CHAPTER 3. ANALYZING INSTALLATION SOLID WASTE INFORMATION -- STEP II

3.1 INTRODUCTION. This chapter provides the Solid Waste Manager with a decision making process for evaluating each waste type. Both OPNAV INSTRUCTION 5090.1A and Marine Corps Order P5090.2, which establish the following hierarchy in order of priority for solid waste disposal programs: (1) source reduction, (2) recycling, (3) energy recovery (incineration), (4) composting/mulching (waste treatment), and (5) landfill (contained disposal) as methods for maximizing diversion through integrated solid waste management. Solid waste collection, disposal, and resource recovery programs at each installation must be implemented in the most cost-effective and environmentally acceptable manner. These programs should be designed as total systems that consider relative economic advantages of the latest technology, as well as the potential for resource recovery.

3.2 DATA ANALYSIS AND RECOMMENDATIONS. Types and quantities of solid wastes generated at Navy and Marine Corps installations will vary geographically and seasonally. Military installations often have unique activities that generate wastes not found in ordinary municipal wastes. Furthermore, populations at military installations do not follow a normal growth pattern because the growth is controlled by mission requirements. Consequently, determining the best solid waste diversion method for each waste type would require a thorough knowledge of:

Quantities and characteristics of each waste type

Select the appropriate disposal method based on least cost (factoring in disposal avoidance), while in accordance with local, state, and federal requirements.

Source reduction should be always considered and implemented as a best waste diversion option.

Types of technologies.

Table 3-1 lists all waste types and five waste diversion options in the order of priority. Source reduction option is recommended for all waste types. Depending on the quantity and circumstance, a combination of several options should be implemented to achieve maximized benefits.

3.2.1 Source Reduction. Source reduction is defined as any action that results in a net reduction in the generation of solid waste. It is a strategy that focuses on reducing waste before it enters the waste stream. Source reduction includes reduction in materials use and reuse of existing materials. Source reduction does not include steps taken after the material becomes solid waste or actions that would impact air, water or land.

Table 3-1
Major Waste Types and Recommended Strategies

Waste Types	Hierarchy				
	Source Reduction	Recycling	Incineration	Composting	Landfill
PAPER					
Cardboard	x	x	x	x	x
Mixed Paper	x	x	x	x	x
Newspaper	x	x	x	x	x
High Grade Ledger	x				
Paper	x	x	x	x	x
Non-Recyclable	x		x	x	x
PLASTICS					
High Density					
Polyethylene (HDPE)	x	x			
Polyethylene					
Terephthalate (PETE)	x	x			
Polystyrene	x	x			
Film Plastics	x	x			
Other Plastics	x				
GLASS					
Recyclable (e.g.,					
green, brown, and					
clear)	x	x			
Non-Recyclable (e.g.,					
plate glass)	x				
METALS					
Aluminum Cans	x	x			
Ferrous Metals	x	x			
Non-Ferrous	x	x			
White Goods	x	x			
YARD WASTE					
Yard Wastes	x	x	x	x	x
OTHER ORGANICS					
Organic Compostables	x			x	
Organic Non-					
compostables	x				
Tires and Rubber	x	x	x		
Wood Wastes	x	x	x	x	x
OTHER WASTE					
Inert Solids	x				
Household Hazardous					
Wastes (HHW)	x				
SPECIAL WASTE					
Sewage Sludge	x			x	
Used Oils and					
Solvents	x	x			
Infectious and					
Medical Wastes	x		x		
Sandblast Grit	x	x			

The following outlines the source reduction strategies and identifies the waste types to be targeted under these objectives:

Reduce the use of non-recyclable materials.

Replace disposable materials and products with reusable materials and products.

Reduce product packaging.

Reduce the amount of yard wastes generated, and reduce the amount that enters the waste stream.

Reduce the presence of items in the waste stream that do not meet recycling, or recycled, content goals.

Increase the degree to which waste generators consider durability, reusability, and recyclability as product selection criteria.

Encourage manufacturers to make their products with less materials, less packaging, and increased recycled content.

Increase and facilitate industrial waste exchanges and material substitution programs.

Decrease the amount of materials in the waste stream that inhibit recycling (i.e., photodegradable, biodegradable, and mixed plastics).

Table 3-2 lists the targeted waste types for source reduction.

3.2.2 Recycling. As required by OPNAVINST. 5090.1A and MC Order P5090.2, all Navy and Marine Corps installations shall implement source separation for recycling and develop a single authorized qualified recycling program (QRP). All tenant activities shall participate in the host activity's QRP. Materials for which proceeds can be obtained shall be sold through the host's QRP. An installation recycling program shall be established to:

Protect the environment and prevent the depletion of valuable natural resources.

Reduce the volume of waste disposed in landfills.

Reuse readily available resources.

Avoid excessive costs for disposal of solid waste by other means.

Obtain proceeds from the sale of recyclable material.

Comply with federal, state, and local environmental laws and regulations.

Table 3-2
Targeted Waste Types for Source Reduction

Category	Waste Type(s)	Reasons for Targeting
Paper	Mixed paper, non-recyclable paper	Constitute over 20% of the waste stream, and have weak markets for recycling
Plastic	Mixed plastics	Made from non-renewable resources, difficult to recycle, and have a high volume to weight ratio
Glass	Non-recyclable glass	Contaminates glass in recycling programs
Yard Waste	Yard waste	Easily composted, high diversion rate per dollar spent
Other Organics	Organic compostables (food), organic non-compostables (textiles) and wood (pallets)	Technologