Prepare a DD Form 1348-I to record the recycled material turned into DRMO. Enter the correct account and station code, identify the appropriate program, and list material code, weight, and date of turn-in. Remember: if you fail to provide accurate information, funds generated will be deposited to the general account of the Treasury, not to your installation.

You may want to combine your recycled material with material from another activity to increase the marketability. In order for a generating activity to be credited directly by DRMO for recycling proceeds, the DTID must contain a reimbursable fund account number that is specific to that activity. If several generators have a centralized collection process and will be reimbursed separately, a DTID must be submitted for each generator specifying the amount of material originating from each. DRMO will then determine equitable distribution of sales proceeds.

Direct Sales

Direct sales are divided into two categories, sales greater than \$15,000 and sales less than \$15,000.

Greater than \$15,000

Sales with anticipated proceeds exceeding \$15,000 per sale must be conducted using procedures described in 40 U.S.C. 484 and 41 CFR Parts 101 -45 and 101-46 (reference (z)). These procedures include public advertising, bid, and award. Review the requirements of 40 U.S.C. 48 4 prior to conducting a sale.

Although no regulation prohibits breaking up sales greater than \$15,000, QRP managers should support the spirit of the law for proper sales management.

Less than \$15,000

For sales less than \$15,000, the following procedures should be followed, at a minimum:

- ?? Establish and maintain a list of qualified recyclers and brokers.
- ?? Obtain a minimum of three quotes, where possible, from independent buyers on sales of material and document the quotes.
- ?? Choose the bid most advantageous to the Government and execute a sales contract or title transfer document.
- ?? Create a file to document the sale.

Contracting and Partnering

If the installation chooses to operate the QRP through a partnering agreement or contract with a non-installation entity, the QRP may still receive proceeds. Such contracts should be implemented using the APF or NAF contracting system.

Depositing money into the QRP Account

Money from the proceeds of sales comes to your QRP from two main sources: DRMS and DRMO following sales of turned-in material, or from direct sales to a buyer.

Typically, DRMS and DRMO processes proceed through the DFAS for deposit to the QRP account. They may also send you a check. If you receive a check from DRMS/DRMO, submit the check with a Funds Transfer Document to the finance office for deposit into the QRP account.

If you receive a check from a recycler through direct sales, be sure it is payable to the installation finance office. Checks must not be made payable to the QRP or to a NAF account. Again, submit

the check with a Funds Transfer Document to your finance office for deposit into the QRP account. DO NOT ACCEPT CASH!

Paying QRP Bills.

Ensure that QRP bills are paid from the QRP account using the local finance office and accounting procedures. Table 4-9 describes “Who Pays for What.” If the proceeds from the QRP do not cover the costs of operations, the installation Operation and Maintenance pays for the costs.

Table 4-9. Who Pays for What

Installation Pays For:
?? Collection, transportation, and disposal of solid waste (disposal on or off the installation).
?? Collecting recyclable materials from installation and housing areas and delivering to a central location (installation recycling facility or an off installation recycling facility) ¹ .
?? Compost operation on the installation.
?? Landscaping. If landscaping is by contract, contractor takes waste to a composting facility on or off the installation.
?? Janitorial contract which includes collecting recyclable items and depositing it to a central location.
?? Cost of miscellaneous recycling that takes place outside the QRP.
?? Cost of recycling construction and demolition debris ² .
QRP Pays For³:
?? Applicable QRP facility, utility and maintenance costs (determined locally). Also leased transportation and maintenance equipment costs.
?? Costs of performing direct sales.
?? Personnel performing QRP tasks and managers’ salaries allocated to the QRP.
?? Equipment purchased by QRP and used exclusively by the QRP ⁴ (examples are blue bins, balers, and forklifts).
?? Applied overhead costs.
?? Education and awareness campaign.
?? Awards and incentives.
?? Collection containers (bins, totes, dumpsters, etc.).

¹APF shall be used to pay for the cost of pickup and delivery of recyclable items to the QRP. If it costs more to bring it to the QRP than solid waste disposal costs, the QRP pays the difference.

²Recycling of C&D debris is encouraged by the DoD MOM. Recycling of C&D debris may be done in many innovative ways, such as: using recycling to offset the cost of the demolition contract, recycling through your QRP, and donation to your local community.

³Costs the QRP pays for, or reimburses to the extent possible.

⁴QRP managers, before deciding to directly purchase equipment, should check Component programs, like Pollution Prevention.

Revising Your Recycling Plan

Since your QRP operations will change along with variations in quantity of recyclables, price and marketability, or participation, reviewing your recycling plan on a regular basis is important. The decision to implement a QRP was based on that plan. Keeping good records will help you when you review and renew this document as the need arises. Integrate your QRP decisions into the recycling plan to enhance your program.

Establish Management Controls

You must establish a management control system to provide reasonable assurance that your program meets its goals and properly accounts for government resources. The management control process should emphasize prevention of waste, fraud, mismanagement, and timely correction of management control weaknesses. Management controls should be integrated into daily management practices. Several techniques to use in your management control program are listed below. For additional information see DoD Directive 5010.38 (reference (aa)).

- ?? **Standard Operating Procedures.** Establish operating procedures for your recycling site or center.
- ?? **Physical Access.** Ensure that access to valuable materials is controlled. Eliminate the use of cash transactions.
- ?? **Job Descriptions.** Establish descriptions of duties that reflect the principle of division of duties for employees of the QRP and installation finance offices. You should have one person responsible for selling recyclable materials and a different person responsible for receiving, recording, and depositing these checks. If such separation is not established, management must establish appropriate oversight mechanisms to ensure individuals do not abuse their assigned authority. See Appendix 9 for Recycling Coordinator job description.
- ?? **Accounting Reconciliation and Analysis.** Establish procedures that allow for periodic reconciliation of sales and financial records.

Installation commanders and QRP Managers should be alert to the possibility of fraud and corruption. When there are suspicious situations such as repeated complaints or discrepancies that cannot be reconciled, call audit, internal review, or criminal investigative personnel for assistance.

CHAPTER 5: YOUR QRP: REGIONALIZATION, PARTNERSHIPS, MARKETING, AND CLOSED-LOOP RECYCLING

Should you partner or regionalize your QRP? As the QRP Manager, you should ask yourself some very basic questions to make this determination.

- ?? Does it make sense to have a QRP when a larger installation in your area is already running a successful program, regardless of whether it is a sister service?
- ?? Do you need a QRP if you are a small administrative organization or reserve center that is near an installation that has a successful program?
- ?? Should your small local municipality have a separate recycling program when your installation is running a successful QRP?
- ?? Does it make sense to tear down a building and dump usable fixtures in a landfill, when a local government or charity could reuse them to refurbish low-income housing?
- ?? Is it sound business practice for two or three installations, or a Federal building within a small geographical area to not recycle a particular item because none of them alone generates marketable quantities?
- ?? Would it be sensible for three installations within the same local area to each buy a cardboard baler when none of them generates enough cardboard to use the baler 100 percent of the time?

It may not make sense to have separate or duplicate programs. The result is higher overhead costs and lower proceeds. These programs could benefit from regionalization or partnerships. DoD policy supports and encourages this. You should explore all opportunities for mutual benefit through partnering and regionalization. Volume will influence, and in some cases create, markets. Having a single contract for sale that encompasses several installations is strongly recommended. Intra-service agreements and memorandums of understanding are used to establish partnerships. Be sure to have your installation SJA/OGC review and approve all partnership agreements. One of these documents should be in place to formally establish partnerships with a sister service, municipality, or other Federal Agency.

Market Your QRP

Like any new program, your QRP needs a little bit of advertising to help it take off. You should publicize your QRP early. Start at least six months in advance of when you plan to begin collecting recyclable materials. Pick a date, if possible, that coincides with other well-known celebrations, such as America Recycles Day, Earth Day, Arbor Day, or Spring Cleanup Day. Start with articles in the installation newsletter describing your program: when it will start, what will be recycled, collection points, use of bins, frequency of collection, and what people will be expected to do to make the program a success. Emphasize the environmental benefits, conservation of resources, and the improvements in quality-of-life that result from recycling.

As the program start date nears, repeat news articles and expand publicity to other types of media — installation radio channel, cable news channel, bulletin boards, and flyers. An educational program should be instituted in the elementary school(s) to teach children the value of recycling and pollution prevention. Establish a “kick-off” day to inaugurate the recycling facility or transfer station. Make sure that the ceremony includes the installation commander, senior staff, and installation chaplain. If the program involves the surrounding community(s), elected officials (mayor, council, or selectman) should also be invited as distinguished guests or speakers.

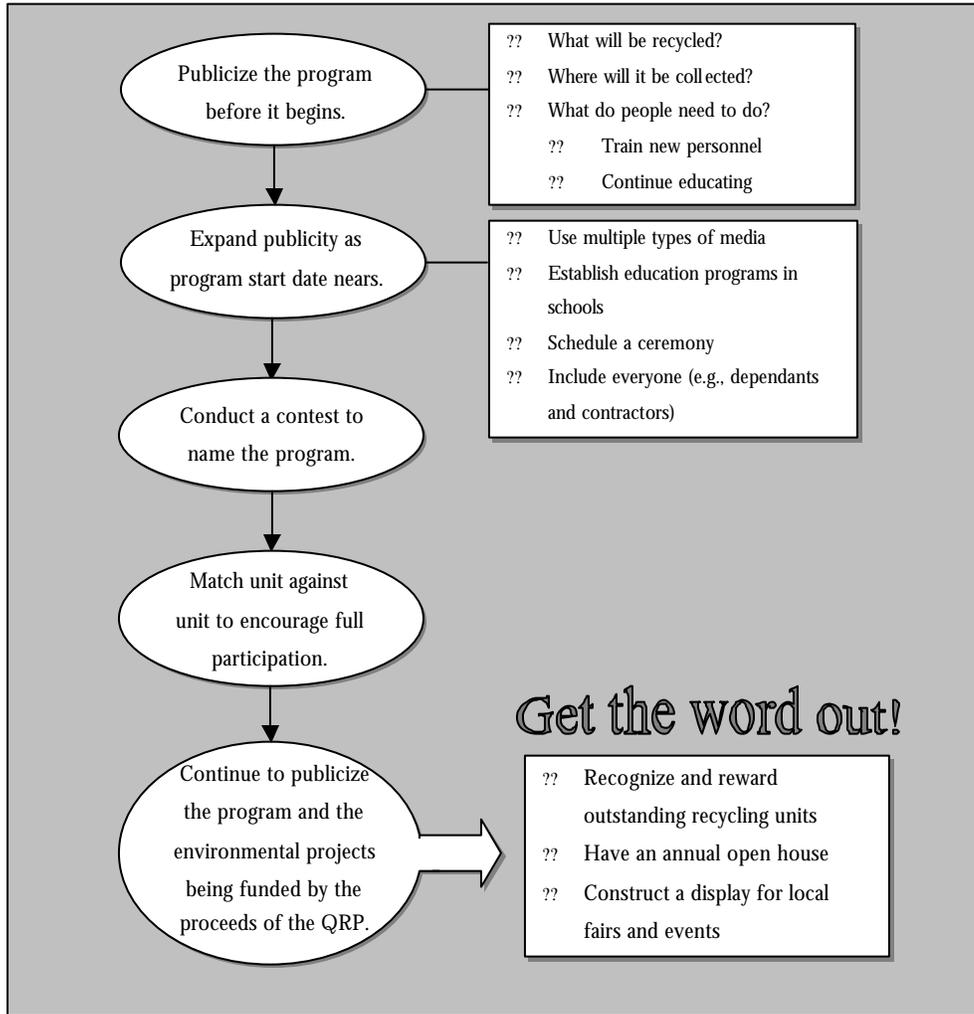
You may wish to conduct a contest to name the recycling facility, to formalize an installation recycling motto, or name a mascot. Pass out bumper stickers, balloons, and other novelty items to promote the program. After the program is underway, match unit against unit to encourage full participation in the recycling program:

- ?? Offer initiatives to outstanding recycling units, such as time off or special privileges.
- ?? Recognize outstanding recycling initiatives at town meetings and other installation gatherings.
- ?? Offer the local community the opportunity to contribute prizes to the QRP. Publicize annual recycling rates and goals.
- ?? Have an annual “open house” at the recycling center.
- ?? Make sure to construct a display booth for schools, fairs, America Recycles Day, and Earth Day.
- ?? Offer free composting classes through a local community or activities center.

Continue to publicize the program by reminding people of recycling goals, and publicize environmental projects being funded by the proceeds of the QRP.

GET THE WORD OUT! There are DoD and Federal award programs that recognize outstanding recycling achievements. These offer a great opportunity to demonstrate your successes.

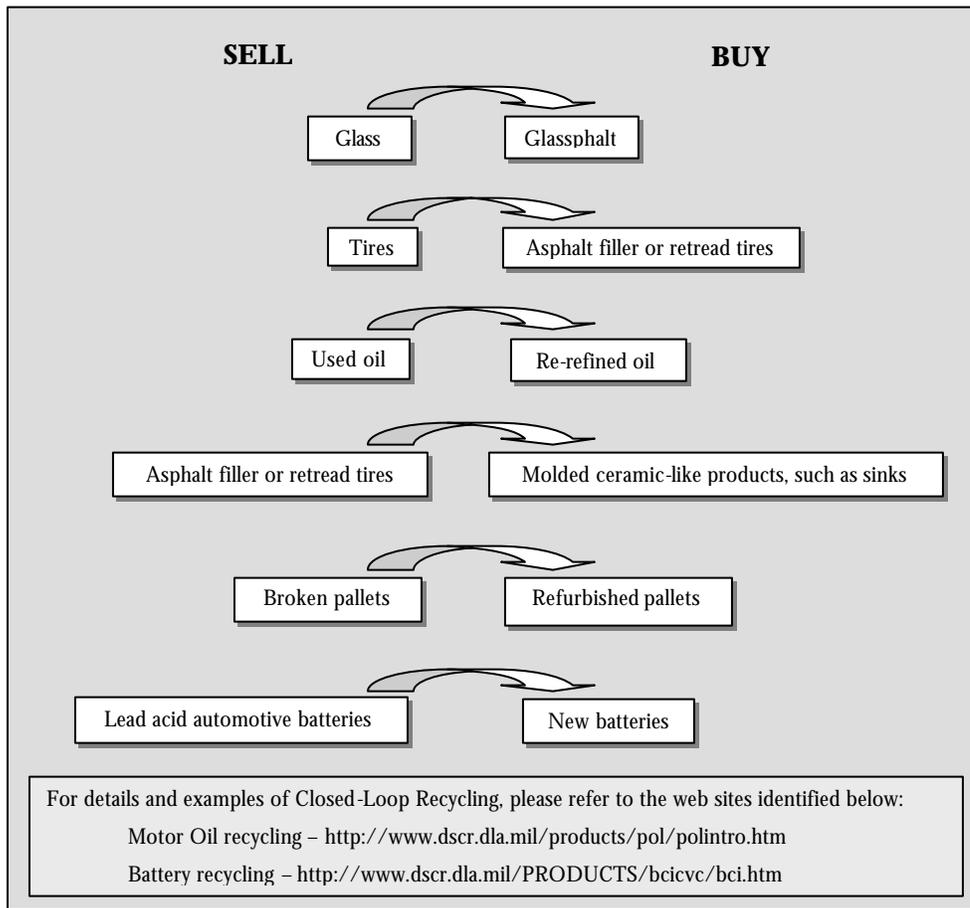
Figure 5-1. Key Methods for Publicizing a QRP



Closed-Loop Recycling

Closed-loop recycling has a different meaning under RCRA, but for your installation QRP, closed-loop recycling is a complete recycling program in which you buy back products manufactured from your recyclables. An example of a closed-loop recycling program is a “bottles to bags” program. This program involves contracting with a company who will buy all the recyclable plastic bottles from the installation QRP, and then sell back to the installation plastic bags made from those plastic bottles.

Figure 5-2. Examples of Closed-Loop Recycling



Advantages of adopting closed-loop recycling, include:

Obtaining another market for your recyclables.

Cheaper source of recycled-content products.

Guaranteed access to recycled-content products.

Guaranteed market for your recyclables.

Increase participation from installation personnel because of closed-loop recycling shows a direct and visible return for their efforts.

Figure 5-3. Oil Drums Packed for Closed-Loop Recycling



The Defense Supply Center Richmond

(DSCR) has two closed-loop recycling programs: re-refined oil and vehicle batteries (Tactical and Combat Battery and Commercial Battery Programs). The DSCR delivers manufactured automotive products and retrieves the used product as part of the service. The DSCR also supports an tiffreeze recycling with distillation or ion exchange hardware and additives.

CHAPTER 6: RECORDKEEPING

Why Keep Records?

Businesses must be able to justify why they were created, and must be open for external audit. A QRP acts like a business and is required to keep records. In addition to meeting requirements, good records provide a tool for market analysis and help QRP managers select the most appropriate way to operate a recycling program.

Records for Organizing Qualified Recycling Programs

There are specific types of records to consider when running a QRP.

- ?? Recycling Plan. Provides a description of the operation, feasibility study (Appendix 3), cost-benefit study, market analysis, waste characterization, and decision matrix.
- ?? Training Records.
- ?? Prior Audit or Internal Review Reports.
- ?? Management Control Reviews.
- ?? Controls to Prevent the Sale of Excluded Items listed in DoD Instruction 4715.4.
- ?? Minutes from QRP Committee.
- ?? Decision Documents on Use of Proceeds. Documentation of decisions supporting adoption of direct sales by the installation.
- ?? Documentation in your recycling plan showing consideration of outsourcing for QRP functions. If outsourcing is elected, contractors shall keep adequate records and provide summaries to the QRP Manager.
- ?? List of buyers.

DRMO Sales Documents to Retain

Although DRMO maintains its own tracking system, the QRP Manager should also track the delivery and sales of installation recyclables. This information can be used to ensure payment is received and to analyze the time between turn in and payment for the recyclables. Keep records of

DRMO sales on a database (SWARs is recommended) containing the elements listed in Table 6 -1. Keep the following documents of DRMO sales.

Table 6-1. DRMO Sales Data

<p>DRMO Sales Data Control Number (Form 1348 -I): _____</p> <p>Item Description: _____</p> <p>Date Delivered to DRMO: _____</p> <p>Date Credited with Sale: _____</p> <p>Contract Number: _____</p> <p>Contract Price: _____</p>
--

DD Form 1348-I, DTID. This form is used to record recyclables turned in to the DRMO. This form should contain the correct account and station codes, identify the appropriate program, and list material code, weight, and date of turn in.

Local Form 1709. This local DRMO form is used to account for each QRP and working capital fund account administered. Local Form 1709, which should be made available to the installation by the 10th working day of the month, contains the QRP account code and total weight pulled by the contractor (buyer). One form will be provided for each contract.

Standard Form 1080, Sales Receipt.

Copies of checks received for payment or funds transfers. Maintain these with supporting documentation and check against information on contracts provided by DRMO.

Records of Direct Sales

Copies of the following documents for direct sales should be kept on file.

Quotation Forms/Invitation For Proposal/Invitation For Bid

Weight Certificates

Shipment Receipts

Cashier Record

Deposit Record

Check Copy

Dun letters to buyers

Keep records of direct sales on a database (SWARS is recommended) containing the elements listed in Table 6-2.

Table 6-2. Direct Sales Data

<p>Control Number (Sequentially through year): _____</p> <p>Sales Date: _____</p> <p>Item Description: _____</p> <p>Sales Price: _____</p> <p>Company Name: _____</p>
--

Records on Operating and Overhead Costs

QRPs must keep records on operating costs, including purchase of equipment, maintenance, program operation and expansion, labor costs, training, publicity, and overhead for processing recyclable materials. See Chapter 3 for more information on cost allocation (these must be concurrent).

Distribution of Proceeds

Retain records of incomes and expenditures to track the distribution of proceeds in accordance with 10 U.S.C. 2577 and 32 CFR Part 172.

Retention of Records

Generally, maintain records for the current fiscal year and the two preceding fiscal years with the exception of documents chartering the program and documenting major decisions. Maintain and retain financial records for the length of time provided in the DoD Finance Management Regulation. After three years, send all EPA tracking documents (i.e., manifests) to the installation environmental department for retention or retirement as required. Records involving the direct sale of hazardous materials and waste (used oil, lead batteries) that could result in CERCLA liability should be maintained for an established length of time that is mandatory for all installations. DRMS maintains sales records of hazardous property that could result in CERCLA actions for 50 years.

Additional Requirements

Depending on the type of sales and recyclables sold, additional documents should be retained. For example, keep EPA transportation control numbers, certificates of destruction, and end use certificates for the sale of batteries and oil documenting the handling of these materials by a permitted recycler.

CHAPTER 7: DEFENSE WORKING CAPITAL FUND RECYCLING PROGRAMS

Defense Working Capital Fund

This Chapter distinguishes Defense Working Capital Fund (DWCF) recycling from QRP recycling programs. DWCFs are required to recycle under E.O. 13101. DWCF activities may operate QRPs as long as they are not processing excluded materials. Industrial metals are to be processed through DRMO, but other scrap (paper, corrugated, etc.) may be recycled through a QRP. DoD policy permits DRMS to retain 100% of the proceeds resulting from the sale of recyclable material turned in by DWCF activities. Policies may vary among the DoD Components. Refer to Component guidance for more information.

Recycling Guidance

Although DWCF activities are unable to institute QRPs, they are still encouraged to recycle to the greatest extent practicable. DWCF activities are required to report their recycling results under the DoD MOM. Although DWCF activities do not receive the proceeds from the sale of their recyclables, these proceeds stay within DoD and benefit DoD as a whole. In addition, these proceeds, by covering part of the operating cost of DRMS, reduce the amount that your Component may owe to DRMS for services rendered.

CHAPTER 8: FREQUENTLY ASKED QUESTIONS AND ANSWERS

What is a Qualified Recycling Program?

A Qualified Recycling Program (QRP) is an organized operation that receives and distributes proceeds from the sales of recyclables in accordance with 10 U.S.C. 2577 and 32 CFR Part 172. (Appendix 1)

Who do I call if I need authorization to run a QRP?

Service organizational level one commands. For the Navy, contact CNO (N45). The Air Force and Army installations have this authority under applicable regulations, i.e., Air Force Instruction (AFI) 32-7080 (reference (bb)), and Army Regulation (AR) 42 0-49 (reference (cc)).

Who should manage the installation's QRP?

The installation commander determines who is in the best position to establish, conduct, and maintain a recycling program in the most cost-effective and efficient manner. This may vary from installation to installation. Examples are Public Works, Engineering, Environmental, MWR, Supply, Contractors, and various combinations. (Note: Although MWR may manage a QRP, it is not an MWR program. A QRP is an APF responsibility, and no NAF may be used to subsidize a QRP.)

Can I combine/partner my recyclable materials and/or efforts with another installation, service, or even another Federal Agency in order to capitalize the value of the QRP?

Yes, in fact regionalization and partnering efforts are often preferred and can increase market proceeds based on increased quantities of recyclable stock, better packaging, and centralized marketing. Memoranda of Agreement (MOAs) should be established between the partnering groups in order to ensure proportional sharing of proceeds and efforts.

What metals are considered "Precious" under DoD Regulation (i.e. precious metals bearing scrap that may not be recycled by QRPs)?

Any item containing any of the following listed elements must be turned over to your servicing DRMO: gold, silver, platinum, palladium, osmium, radium, iridium, and ruthenium. These elements

may be found in circuit boards in computers/weapon systems, dental x-ray machines, or submarine batteries.

What are the regulations on demilling an item before recycling?

See DoD 4160.21-M. DoD policy prohibits QRPs from recycling items that require demilling, with the exception noted in the next question. Items requiring demilling, with the exception noted below, should be turned in to your servicing DRMO.

Can I sell demilled items through my QRP?

Except for expended brass and metals gleaned from firing range clearance, you may not recycle or sell items requiring DEMIL through your QRP. Note that mixed metals gleaned from firing range clearance are defined as “material (e.g., shrapnel) that is in a form that is unrecognizable from its original configuration and does not require further demilitarization.” If the firing range scrap is demilled in accordance with current DoD and DLA policies, it can be recycled through a QRP.

Can I sell hazardous materials through a QRP?

No, with a couple of exceptions. Disposal of hazardous materials is closely regulated. Unless disposed of properly, the generating activity and/or DoD may incur substantial liability. The prospect of hazardous materials and waste being disposed of improperly is too great a liability for a QRP to assume. Therefore, your QRP should refuse to accept hazardous material and direct that it be turned in to DRMO for disposal. The only exceptions are lead acid batteries, used motor oil, and used antifreeze. QRPs may handle these items.

Can I sell weapon system scrap through a QRP?

No. All MLI and CCLI are restricted from sales. All weaponry must be turned into DRMO.

Can I sell excess/surplus computers and parts through my QRP?

No. DRMS has an electronic demanufacturing and recycling program that ensures proper disposal of surplus computers and other electronic equipment. This program ensures compliance with all environmental requirements, including proper disposal of any hazardous material, and it also ensures that DoD obtains maximum value from surplus equipment. (Note: As part of a pilot project started

before DRMS developed its program, DoD authorized the National Security Agency's QRP to sell automated data-processing equipment. DoD has NSA to continue this program.)

With the new "Direct Sales" authority, can I still use DRMO to sell my recyclables?

Yes, you can use DRMO for some or all of your QRP recyclables. DRMO is authorized to retain the costs of handling recyclables, although under current DLA policy, DRMS is returning 100 percent of the sales proceeds to the QRP.

How can I use QRP proceeds?

Proceeds from the QRP must first be used to cover the costs of operations, maintenance, and overhead for processing recyclable material including the cost of any equipment purchased for recycling purposes. Up to 50 percent of the balance remaining may then be used for pollution prevention, energy conservation, and occupational safety and health projects (not to exceed half the cost of a minor construction project). The remaining balance may be transferred to the non-appropriated fund (MWR) account at the installation. Proceeds may only be used for these three purposes. At the end of the fiscal year, any balance over \$2 million in the QRP account reverts to the Treasury.

Can I get the recyclables from my commissary for the QRP?

Commissaries, Base Exchanges, and Post Exchanges operate under special funding categories. They may operate their own recycling programs and retain the proceeds. If they decide not to operate their own recycling program, they have the option of contributing their recyclables to the QRP. Remember, once again, the data on the amount of materials recycled separately by these organizations must be turned in to the installation for reporting under the DoD MOM.

How long should I maintain sales records?

It is best to keep sales records for the present fiscal year, plus the two preceding years. You may want to keep summary information for as long as the program operates for trend analysis and historical purposes.

Why are we limited to direct sales only within the continental U.S.?

There are numerous reasons: trade status with foreign countries, U.S. tariffs, shipping container and stevedore costs, monetary exchange ratios at time of entry, and, above all, contractual difficulties dealing directly with overseas scrap dealers instead of state-side brokers. Additionally, in the event the material was not properly identified as scrap or properly demilled, some materials could end up in the wrong hands for less than amiable purposes.

What is the best way to develop a “preferred bid list” for direct sales?

The best way to start is with your DRMO sales chief or the national sales office, DRMS. They keep track of companies that have a poor performance record or have defaulted on contracts and are on the “debarred” list.

Can the QRP get the scrap generated from C&D projects?

Yes. All C&D projects should be reviewed to ensure that the most cost-effective contractual agreement for the installation is in place.

How can I find out who recycles C&D debris in my region?

Many major metro areas have developed C&D materials recycling and reuse guides, or try your local builder’s association.

Do I need authorization for direct sales of recyclables purchased with appropriated funds?

Yes. You can get authorization from the following:

- ?? US Navy – major claimant
- ?? US Army – major command, may be delegated
- ?? US Air Force – HQUASF/ILE, may be delegated
- ?? US Marine Corps – headquarters
- ?? DLA – field level commanders
- ?? Defense Agencies – directors

These organizations can also withdraw the authority if abuses are found.

Who should I contact if I suspect fraud, waste or abuse of the “direct sales” authorizations?

Report instances of fraud, waste, or abuse to your command authorities or to the Defense Hotline, 1-800-424-9098.

What will happen if my installation is found abusing the “direct sales” authorization?

First, your installation commander’s authority to conduct “direct sales” may be immediately revoked. Individuals involved will receive appropriate disciplinary action.

What are the chances that the recycling program at my installation will be reviewed by outside auditors or evaluators?

Good. Between 1991 and 1997, recycling programs were the subject of one or more audits or evaluations conducted by the General Accounting Office, the Inspector General DoD, the Army Audit Agency, and the Air Force Audit Agency. The reviews included numerous on-site visits to DoD installations. Internal review officials at installations have also conducted periodic assessments of the program in the past. In addition, oversight reviews by subordinate commands of the Military Departments may increase in the future.

What do outside auditors or evaluators look at?

It depends. Reviews may deal with financial aspects of the program or with performance aspects, or both. To understand the specific audit, ask for a description of the objectives for the audit. (Standards for audits require the up-front definition of the audit's objectives.) You might also ask what criteria are used in the assessment and what prompted the audit. (Some reviews may be self-initiated while others may be requested.) One common objective is to review the management controls relevant to the topic of the audit or evaluation. In the broadest sense, this means discovering what you the manager are doing to ensure that the goals and requirements for the program are being met and testing to determine if these management controls are functioning properly. For more information see DoD Directive 5010.38.

How should I prepare for an outside review?

To be sure you are meeting the requirements set forth in DoD Instruction 4715.4 and your Service guidance, conduct periodic self-inspections and reviews to find problems and correct them before others point them out. Avail yourself of internal review resources by meeting with installation

internal review officials to discuss past and future coverage of the program. Several actions may facilitate relations with outside reviewers. In advance of visits, request information on what documents and individuals the review team will want to see during the visit.

Remember, while the review team may collectively possess the skills and knowledge needed for the review, individuals may have different specific knowledge of the program. To help correct this, prepare or retain on hand a brief summary of the program that will provide useful background information for the reviewers.

Does a recycling program need an authorized equipment list?

Yes. This list should be in accordance with individual service regulations.

Is there a dollar limit on equipment purchased on a QRP account?

No, but individual funds have procurement ceilings. Remember that all capital investments must be analyzed using traditional lifecycle cost (LCC) procedures. Equipment rental, partnering, and regionalization options are available. Contact your service representative for information on purchasing reconditioned equipment at substantial savings over new equipment.

Can tenants on an installation use their own turn-in numbers so that the revenue generated by recyclables is returned to the tenants?

Yes. In order for a generating activity to be credited directly by DRMO for recycling proceeds, the DTID must contain a reimbursable fund account number that is specific to that activity.

What should I do if recyclables' commodity prices drop and my QRP starts losing money?

Reevaluate your QRP. Perhaps you should not continue to recycle in the current manner. Try to initiate regional recycling activities with your sister services and other Federal Agencies. Remember: the markets for recyclables fluctuate from time to time. In times of profit, budget your funds for the leaner periods. Remember that you can "bank" up to \$2 million before monies revert to the U.S. Treasury. Use this account to smooth out cash flow fluctuations and to ride out the "peaks" and "valleys" of the commodity markets.

Should I go to the Combined Services Recycling Workshop?

The Combined Services Recycling Workshop is currently referred to as the DoD Recycling Workshop and it is held annually at the Solid Waste Association of North America's WASTECON in October of each year. All recycling program managers and procurement personnel should set aside time and money to attend this important conference to meet and interact with their peers and hear firsthand the latest in policy changes and trends in the industry.

Is the QRP required to recycle demolition debris from C&D projects?

No. C&D debris may be recycled outside of the QRP. However, if an installation is attempting to meet the DoD MOM for solid waste, it is crucial that C&D be recycled somehow, and reported through the SWAR-base system.

What is the status of the old DoD Measures of Merit?

The "old" MOMs were the DoD requirements for a reduction in the amount of solid waste generated and an increase in the amount of materials recycled, based on a 1992 baseline. These old MOMs have been rescinded and replaced by the new diversion rate MOM, which measures the amount of waste diverted from landfilling. This percentage enables an installation the opportunity to effectively gauge their ISWM efforts. This diversion rate gives a more realistic, installation-specific tool to determine the success of a recycling program and the costs associated with ISWM.

If my recycling contractor picks up recyclables from family housing, should the QRP pay for it?

No. In fact it should not pay for curbside collection. If the waste were not recycled, that same contractor would be responsible for picking up the waste and taking it off site for disposal. By collecting recyclables, the contractor reduces the amount of waste that must be transported off site and avoids a substantial cost (tipping fees) and disposal capacity limits associated with municipal landfills. Often collecting recyclables is done separately from refuse and requires an additional pickup, which raises the cost of the contract.

Is an installation composting program ever managed under the QRP?

Yes, it can be. However, it is not required that the composting program be under the QRP unless the product is to be sold on the open market. Remember, whether composting is part of the QRP

or not, you should track the quantities of waste recycled through the composting program and report it to meet the DoD diversion rate MOM.

If my question is not answered here, whom do I call?

E-mail or call your Component representative on the Combined Services Recycling Work Group (CSRWG).

APPENDIX 1: DEFINITIONS

Activity

A unit, organization, or installation that performs a function or mission.

Ammunition, Explosives, and Dangerous Articles (AEDA)

Any substance that, by its composition and chemical characteristics, alone or when combined with other substances, is or becomes an explosive or a propellant, or is hazardous or dangerous to personnel, animal, or plant life, structures, equipment, or the environment as a result of blast, fire, fragmentation, radiological, or toxic effects.

Amount Recoverable

Materials that have useful physical or chemical properties after serving their original purpose and can be reused or recycled for the same or other purpose.

Amount Salable as Recyclable

Materials that fit within the guidelines for items that can be sold through a qualified recycling program.

Appropriated Funds (APF)

Monies made available to DoD by Congress. The Appropriation Acts approved by Congress specify the purpose for which the APFs can be used. Accounting for APFs is significantly different than accounting for NAFs, and are described in the DoD Financial Management Regulation.

Bulk Waste

Large items of solid waste, such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize waste, for which large size precludes or complicates handling by normal solid waste collection, processing, or disposal methods.

Closed-Loop Recycling

The three integral parts in the recycling process: collecting recyclables, processing and manufacturing recyclables into new items, and buying recycled products. This definition is different from that in RCRA.

Combined Services Recycling Working Group

A working group formed by the DoD Pollution Prevention Committee to develop joint service Qualified Recycling Program (QRP) policy. The group includes all services (including Coast Guard), the Defense Logistics Agency (DLA), the Office of the DoD Inspector General, and the National Security Agency (NSA).

Commercial Control List Item (CCLI)

A dual-use item under the export control jurisdiction of the Bureau of Export Administration, U.S. Department of Commerce.

Commercial Solid Waste

All types of solid waste (excluding hazardous waste) generated by stores, offices, clubs, cafeterias, dining facilities, warehouses, and other non-manufacturing activities. This includes non-processing waste generated at industrial facilities such as packing waste and paper products. Construction and demolition waste is not included in this category.

Commingled Bag

Designated recycling materials placed in one recycling container; may include paper, aluminum, glass, plastic, and other materials.

Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

The law that regulates hazardous substances encountered at inactive or abandoned sites, or where release of a hazardous substance requires an environmental response action. This is sometimes referred to as "Superfund."

Composting

A controlled process for managing the degradation of plant and other organic wastes to produce a useful product that can be used as mulch or soil conditioner.

Construction and Demolition Debris (C&D)

Waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings, and other structures. Includes roofing, piping, dry wall, wood, bricks, concrete, and similar materials, but excludes asbestos-containing materials.

Defense Working Capital Fund (DWCF)

The management of a working capital fund, or industrial, commercial, and support-type activities by the Secretary of Defense through separate accounting, reporting, and auditing. These activities include the Defense Finance and Accounting Service (DFAS), the Defense Commissary Agency, and the Defense Reutilization and Marketing Service (DRMS). Proceeds are routinely used to offset customer costs.

Defense Finance and Accounting Service (DFAS)

Directs finance and accounting requirements for all appropriated, non-appropriated, working capital, revolving, and trust fund activities.

Defense Reutilization and Marketing Office (DRMO)

The DLA organizational entity having accountability for and control over disposable property. Provides technical assistance to generating activities, and receives excess material and authorized turn-ins from generating activities.

Defense Reutilization and Marketing Service (DRMS)

Exercises program management and staff supervision of the DoD Personal Property Reutilization and Marketing Program.

Demilitarization

The act of destroying the functional or military capabilities of certain types of equipment or material that has been screened through inventory control points and declared surplus or foreign excess. The term includes annealing, mutilation, cutting, crushing, scrapping, melting, burning, or alteration to prevent further use of this equipment or material for its originally intended purpose and applies equally to equipment or material in serviceable or unserviceable condition.

Disposal

The process of reutilizing, transferring, recycling, donating, selling, destroying, or other ultimate disposition of DoD personal property.

Disposal Turn-in Document (DTID)

Document used when property is delivered to DRMO for reutilization, transfer, donation, or sale.

DoD Financial Management Regulation (FMR)

The primary authority on financial and accounting procedures within the Department of Defense.

Dun Letter

A demand letter requesting payment from a delinquent debtor.

Economic Analysis

An evaluation of the costs, benefits, and risks of various alternatives, clearly identifying any funding or budgeting constraints, citing rates, factors, and estimates.

Electrical Components

An integral part, assembly, or subassembly of a complete item.

End-user

Consumer, purchaser, buyer, or customer.

Excluded Materials

Materials that may not be sold through a QRP. The proceeds from their sale SHALL NOT be returned to a QRP. For lists of excluded items, see DoD Instruction 4715.4, enclosure 3, paragraph 10, and 32 CFR section 172.2 (b)(3)(i).

Firing Range Residue

Material (e.g., shrapnel) consisting of expended brass or aluminum and mixed metals in a form that is unrecognizable from its original configuration. Firing-range residue does not require further demilitarization, and is not an MLI or Commerce Control List Item (CCLI).

Generation Rates

Measures the total waste generated on an installation — total waste is the sum of the disposal amount and the recycled/reused amount.

Gleaning

Gathering and collecting mixed metals from firing ranges. Mixed metals gleaned from firing range clearance is defined as material (e.g., shrapnel) which is in a form that is unrecognizable from its original configuration and does not require further demilitarization, and which is not a Munitions List Item or Commerce Control List Item.

Government-owned, Contractor-operated (GOCO)

Government-owned/contractor-operated facility that is owned by the Federal government, but all or portions of which are operated by private contractors.

Government Furnished Material (GFM)

Property that may incorporate into or attach to a deliverable end item or that may be consumed or expensed in performing a contract. It includes assemblies, component parts, raw and processed materials, and small tools and supplies that may be consumed in normal use in performing a contract.

Hazardous Waste

A solid waste not specifically excluded from the restrictions of 42 U.S.C. 6901 (reference (dd)), that meets the criteria listed in 40 CFR Part 302 (reference (ee)), or is specifically named as a hazardous waste in Federal regulations.

High Grade Paper

Letterhead, dry copy paper, miscellaneous business forms, stationery, typing paper, tablet sheets, computer printout paper, and cards commonly sold as white ledger, computer printout, and tab card grade by the wastepaper industry. High-grade paper is included in the commercial solid waste category.

Host

A unit or activity that has management control of facilities, and provides services or facilities to another unit or activity (tenant).

Household Hazardous Waste

Waste resulting from products purchased by the general public for household use that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial known or potential hazard to human health or the environment when improperly treated, disposed of, or otherwise managed.

Installation

A military facility together with its buildings, building equipment, land, and ships/vessels, and subsidiary facilities such as piers, docks, warehouses, spurs, access roads, and beacons under the control of a designated Military Department or Defense Agency, at which functions are carried on by that Military Department or Defense Agency.

Installation Commander

Responsible for a DoD Component who has separate budget and supervisory control over resources and personnel, or an installation.

Integrated Solid Waste Management (ISWM)

The concept of ISWM is designed to minimize the initial input to the waste stream through source reduction, reduce the volume of the waste stream requiring disposal through re-use and recycling, and dispose of solid waste through the effective combination of incineration, composting, and landfill disposal.

International Traffic in Arms Regulation (ITAR)

Regulations, implementing the authority granted the president, to control the export and import of defense articles and defense services; found at 22 CFR Part 120.

Landfill

A discrete area of land or an excavation, on or off an installation, that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. A solid waste landfill also may receive other types of waste, such as commercial solid waste or industrial waste.

Landfill Amount

Generation rates for landfilling which equal recoverable amounts *plus* sellable amounts *less* quantities for other disposal. The final amounts end up in a landfill. It covers all waste that is disposed of in any landfill, whether on or off base or at sea.

Life Cycle

A series of stages or processes through which a system, product or entity passes from inception to termination and disposal. It includes conception, design, development, testing, production, deployment, training, maintenance, supply management, distribution, and disposal/demilitarization.

Life-Cycle Cost (LCC)

Total cost to the Government for a program over its full life, including the cost of research and development, investment in mission and support equipment (hardware and software), initial inventories, training, data, facilities, etc. Also includes the operating, support, and where applicable, demilitarization or detoxification of long-term waste storage.

Manifest

The document used to track shipments from point of origin to final destination. In shipments of hazardous waste, it is the shipping document originated and signed by the generator which contains the information required by 40 CFR Part 262 (reference (ff)), such as tracking hazardous waste from generation to ultimate disposal.

Minor Construction

Projects whose funded cost is \$300 thousand or less and are authorized to be funded from the operation and maintenance-type funds. Minor construction projects are military construction projects for a single undertaking that have an approved cost equal or less than \$1.5million. This limit is statutory and cannot be exceeded.

Munitions List Item (MLI)

Item subjected to import and export control listed in the International Traffic in Arms Regulation published by the U.S. Department of State (see DoD 4160.21 -M-1 (reference (gg))).

Mutilation

The act of making material unfit for its originally intended purposes by cutting, tearing, scratching, crushing, breaking, punching, shearing, burning, neutralizing, etc. This may also be a form of demilitarization.

Non-Appropriated Funds (NAF)

Monies not appropriated by Congress. NAF come primarily from the sale of goods and services to DoD military and civilian personnel and their family members, and are used to support MWR, billeting, and certain religious and educational programs. They are used for the collective benefit of military personnel, their family members, and authorized civilians.

Nonsalable Material

Material that has no reutilization, transfer, donation, or sale value as determined by DRMO, but is not otherwise restricted from disposal by U.S. law or Federal or military regulations.

Office Waste

Solid waste generated in the buildings or rooms in which the affairs of business, professional persons, or branches of Government are carried on. Excluded is waste generated in cafeterias, snack bars, other food preparation and sales areas, and waste separated by medical personnel.

Other Disposal

Solid waste that cannot be reutilized, reused, or recycled.

Other Qualified Recycling Program Materials

Materials that initially fit neither the definition of recyclable materials nor the definition of excluded materials. Typically, such materials are received in such poor condition and/or are of low value that they probably are not reusable; could not be donated; or would be too costly to process. These materials, such as refrigerators, cabinets, or desks, must undergo local screening to determine their recycling potential. These materials may be recycled by the QRP if a cost-effective way can be found to do so.

Personal Protective Equipment

Any of a number of devices or types of equipment (hardhats, gloves, goggles, etc.) worn to provide protection against various hazards.

Pollution Prevention (P2) Funds

Appropriated funds for all work necessary to eliminate or reduce DoD Components' undesirable impacts on human health and the environment in regards to its processes, practices, and the products used. Funds come from a variety of sources, including military construction, operations and maintenance, and procurement. Program and budget P2 project requirements in accordance with associated rules for each appropriation.

Pollution Prevention Plan

P2 Plan of management strategies for reducing the use of hazardous materials and releases of pollutants into the environment, reducing waste streams, reusing generated waste, and recycle waste not reusable.

Precious Metal Recovery Program (PMRP)

DLA is the DoD single manager for the PMRP. The program promotes economical recovery of precious metal from all sources, and provides the reclaimed metals as needed to DoD Components at recovery cost for use as government-furnished material in support of defense contracts.

Program Leader

Person assigned to coordinate a QRP, including personnel, funds, and equipment for the purposes of carrying out the objectives of this Guide and DoD Instruction 4715.4.

QRP Manager

A program manager who is responsible for managing all aspects of a QRP, consolidating information from all recycling activities, reporting on solid waste reduction, and affirmative procurement activities.

Qualified Recycling Program (QRP)

A recycling program that distributes proceeds pursuant to 10 U.S.C. 2577 and requires concerted efforts to —

1. Divert or recover scrap or waste from waste streams.
2. Identify, segregate, and maintain the integrity of the recyclable materials to maintain or enhance the marketability of the materials. If the program is administered by a DoD Component, a QRP includes adherence to a control process providing accountability for all materials processed through program operations.

Reclamation

The process of reclaiming required serviceable and economically repairable components and material from excess or surplus property, as authorized. This does not include inspection, classification, disassembly, and cleaning.

Recoverable Resources

Recoverable materials have useful physical or chemical properties after serving their original purposes. Recoverable resources can be re-used or recycled for the same or for other purposes.

Recyclable Grades

Recyclables are grouped into major categories such as paper, plastic, metal, glass, and wood. Each may have subcategories. Within each category or subcategory may be a "grade" of recyclable.

Recyclable Materials

Recyclable materials are materials diverted or recovered from the solid waste stream by concerted efforts for the beneficial use of such materials. Items and materials that continue to be usable for their original purpose are recyclable materials. Examples of recyclable materials include (but are not limited to): paper, food waste, plastic, glass, all cardboard and other packaging materials, newspapers, and aluminum cans, glass, and plastics that contained food and beverages. Recyclable materials also include scrap (including ferrous and nonferrous scrap), firing-range expended brass, and mixed metals gleaned from firing-range cleanup that do not require demilitarization. Items requiring demilitarization or mutilation prior to sale are not recyclable materials. In addition, the following materials are not qualifying recyclable materials and will not be sold through a QRP: precious metals; GFM; hazardous waste (including household hazardous waste); machine parts; bottles (not scrap glass); electrical components; unopened containers of unused oil, solvents, or paints; and repairable items that have not progressed through the disposal cycle. See also "Excluded Materials."

Recyclable Subcategory

Some recyclables seem to have an unlimited number of subcategories, and each of the subcategories may have a separate grade that will affect the price received.

Recycling

Series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel, for producing heat or power by combustion.

Residential Solid Waste

Includes garbage, rubbish, trash, and other solid waste resulting from the normal activities of households.

Resource Conservation and Recovery Act

The law that provides for solid waste management of both household and municipal type wastes, as well as establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal, in effect, from "cradle to grave."

Resource Recovery

The process of obtaining materials or energy from solid waste or used POL product.

Resource Recovery Facility

Any physical plant that processes residential, commercial, or institutional solid waste biologically, chemically, or physically, and recovers useful products (such as shredded fuel, combustible oil or gas, steam, metal, or glass) for resale or re-use.

Re-Use

Return of a material or product to the economy for use without any change in its identity by finding different purposes for the materials. For example, a soft-drink bottle is reused when it is returned to the bottling company for refilling. Special processing is not required.

Sales Contracting Officer

An individual who has been duly appointed and granted authority to sell surplus or excess property by any of the authorized and prescribed methods of sale (40 U.S.C. 484).

Scrap

Material that has no value except for its basic material content.

Screening

A process used to determine if excess property should be donated, sold, or otherwise disposed of unless specifically excluded by special processing instructions. Screening is accomplished electronically, manually, and visually.

Solid Waste

Garbage, refuse, sludge, and other waste materials not excluded by Federal law or regulations. Any solid, liquid, semi-solid, or contained gaseous materials resulting from institutional, industrial, commercial, mining, agricultural, or community operations and activities. They are discarded or are accumulated, stored, or treated prior to being discarded. Infectious waste materials are not included in this category for purposes related to recycling. A material is discarded if it is abandoned (and not used, re-used, reclaimed, or recycled) by being disposed of, burned, or treated.

Solid Waste Annual Report (SWAR)

Activities that generate more than 1 ton per day (or more than 365 days per FY) of solid waste must prepare an annual FY report. However, those who generate less will still need to submit metrics on solid waste generated, disposed of, recycled, composted, reused, incinerated, etc.

Solid Waste Annual Report System (SWARS)

A computer program used to help track information regarding the collection, generation, disposal, and recycling of solid waste. It also assists managers in keeping track of costs and diversion rates.

Source Reduction

Reducing the volume of the solid waste stream by reducing the amount of raw material that becomes waste at the installation. Source reduction is an effective and efficient means to reduce solid waste volume. Consider how items are packaged when choosing products. Select the minimum packaging that will ensure safe arrival and meet installation storage and handling needs.

Source Separation

Separating recyclables at their point of generation by the waste generator.

StartUp Costs

Costs of starting recycling programs.

Strategic List Items (SLI)

Property subject to Trade Security Controls. This list is comprised of the Department of Commerce Commodity Control List, suffix “A” items, and controlled for reasons including national security, nuclear nonproliferation, crime control, technology transfer, and scarcity of materials.

Surplus Property

Excess property that is not required for its needs, has completed utilization screening, and is eligible for donation or sale.

Tenant

A unit or activity of one department, agency, or command that occupies the facilities of, or receives support from, another department, agency, or command, usually on a continuing basis.

Trade Security Controls

Policy and procedures designed to prevent the sale or shipment of U.S. Government materiel to any person, organization, or country whose interests are unfriendly or hostile to those of the United States.

Trained Individual/Direct Sales POC

Person in charge of direct sales who has participated in and completed a “Direct Sales” course as required under this Guide.

Total Amount Generated

The total waste generated on an installation — the sum of the disposal amount and the recycled/reused amount.

Unsalable Material

Material for which sale or other disposal is prohibited by U.S. law or Federal or military regulations.

Waste Stream Assessment

Determines the amount of waste generated in the area to be managed; components of the waste stream; geographic location of generation of waste; seasonal fluctuations of all the above; and existing capacity of all waste management methods and facilities.

Yard waste

Grass and shrubbery clippings, tree limbs, leaves, and similar organic materials commonly generated in residential yard maintenance (also known as green waste).

APPENDIX 2: TRAINING AND CERTIFICATION

The Defense Metal Identification and Recycling Course for Qualified Recycling Programs is available from the Army Logistics Management College (ALMC). For more information, please contact:

Mr. Don Hayes
804-765-4740
hayesd@lee.army.mil
<http://www.almc.army.mil>

A Qualified Recycling Program AEDA Workshop is offered by the U.S. Army Corps of Engineers. The two-day course costs \$275. For details and registration, please contact:

Ms. Joy Rodriguez
256-895-7448
Rebecca.J.Rodriguez@usace.army.mil

The National Environmental Training Center for Small Communities offers two recycling-related courses: *Reducing Commercial and Industrial Solid Waste* and *Economics and Marketing of Recyclables for Small Communities*. Further information is available by contacting:

Ms. Mary Alice Dunn
1-800-624-8301 ext. 5538
mdunn@wvu.edu

An additional training source useful for program managers is the *Solid Waste Association of North America Certification for Recycling Managers*. For further information, please call or check the website:

1-800-467-9262
www.swana.com

The Defense Reutilization and Marketing Service offers training for reutilization and marketing operations. Defense Reutilization and Marketing Program objectives, policies and procedures are also presented in the course, which is titled *Defense Reutilization and Marketing Operations Course – Basic*. Information is available by contacting:

Mr. Cessna
804-765-4315
cessnam@lee.army.mil

Another website that provides information on training:

Navy Recycling Program
<http://www.navyrecycling.com/training/index.html>

APPENDIX 3: FEASIBILITY STUDY GUIDELINES

Objectives of the feasibility study are to identify potential recyclable materials, estimate generation rates, determine if adequate markets exist, and conduct an economic analysis for each material.

Identify Recyclable Materials

The first step is to find out what materials are available and eligible for recycling. The installation should coordinate closely with DRMO when collecting this information. Materials to consider recycling are those identified by applicable Federal, state, local, and DoD regulations. They may include scrap metal; high-grade paper; corrugated containers; and aluminum cans, glass, plastics, and newspapers from housing areas.

The only exceptions to recycling the above materials are:

- ?? Market analyses conducted by DRMO or the managing activity indicate that the recovered materials cannot be sold; or
- ?? The cost analysis shows that recycling the material is too costly. In other words, the added costs exceed the sum of recycling revenues plus avoided disposal costs.

Note that under the DRMS Sale By Reference document, Part 7, contractors who buy high grade paper containing information covered by the Privacy Act (reference (hh)) are subject to the provisions of this Act. Therefore, contractors must exercise every care necessary to ensure compliance with respect to the handling and disposal of protected information.

Other wastes qualifying for sale under the program are materials that normally have been or would be discarded and that may be reused after undergoing some type of physical or chemical processing. Unless specifically excluded, any material that meets this definition may be sold under this program.

Note that the definition of recyclable materials *specifically excludes* the following materials:

- ?? Precious metal-bearing scrap;

- ?? Items that may be used again for their original purposes or that function without any special processing (e.g., used vehicles, vehicle or machine parts, bottles [not scrap glass], electrical components, unopened containers of unused oil/solvent/paint, furniture, filing cabinets);
- ?? Ships, planes, weapons, or any discarded material that must undergo demilitarization or mutilation.

Estimate Generation Rates

Determine the approximate quantity of materials that will be source separated, locations where each type of material would be stored for pickup, and frequency of required pickup as influenced by economic, environmental, hygienic, aesthetic, and safety requirements. Sources of this information include weight tickets, contractor billings and shop interviews.

Determine if Adequate Markets Exist

There are a number of factors that affect the market value of a material. First, the quality of the waste material must be considered. The quality of a material is generally determined by how clean it is, or how well materials are segregated. DRMO will not segregate materials for an installation, but will advise on the degree of segregation for the most cost-effective operation. (See Attachment 1 for waste segregation options.) To enhance marketability, quality control of source separation techniques is essential. For example, when recycling mixed paper, it is important that employees do not throw paper clips, carbons, and other trash into collection boxes.

Packaging is also important in recycling markets; for example, because of bulk storage and transportation problems, cardboard cannot be economically recycled unless it is baled. Some materials also need to be packaged according to certain specifications.

Dollar values fluctuate frequently and may vary significantly from the listed values based on various economic factors. Whether a waste may or may not be cost-effectively recycled depends on local conditions. Some areas may not have a market for certain materials, or an installation may not generate enough of a particular material to make recycling cost-effective. Installations may have to pay for removal of some recyclable materials but could save money through avoided costs for

incineration or landfill disposal. Some potentially recyclable materials are provided in Attachment 2. Prices listed in the Table may vary greatly depending on location and quality of the material.

A DRMO market analysis can identify which wastes are marketable in any area. Request a determination from DRMO of local markets for high-grade paper, corrugated containers, newspapers, and all other materials that you are considering for recycling. Information to be obtained from DRMO includes the following: market price, prognosis of price future, pickup point changes, any preparation required (such as baling), and special tying.

Information can also be obtained from local brokers and end users of recyclable materials in addition to DRMO. After receiving the market analysis report and the estimated sales revenue, the installation conducts an economic analysis to determine if recycling the material would be cost-effective. If no market exists for the material, no further analysis is necessary.

Conduct an Economic Analysis for Each Material

Selling recyclable materials can raise revenue but may not always be cost-effective because the costs of operating the program may exceed revenues generated. Therefore, before any recycling of a specific material can be officially approved, an economic analysis must be performed for each material considered for recycling.

Recycling of a material is economically feasible if:

$$\mathbf{Added\ Costs} < \mathbf{Avoided\ Costs} + \mathbf{Revenue}$$

Added Costs

Added costs are the increased time, effort, and possibly equipment associated with removing a recyclable material from the waste stream and subsequently preparing it for sale.

Avoided Costs

Estimate avoided costs by determining the weight or volume of each recyclable material diverted from the waste disposal stream by the QRP. Calculate tipping fees, surcharges, labor, prorated maintenance, hauling fees, permit fees, and generator "taxes" saved by recycling that quantity of material instead of disposing it. This may or may not be a significant factor, depending on the material. An example of avoided costs at Navy, Marines, Army, and Air Force facilities are

reductions in tipping fees. Savings can be realized by less frequent pickups such as once per week instead of twice per week. The total avoided cost savings can be calculated on a monthly or annual basis.

Revenue

For each recyclable material, estimate annual sales revenue. Use DRMO market survey data for these estimates.

Appendix 4 provides a worksheet for documenting an economic analysis and example. The example economic analysis is specific to recycling of tab cards and is based on a source separation program. The procedure for evaluating other materials would be quite similar.

Make a Decision

If the economic analysis shows promise and the item is qualified, recycling personnel should begin collecting and segregating the material. If the economic analysis is not positive, you may still be required by your state solid waste regulations to recycle.

For more information on methods for performing economic analyses, see NAVFAC Publication P - 442, Economic Analysis Handbook, that may be obtained from Naval Publications and Form Center, 5801 Tabor Avenue, Philadelphia, PA, 19120 (SN 0525-LP-543-5200). Air Force personnel can refer to AFI 65-501, "Economic Analysis, and AF Manual," Economic Analysis." These documents are available on the internet at: <http://www.saffm.hq.af.mil>.

Waste Segregation Options

The mechanics of segregating recyclable materials falls into two categories: source separation and disposal site separation. Source separation is defined as the setting aside of one or more recyclable materials, such as paper, cans, or glass, from refuse. This must be done at the point of generation by the discarding unit before the materials become mixed into the solid waste stream. Disposal site separation generally uses mechanical equipment to separate recyclable materials from other post consumer wastes. Separation of materials at final disposal sites generally requires PPE, a large investment in equipment, and a large, steady supply of raw material to justify the equipment.

Likewise, markets for the recovered materials must exist. For these reasons, few military installations practice disposal site separation.

Source Separation

DoD Directive 4165.60 (reference (ii)) requires the recovery and recycling of solid and other waste materials to the maximum extent practicable. Source separation is one of the simplest methods of compliance with this requirement. Separation of other materials for which there is a market is also encouraged. A source separation program may be instituted at an installation only after the DRMO determines that markets exist for the separated materials. If markets do not exist, source separation is not required. The minimum requirements for source separation considerations are:

High-grade office paper — any installation employing over 100 office workers.

Newspapers — installations with more than 500 family housing units.

Corrugated containers (cardboard) — installations where commercial establishments collectively generate more than 10 tons per month.

Disposal Site Separation

This type of recovery is distinguished from source separation in that recoverable materials enter the waste stream and are mixed with non-recoverable solid wastes. This method will generally require the use of specialized equipment machines not normally found in the military supply system. This mechanical equipment is used to separate recyclable materials from other post-consumer wastes. The simplest form is a conveyor belt operated by laborers who do the actual separation.

The overall success of a mechanized material recovery facility depends on the technologies used. Ferrous metal recovery has been proven effective at several locations, whereas aluminum recovery has achieved a less successful track record. For economic and health reasons, mechanically recovered paper is currently used almost exclusively for the production of refuse-derived fuel rather than fiber recovery. As a result, technologies designed to recover fiber have received relatively less attention. Glass recovery technologies have achieved limited success.

The technology for separation of materials from military post-consumer solid waste generally used in conjunction with energy recovery systems. The more common methods are:

Hand-picking of recyclables from conveyors prior to discharge into transfer trailers or processing machinery is frequently practiced.

Magnetic separators usually consist of a belt, drum, or pulley with a magnet used to attract and remove magnetic materials from refuse or other materials. At military industrial installations, cranes with electromagnetic hooks can be used to separate magnetic materials into large sorting bins.

Eddy current separators are used to separate aluminum and other nonmagnetic metals using the properties of a magnetic field as a method of sorting. An alternating current is passed through a piece of metal causing it to become temporarily magnetic and thus deflected and separated.

Heavy media separators use a suspension of finely ground dense minerals in water. When the mixture of glass, aluminum, and other nonferrous metals is immersed in the liquid, the fluid density can be controlled so that the aluminum and glass float while the other metals sink.

Equipment used in the paper industry can pulp waste paper and separate foreign matter. Hot water and agitation are used for pulping rather than chemicals. This process has been incorporated into certain resource recovery systems to recover paper fibers from municipal solid waste.

Source separation is usually preferred over separation of materials at the final disposal site because it is easier, less expensive, requires limited equipment, and generally results in a higher grade of recovered material. Disposal site separation does, however, yield concentrated separation and collection options.

Potential Recyclable Materials

Below are selected ranges of prices by item (i.e. disposal costs and potential recycling revenues which may be generated). Negative numbers indicate cost to dispose. Numbers vary due to market differences, local economies and individual state and local regulations.

Description	Price
PAPER	(\$/Ton)
Computer paper	20 to 125
Mixed paper	(-40) to 40
Cardboard	(-25) to 35
METAL	(\$/Pound)
Aluminum	(-.40) to .46
Steel cans	.50 to .116
Stainless Steel	(-.35) to .30
GLASS	(\$/Ton)
Clear	0 to 100
Broken, mixed	(-5) to 100
PLASTIC	(\$/Ton)
Clear, PET	(-5) to 100
Mixed, HDPE	0 to 200
MISCELLANEOUS	(\$/Pound)
Auto Batteries	.025 to 1.35

APPENDIX 4: RECYCLING ECONOMIC ANALYSIS WORKSHEET AND SAMPLE RECYCLING ECONOMIC ANALYSIS

Recycling Economic Analysis Worksheet

Installation: _____	Date: _____
Preparer: _____	
Location: _____	Tons - Lbs Gal / Yr _____
ESTIMATED ADDED COST	
1. Source separation and material preparation	\$ _____/Yr
a. Equipment (amortize over life of equipment)	\$ _____/Yr
b. Labor	\$ _____/Yr
(1) Procurement (amortize over life of equipment)	\$ _____/Yr
(2) Operations	\$ _____/Yr
(3) Maintenance	\$ _____/Yr
c. Other (materials, supplies)	\$ _____/Yr
Subtotal	\$ _____/Yr
2. Collection and storage	\$ _____/Yr
a. Equipment (amortize over life of equipment)	\$ _____/Yr
b. Labor	\$ _____/Yr
(1) Procurement (amortize over life of equipment)	\$ _____/Yr
(2) Operations	\$ _____/Yr
(3) Maintenance	\$ _____/Yr
c. Other (materials, supplies)	\$ _____/Yr
Subtotal	\$ _____/Yr
3. Program administration	\$ _____/Yr

Installation: _____	Date: _____
a. Equipment (amortize over life of equipment)	\$ _____/Yr
b. Labor	\$ _____/Yr
(1) Procurement (amortize over life of equipment)	\$ _____/Yr
(2) Operations	\$ _____/Yr
(3) Maintenance	\$ _____/Yr
c. Other (materials, supplies)	\$ _____/Yr
Subtotal	\$ _____/Yr
TOTAL ADDED COST	\$ _____/Yr

ESTIMATED AVOIDED COSTS AND REVENUE	
1. Savings resulting from reduced volume going to a disposal facility	\$ _____/Yr
2. Sales revenue (tons-lb-gal / yr) x (\$ / ton-lb-gal)	\$ _____/Yr
TOTAL AVOIDED COSTS + REVENUE	\$ _____/Yr
TOTAL ADDED COST	\$ _____/Yr

ESTIMATED RETURN

(TOTAL AVOIDED COSTS + REVENUE) - (TOTAL ADDED COST)= \$_____/Yr

Sample Recycling Economic Analysis

Installation: Anywhere USA

Date: Anytime

Preparer: QRP Manager

Location: Anywhere USA

Tons - Lbs Gal / Yr: 200 net

ESTIMATED ADDED COST

1. Source separation and material preparation

a. Equipment - none necessary

b. Labor:

(0.2 worker / yr)(\$25,000 / worker)(1.12 overhead) \$5,600 /Yr

c. Other (misc. packaging materials) \$1,000 /Yr

Subtotal \$6,600 /Yr

2. Collection and storage

a. Equipment

(1) Flatbed Truck (\$25,000)(1 day / wk) / 20 yr \$ 250 /Yr

(2) Frontend Loader (\$30,000)(1 day / wk) / 20 yr \$ 300 /Yr

(3) Warehouse (1300 ft=)(\$25.10 / ft=) / 20 yr \$ 1,631.50/Yr

b. Labor

(1) Procurement

(0.2 workers / yr) (\$25,000 / worker / yr) (1.12 overhead) / 20 yr \$ 280 /Yr

Installation: Anywhere USA	Date: Anytime
(2) Operations	
(1 man / day / wk) (\$25,000 / work / yr) (1.12 overhead)	\$ 5,600 /Yr
(3) Maintenance	
(0.1 worker / yr) (\$25,000 / work / yr) (1.12 overhead)	\$ 2,800 /Yr
c. Other (pallets, shelves, fuel)	\$ 2,000 /Yr
Subtotal	\$12,861.50/Yr
3. Program administration	
a. Instructions and operating procedures	
(0.1 worker / yr)(\$25,000 / worker / yr)(1.12 overhead)	\$ 2,800 /Yr
b. Fiscal Management	
(\$25,000 / worker / yr)(1.12 overhead)	\$ 1,400 /Yr
c. Publicity (0.05 worker / yr) (\$25,000 / worker / yr)(1.12)	\$ 1,400 /Yr
Subtotal	\$ 5,600 /Yr
TOTAL ADDED COST	\$25,061.50/Yr

APPENDIX 5:
STANDARD VOLUME -TO-WEIGHT CONVERSION FACTORS¹

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
FOOD SCRAPS	Food scraps, solid and liquid fats	55-gal drum	412
GLASS	Bottles:		
	Whole bottles	1 yd ³	500-700
	Semicrushed	1 yd ³	1,000-1,800
	Crushed (mechanically)	1 yd ³	1,800-2,700
	Uncrushed to manually broken	55-gal drum	300
	Refillable Whole Bottles:		
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 oz glass container	1 case = 24 bottles	12
LEAD-ACID BATTERIES	Car	1 battery	39.4
	Truck	1 battery	53.3 lb. lead and plastic
	Motorcycle	1 battery	9.5 lb. lead and plastic
METALS	Aluminum Cans:		
	Whole	1 yd ³	50-75
	Compacted (manually)	1 yd ³	250-430
	Uncompacted	1 full grocery bag	1.5
		1 case = 24 cans	0.9
	Ferrous (tin coated steel cans):		
	Whole	1 yd ³	150
	Flattened	1 yd ³	850
	Whole	1 case = 6 cans	22
	Major Appliances:		
	Air conditioners (room)	1 unit	64.2
	Dishwashers	1 unit	92
	Dryers (clothes)	1 unit	130
	Freezers	1 unit	193
	Microwave ovens	1 unit	50
	Ranges	1 unit	181.1
	Refrigerators	1 unit	267
	Washers (clothes)	1 unit	177
	Water heaters	1 unit	131

¹ Environmental Protection Agency, Office of Solid Waste, "Measuring Recycling: A Guide for State and Local Governments" (EPA530-R-97-011), September 1997

PAPER	Newspaper:		
	Uncompacted	1 yd ³	360-505
	Compacted/baled 12 in. stack	1 yd ³	720-1,000 35
	Old Corrugated Containers:		
	Uncompacted	1 yd ³	50-150 (30)
	Compacted	1 yd ³	300-500
	Baled	1 yd ³	700-1,100
	Computer Paper:		
	Uncompacted (stacked)	1 yd ³	655
	Compacted/baled	1 yd ³	1,310
	1 case	2,800 sheets	42
	White Ledger:		
	Stacked (u/c)	1 yd ³	375-465/755-925
	Crumpled (u/c)	1 yd ³	110-205/325
Ream of 20# bond; 8 1/2 in. x 11 in.	1 ream = 500 sheets	5	
Ream of 20# bond; 8 1/2 in. x 14 in.	1 ream = 500 sheets	6.4	
White ledger pads	1 case = 2 pads	38	
Tab Cards:			
Uncompacted	1 yd ³	605	
Compacted/baled	1 yd ³	1,215-1,300	
Miscellaneous Paper:			
Yellow legal pads	1 case = 2 pads	38	
Colored message pad	1 carton = 144 pads	22	
Telephone directories	1 yd ³	250	
Mixed Ledger/Office Paper			
Flat (u/c)	1 yd ³	380/755	
Crumpled (u/c)	1 yd ³	110-205/310	
PLASTIC	PET (Soda Bottles):		
	Whole Bottles (uncompacted)	1 yd ³	30-40
	Whole bottles (compacted)	1 yd ³	515
	Whole bottles (uncompacted)	gaylord	40-53
	Baled	30 in. x 62 in.	500-550
	Granulated	semiload	30,000
	Granulated	gaylord	700-750
	8 bottles (2 L size)	16 L	1
	HDPE (Dairy):		
	Whole (uncompacted)	1 yd ³	24
	Whole (compacted)	1 yd ³	270
	Baled	32 in. x 60 in.	400-500
	HDPE (Mixed):		
	Baled	32 in. x 60 in.	900
	Granulated	Gaylord	800-1,000

PLASTIC (con't)	Granulated	semiload	42,000
	Other Plastic		
	Uncompacted	1 yd ³	50
	Compacted/baled	1 yd ³	400-700
	Mixed PET and HDPE (Dairy):		
	Whole (uncompacted)	1 yd ³	32
	Film:		
	Baled	Semiload	44,000
	Baled	30 in. x 42 in. x 48 in.	1,100
	TEXTILES	Mixed Textiles	1 yd ³
TIRES	Car Tires:		
	Whole tire	1 tire	21
	Crumb rubber	1 tire	12
	Truck Tires:		
	Whole tire	1 tire	70
WOOD	Crumb rubber	1 tire	60
	Wood Chips	1 yd ³	625
	Pallets	-	30-100 (4) avg.)
YARD TRIMMINGS	Grass Clippings:		
	Uncompacted	1 yd ³	350-450
	Compacted	1 yd ³	550-1,500
	Leaves:		
	Uncompacted	1 yd ³	200-250
	Compacted	1 yd ³	300-450
FURNIS HINGS	Vacuumed	1 yd ³	350
	Foam rubber mattress	1 mattress	55
MUNICIPAL SOLID WASTE	Residential waste (uncompacted at curb)	1 yd ³	150-300
	Commercial-industrial waste (uncompacted)	1 yd ³	300-600
	MSW (compacted in truck)	1 yd ³	500-1,000
	MSW (landfill density)	1 yd ³	750-1,250
AUTOMOBILE ²	Passenger vehicle	-	3418
	Light truck	-	4530

² Automotive Fuel Economy Program, Twenty Fourth Annual Report to Congress, Calendar Year 1999.

APPENDIX 6: WORLD WIDE WEB SITES FOR RECYCLING

General Environmental and Pollution Prevention Resources

Office of the Deputy Undersecretary of Defense for Environmental Security? DUSD(ES):
<http://www.acq.osd.mil/ens/>

Safety and Occupational Health:
<http://www.denix.osd.mil/denix/Public/ES-Programs/Force/Safety/safety.html>

Defense Environmental Network & Information Exchange (DENIX), developed, maintained, and operated by the U.S. Army Corps of Engineers Construction Engineering Research Laboratories (USACERL):
<http://www.denix.osd.mil>

Defense Logistic Agency:
<http://www.dla.mil/>

Defense Supply Center Richmond links to catalogs with on-line ordering:
<http://www.dscr.dla.mil/dscr1.htm>

Defense Reutilization and Marketing Service:
<http://www.drms.dla.mil/>

Department of the Navy? Environmental Programs:
<http://www.enviro.navy.mil/>

Navy Recycling Program:
<http://www.navyrecycling.com>

Environmental Protection, Safety & Occupational Health Division (N45):
<http://web.dandp.com/n45/index.html>

Chief of Naval Operations:
<http://www.hq.navy.mil/cno/cno.htm>

Naval Facilities Engineering Service Center:
<http://www.nfesc.navy.mil>

Air Force Center for Environmental Excellence (AFCEE):
<http://www.afcee.brooks.af.mil/>

Assistant Secretary of the Air Force (SAF/FM):
<http://www.saffm.hq.af.mil>

PRO-Act:

<http://www.afcee.brooks.af.mil/pro-act>

U.S. Army Corps of Engineers, Installation Support Division:

<http://www.usacpw.belvoir.army.mil>

U.S. Army Corps of Engineers, Public Works Technical Bulletins

<http://www.hnd.usace.army.mil/techinfo/CPW/pwtb.htm>

Headquarters U.S. Army Corps of Engineers:

<http://www.usace.army.mil/>

U.S. Army Corp of Engineer's Home page for Solid Waste Management:

<http://www.usacpw.belvoir.army.mil//sg/dir-eng/chem-div/swm.htm>

U.S. Army Logistics Management College:

<http://www.almc.army.mil>

Army? Assistant Chief of Staff for Installation Management:

<http://www.hqda.army.mil/webs/acsimweb/homepage.htm>

Army Environmental Policy Institute (AEPI):

<http://www.aepi.army.mil>

Army Acquisition Pollution Prevention Support Office (AAPPSSO), Headquarters, U.S. Army Materiel Command:

<http://www.aappso.com/>

Oak Ridge National Laboratory:

<http://www.ornl.gov/ornlp2/recyinfo.htm>

U.S. Environmental Protection Agency (EPA):

<http://www.epa.gov/>

EPA's Office of Solid Waste and Emergency Response:

<http://www.epa.gov/swerrims/>

Environmental Law Institute:

<http://www.eli.org>

Environmental Working Group:

<http://ewg.org>

Government Printing Office:

<http://www.access.gpo.gov/>

National Library for the Environment, Congressional Research Service Reports:
http://www.cnie.org/nle/crs_toc.html

National Pollution Prevention Roundtable:
<http://www.p2.org/>

National Archives and Records Administration:
<http://www.nara.gov/>

National Technical Information Service:
<http://www.ntis.gov/>

American Chemical Society:
<http://www.acs.org/>

Brookhaven National Laboratory - Environment:
<http://www.bnl.gov/bnlweb/envindex.html>

Clay.Net - Environmental Professional's Homepage:
<http://www.clay.net/>

Earth's Biggest Environmental Search Engine:
<http://www.webdirectory.com/Recycling>

DRMS Environmental - Includes points of contact:
<http://www.drms.dla.mil/newenv/index.html>

Recycling Resources for Buyers and Sellers

Global Recycling Net (includes Construction Materials Recycling Association):
<http://www.grn.com/>

Recycler's World:
<http://www.recycle.net/>

Recycled Materials Affirmative Procurement Tracking System (RMAPTS):
<http://icsbep.inel.gov/rmapts/>

Waste Age:
<http://www.wasteage.com>

Solid Waste.com – A community for industry professionals:
<http://www.solidwaste.com/>

Solid Waste Association of North America:
<http://www.swana.org/>

Waste News:

<http://www.wastenews.com/>

Commission for Marketing Recyclable Materials, King County, Washington:

<http://dnr.metrokc.gov/market/>

Get in the Loop Retail Campaign:

<http://dnr.metrokc.gov/market/PROG -21.htm>

Pollution Engineering Magazine:

<http://www.manufacturing.net/magazine>

Internet Consumer Recycling Guide:

<http://www.obviously.com/recycle/>

Green Building Products:

<http://www.oikos.com/>

The Green Building Products and Materials Resource Directory:

<http://www.recycle.net/ncra/gdbase.html>

Recycling Manager: The independent guide to secondary materials prices:

<http://www.amm.com/recman/>

Global Recycling Network: Glossary of Recycling Terms:

<http://www.grn.com/grn/library/gloss.htm>

U.S. General Services Administration:

<http://www.gsa.gov>

Recycling Links:

<http://www.recyclingdata.com/reclinks.html>

**APPENDIX 7:
SAMPLE LETTER TO DRMO REQUESTING QRP ACCOUNT**

From: Commanding Officer, Naval Station Anywhere
To: Defense Reutilization Management Office

Subj: QUALIFIED RECYCLING PROGRAM (QRP)

Ref: (a) NAVSTAANYWHEREINST (QRP Instruction)

1. Per reference (a), Naval Station Anywhere established a Qualified Recycling Program. Please deposit the sale proceeds of recyclable material governed by 10 U.S.C. 2577 (QRP Recyclable Materials) in **F3875 Budget Clearing Account (suspense).
2. The QRP processes and retains the sales proceeds of QRP recyclable materials to fund recycling efforts, energy conservation projects, pollution abatement, occupational safety and health activities, and morale, welfare, and recreation projects. Any material delivered to the recycling center that is not QRP recyclable will be sent to the DRMO facility. Likewise, please send any QRP recyclable materials mistakenly sent to the DRMO facility to our recycling center located at Naval Station Anywhere, for processing and sale.
3. Our QRP manager looks forward to a cooperative and beneficial working relationship with your facility. By working together, we can reuse and recycle more materials.
4. My contact is (name of QRP Manager, commercial phone and DSN phone and fax and e-mail here).

John Doe
Captain USN

Copy to:

APPENDIX 8: SAMPLE QUALIFIED RECYCLING PROGRAM INSTRUCTION

REFERENCES:

1. All References are listed at the end of this sample Instruction.

PURPOSE:

2. This (Sample) Instruction:
 - a. Establishes policy, assigns responsibility, and prescribes procedures under DoD Instruction 4715.4, (reference (a)) "Pollution Prevention," to execute a cost-effective waste prevention and qualified recycling program to reduce the volume of non-hazardous solid waste and impact of **(Insert installation name wherever quotation marks are shown, and throughout document wherever indicated)** activities on the environment, in accordance with Title 10 United States Code (U.S.C.) 2577 (reference (b)) and Executive Order (E.O.) 13101 (reference (c)), to be operated by the (").
 - b. Designates (") personnel to lead the implementation of key pollution prevention and waste reduction programs within (").
 - c. Formalizes an affirmative procurement program in accordance with 42 U.S.C. 6962 (reference (d)) and E.O. 13101.

SCOPE:

3. This Instruction applies to all (") units and activities with the following exceptions:
 - a. Procurement, use, generation, storage, processing, disposal, or management in any sense of radioactive materials subject to regulation under E.O. 12344 (reference (e)), 42 U.S.C. 7158 (reference (f)), the Atomic Energy Act, 42 U.S.C. 2011 (reference (g)); or the Low Level Radioactive Waste Policy Act, 42 U.S.C. 2021b (reference (h)).
 - b. Additional pollution prevention requirements for transportation-related onshore and offshore facilities and vessels that are regulated by the U.S. 33 U.S.C. 1901 -1912 (reference (i)).

DEFINITIONS:

4. To maintain consistency with other DoD components, the terms and definitions at the beginning of this document apply to this Instruction, and shall be used for any supplemental or delegated regulations, instructions, or publications promulgated by the (").

POLICY:

5. It is (") policy to:

- a. Ensure (") organizations in the United States comply with applicable Federal, state, interstate, regional, and local environmental laws, regulations and standards, and with relevant Executive Orders; or in the case of organizations located outside the United States, with applicable Executive Orders, international agreements, Federal Statutes with extraterritorial effect, and either the Final Governing Standards or the Overseas Environmental Baseline Guidance Document where no final Governing Standards have been issued.
- b. Reduce the use of hazardous materials, the generation or release of pollutants, and the adverse effects on human health and the environment caused by activities.
- c. Reduce pollution through improvements in energy and water efficiency, the use of alternative fuels, and other activities that improve resource utilization.

6. It is (") policy to accomplish the objectives using a management approach that:

- a. Emphasizes pollution prevention, including improvements in energy and resource utilization, as the alternative of first choice in achieving compliance with applicable environmental requirements and Executive Orders.
- b. Incorporates pollution prevention throughout (") organizations and into all phases of acquisition, operations, maintenance, support and ultimate disposal of equipment and materials over the system life-cycle.
- c. Uses the environmental management hierarchy to develop environmental solutions. In descending order of preference, (") will:
 - (1) Prevent pollution at the source to eliminate or minimize adverse health effects while protecting, preserving, restoring, and enhancing the quality of the environment.
 - (2) Reuse pollutants that cannot be eliminated. d. Recycle, in an environmentally safe manner, pollutants that cannot be reused.
 - (3) Treat, in an environmentally safe manner, pollutants that cannot be eliminated or recycled.
 - (4) Dispose or release pollutants into the environment only as a last recourse and only where such disposal or release can be controlled and conducted in a manner that is safe for human health and the environment and consistent with applicable legal requirements.
- d. Reduces the life cycle costs of (") equipment and processes by avoiding the use of hazardous materials.

e. Plans, programs and budgets to achieve the policies in this Instruction. (“ budgeting procedures shall use environmental quality classes and the following definitions for environmental compliance and pollution prevention:

(1) Environmental compliance includes all activities and projects that use end -of-pipe treatment or disposal methods to meet applicable environmental requirements.

(2) Compliance-type requirements that are satisfied by source reduction (pollution elimination or reduction), pollutant (toxicity) minimization, or recycling approaches are pollution prevention requirements and shall be funded as pollution prevention.

f. Instills knowledge and understanding by all personnel (military and civilian) of pollution prevention requirements through comprehensive education, training, career development, and awareness programs.

g. Promotes pollution prevention through positive relations and partnerships with Federal, state, Indian tribal, regional, and local government officials as well as host country, other private, and public stakeholders.

h. Develops, demonstrates, and implements innovative pollution prevention technologies and business practices.

ORGANIZATIONS:

7. A recycling committee shall be established to consist of members from Logistics Services; Occupational Health, Environmental, and Safety Services; Facilities Services; and General Counsel.

8. A representative from the Office of Contracting will attend committee meetings as a non -voting member when contracting issues are to be discussed.

9. The Recycling Manager will attend as the recorder.

10. The Chief or Deputy Chief, Occupational Health, Environmental, and Safety Services shall chair the committee.

11. The committee shall meet at least quarterly to review and approve proposals for pollution prevention and source reduction projects. Such projects will be funded by revenue generated from various recycling and waste prevention activities. The committee will review ways and means to improve and monitor recycling initiatives and procedures at the (“).

12. The committee will annually review and approve the operating expenses of the (“) Recycling Program based on an annual budget prepared by the Recycling Manager.

13. Written reports and minutes covering formal meetings will be furnished to the committee members by the recorder within two weeks of each meeting.

14. As necessary, costs incurred because of equipment failure and/or personnel requirements during recycling operations will be included in the operation cost, and reimbursed to the activity as appropriate.

15. The committee will publish an annual report for the Commander including, but not limited to, quantity and type of materials recycled, revenues generated, and disbursement of funds. This report will be forwarded through channels to DUSD(ES).

16. The committee will oversee the Affirmative Procurement Program in accordance with E.O. 13101 (reference (j)).

RESPONSIBILITIES:

17. The Deputy Director for Support Services shall:

- a. Oversee the (“) Waste Prevention and Qualified Recycling Program (QRP).
- b. Implement programs to monitor and achieve progress toward the (“) goals highlighted in its Pollution Prevention Plan and compliance with E.O. 13101.

18. The Recycling Manager will:

- a. Develop, establish, and maintain the operation of an aggressive QRP.
- b. Maintain Directorate-level attention.
- c. Coordinate, when appropriate, with the Defense Reutilization and Marketing Office (DRMO) for:
 - (1) Assistance in program management and generation of recyclable materials.
 - (2) Technical advice and assistance.
 - (3) Sale of qualifying materials.
- d. Manage the overall (“) recycling program to ensure the continuation and expansion of the QRP, which will guarantee that (“) receives funds from the accumulation and sale of all recyclable materials that normally would be discarded.
- e. Coordinate with Occupational Health, Environmental, and Safety Services on all aspects of environmental protection. Specifics include all matters that affect solid and hazardous waste management, general environmental compliance, and permit compliance and reporting.
- f. Ensure that supporting documentation is kept for three years.
- g. Advise generators of recyclable materials on source segregation, identification, and turn-in of recyclable materials (education).

h. Improve and expand the (“) recycling, source reduction and affirmative procurement programs as appropriate.

19. The Recycling Committee will:

a. Investigate options to purchase and operate alternative-fueled vehicles to reduce the emission of pollutants associated with recycling and maintenance vehicles, as required for non-tactical vehicles by Public Law (P.L.) 102 -486 (reference (k)), E.O. 12844 (reference (l)), and DoD Regulation 4500.36-R (reference (m)).

b. Maintain financial control of the program through strong amounting and information system management procedures.

c. Execute strategies to eliminate reliance on Ozone Depleting Substances (ODS) in accordance with E.O. 12843 (reference (n)).

d. Provide necessary data to the Defense Logistics Agency so as to allow them to manage the DoD ODS Reserve and meet any reporting requirements, including those in DoD 4160.21 -M (reference (o)).

e. Participate in periodic pollution prevention in-progress reviews (IPRs) as required by DUSD (ES).

f. Raise emerging DoD pollution prevention issues through the Defense Environmental Security Council (DESC), the Environment, Safety and Occupational Health Policy Board, or the DESO Pollution Prevention Committee.

g. Ensure that program procedures address recyclable materials, excluded materials, and other QRP materials.

h. Divert recyclable materials from the non-hazardous solid waste stream where economically feasible. Individual types of recyclable materials that make up a substantial percentage of the non-hazardous waste stream should be included in recycling programs unless doing so will make the overall recycling program unprofitable. Recyclable materials do not require informal screening as defined in DoD 4160.21 -M.

i. Sell recyclable and other QRP materials, or consign them to the DRMS for sale.

(1) Implement DoD procedures that ensure U.S. trade security control policies are followed in accordance with DoD Instruction 4160.27 (reference (p)) and DoD 4160.21 -M prior to directly selling firing range expended brass or mixed metals gleaned from firing range cleanup that do not require demilitarization and that are Munitions List Items (MLI) or Strategic List Items (SLI).

(2) Prior to selling directly other recycling program materials, shall implement procedures for reuse screening to consider reuse programs in accordance with E.O. 12873.

(3) Ensure that outside the United States, disposition of recyclable and other QRP materials, derived from goods which have been imported duty-free, is accomplished consistent with the provisions contained in status of forces agreements, surplus or excess property agreements, or other international agreements with host nations.

j. Assist Finance and Accounting in establishing an accounting and control system for recycling programs that provides detailed management and audit information, and tracks expenditures made for appropriate projects and programs. Integrity of the audit will be a priority concern.

k. Ensure that appropriate management controls are in place for recyclable materials that may be hazardous, such as lead-acid batteries.

20. The Office of Finance and Accounting will:

a. Establish and maintain a clearing account for the deposits of proceeds and ensure that all collections are accumulated in this account as received.

b. Ensure that all collection vouchers are issued for funds received in the clearing account and contain complete accounting classification. Copies of collection vouchers shall be provided to the Recycling Manager.

21. Finance and Accounting Fund Manager will:

a. Establish an accounting and control system for recycling programs which provides detailed management and audit information, tracks material quantity handled, calculates sales and handling costs for recycled material, and tracks expenditures made for appropriate projects and MWR programs. Integrity of the audit will be a priority concern.

b. The Recycling Program Manager will prepare and submit an annual budget for review by the Fund Manager and approval by the ("") Recycling Committee. The budget will identify and describe operation expenses and projected revenues.

22. Logistics Services will:

a. Provide the Recycling Manager with official documents of dollar amount of recyclable materials sold by DRMO or contractors for accrual of recyclable income.

b. Provide equipment to support the ("") Recycling program on an as available basis (non-reimbursable) until final purchases can be made.

c. Ensure that principles and procedures as outlined in this Instruction are followed to process all documents and materials cleared for direct turn-in to DRMO or direct sale to contractors for the recycling program.

d. Ensure that items to be disposed of are properly sanitized to ensure that no classified information is compromised.

23. Facilities Services will:

- a. Participate in the necessary aspects of the program to assure a vigorous and accountable recycling program.
- b. Within resource constraints and subject to good engineering practices, provide self-help materials and facility support to the ("") Recycling Program on a non-reimbursable basis.
- c. Provide preventive maintenance and repair of equipment used for recycling materials on a reimbursable basis from the Recycling Fund.
- d. Retain prepotency and responsibility for all aspects of the solid waste management program.
- e. Ensure, where cost effective, that the Corps of Engineers' contracts that provide for contractor operation of a leased facility located within the United States, its territories, or possessions, include provisions that obligate the contractor to participate in a recycling program.
- f. Modify existing contracts covering leased facilities, where cost-effective, to incorporate recycling provisions.

24. Security Services will:

- a. Establish procedures for recycling unclassified sensitive material. This includes manuals, bulletins, regulations, reference books, and all other instructional materials to include those manuals with distribution restrictions.
- b. Maintain appropriate guidance, in writing, concerning the recycling of privacy act material paper products.
- c. Manage spent ammunition brass.

25. Occupation Health, Environmental, and Safety Services will:

- a. Manage all activities of the ("") Recycling Program.
- b. Ensure that appropriate management controls are in place for recyclable materials that may be hazardous, such as lead-acid batteries.
- c. Ensure that appropriate controls are in place for recycling processes.
- d. Perform annual audits of recycling contractors. Forward these audits to the Recycling Committee for review within two weeks of performing the audit.
- e. Chair the Recycling Committee.

f. Research and develop innovative pollution prevention technologies through partnerships with Federal agencies, Government laboratories, and the private sector.

26. The Office of Contracting will provide a non-voting member to the Recycling Committee and provide guidance on contractual issues related to the sale of recyclable items.

27. All (“) organizations, units, and activities will:

a. Support the recycling program by identifying, collecting, separating, and removing contaminants from all recyclable materials, e.g., staples, paper clips, carbon paper, etc.

b. Be responsible for property accountability for items such as recycling containers issued from the Recycling Manager on a hand receipt.

DISTRIBUTION OF PROCEEDS:

28. The proceeds from the sale of recyclable materials will be dispersed according to the following hierarchy:

a. Proceeds shall first be used to cover the costs directly attributable to all (“) recycling programs, including, but not limited to, manpower, facilities, equipment, overhead, and other capital investments,

b. After these costs are recovered, up to 50 percent of the remaining proceeds may be used for pollution abatement, energy conservation, or occupational safety and health projects.

c. In accordance with law, any proceeds remaining from the sale of direct recyclable materials or other qualified recyclable materials may be transferred to the non-appropriated Morale, Welfare and Recreation account for any morale or welfare activity.

29. An accounting and control system shall be established for the (“) recycling program that provides detailed management and audit information, tracks the quantity of material recycled, calculates sales and handling costs for recycled material, and tracks expenditures made for operation and maintenance of recycling program projects, MWR programs, and to the Treasury by line item.

30. Changes in DoD policy after the date of this Policy Paper will be implemented through additional (“) documentation.

EFFECTIVE DATE AND IMPLEMENTATION: This Policy is effective immediately.

References

- a. DoD Directive 4715.4, "Pollution Prevention," June 18, 1996
<http://web7.whs.osd.mil/dodiss/instructions/ins2.html>
- b. Section 2577 of title 10, United States Code
- c. Executive Order 13101, "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition," September 14 1999
http://es.epa.gov/oeca/fedfac/initiati/airfed/95fed_p2.html
- d. Section 6962 of title 42, United States Code
- e. Executive Order 12344, "Naval Nuclear Propulsion Program," February 1, 1982
- f. Section 7158 of title 42, United States Code
http://uscode.house.gov/title_42.htm
- g. Section 2011 of title 42, United States Code
http://uscode.house.gov/title_42.htm
- h. Section 2021 of title 42, United States Code
http://uscode.house.gov/title_42.htm
- i. Sections 1901 -1912 of title 33, United States Code
http://uscode.house.gov/title_33.htm
- j. Executive Order 13101, "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition," September 14, 1998
<http://www.denix.osd.mil/denix/Public/Legislation/EC/note-45.html>
- k. Public Law 102-486, "Energy Policy Act of 1992," October 24, 1992
- l. Executive Order 12844, "Federal Use of Alternative Fueled Vehicles," April 21, 1993
<http://www.gsa.gov/pbs/pt/call-in/eo12844.htm>
- m. DoD 4500.36-R "Management, Acquisition and Use of Motor Vehicles," March 1994
<http://web7.whs.osd.mil/html/450036r.htm>
- n. Executive Order 12843, "Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances," April 23, 1993 <http://eseпа.gov/program/exec/12843.html>
- o. DoD Directive 4160.21 -M, "Defense Marketing and Reutilization Manual," August 1997
<http://web7.whs.osd.mil/dodiss/publications/pub2.htm>
- p. DoD Instruction 4160.27, "Demilitarization of Materiel," December 14, 1988)

APPENDIX 9: OUTLINE OF JOB DUTIES FOR FACILITY RECYCLING COORDINATOR

The Facility Recycling Coordinator (RC) is responsible for planning, implementing, and coordinating comprehensive waste management systems to maximize waste prevention, reuse, and recycling opportunities in accordance with presidential Executive Order 13101 and other applicable Federal, state, and local laws and regulations. The RC plays a central role in planning and administering environmental activities related to waste management. They exercise judgment and broad perspective in applying a thorough knowledge of the principles, concepts, and practices relating to waste management as they concern problems of organizing, planning, funding, and controlling waste minimization and recycling programs.

The work involves extensive practical knowledge gained through experience and/or specific training. RCs carry out tasks, procedures, and/or computations that can be performed by (1) application and adaptation of standardized techniques and methods and (2) use of practical judgment with only an elementary grasp of the basic principles of environmental protection work.

Generally, they perform a variety of functions related to one or more of the following areas:

A. ANALYZING/AUDITING WASTE STREAMS

- Acquire knowledge of facility-specific waste streams
- Identify wastes
- Quantify wastes
- Evaluate waste management options
- Recommend waste management techniques and strategies

B. MANAGING WASTE STREAMS

- Establish goals and objectives
- Plan programs
- Implement programs
- Maintain records
- Evaluate programs

C. MANAGING COLLECTION/PROCESSING SYSTEMS

- Develop a collection and processing strategy
- Research waste management equipment options
- Determine specifications for collection/processing equipment
- Implement a collection and processing system
- Ensure a safe work environment
- Operate and maintain equipment

D. DETERMINING/DEVELOPING MARKETS

- Acquire knowledge of markets and recovered materials
- Investigate marketplace standards for recovered materials
- Seek markets for recovered materials
- Match recovered materials with end users
- Maintain vendor liaison
- Maintain supply and demand statistics

E. ENSURING REGULATORY COMPLIANCE

- Identify applicable regulations, standards, policies
- Interpret regulations, standards, policies
- Propose internal policy and operating guidance
- Comply with E.O. 13101 and applicable regulations (e.g., local, state, Federal)
- Educate employees/public
- Maintain records
- File reports
- Conduct and participate in self -assessments, audits, and inspections
- Implement permitting, investigations, and enforcement/corrective action activities
- Keep current on regulatory environment

F. ADMINISTERING CONTRACTS, GRANTS, AND BUDGETS

- Determine scope of work
- Prepare documentation for contracts, grants, and budgets
- Assess liability
- Negotiate terms
- Monitor for compliance
- Provide reports
- Regularly review contracts, grants, and budgets

G. DEVELOPING PUBLIC RELATIONS AND EDUCATION PROGRAMS

- Assess audience
- Establish media relations
- Develop and conduct surveys and studies
- Develop educational materials for internal and external use
- Inform and educate customer on waste management issues
- Present information (e.g., displays, tours, speeches, trade shows, and schools)
- Facilitate public forums

H. ESTABLISHING PARTNERSHIPS

- Develop and maintain external and internal networks
- Facilitate information exchange
- Coordinate programs among public and private partners
- Provide technical and financial assistance

Participate in local, state, and national organizations
Encourage and participate in mentoring

I. SUPERVISING EMPLOYEES/VOLUNTEERS

Implement management's philosophy
Define goals (e.g., safety, production, and costs)
Assign duties
Conduct training
Provide support and guidance
Resolve conflicts and problems
Maintain records
Evaluate performance

J. PARTICIPATING IN PROFESSIONAL DEVELOPMENT ACTIVITIES

Participate in local, state, and national organizations
Read professional journals
Attend seminars and continuing education courses
Develop leadership skills
Share information in public forums
Publish and present papers at conferences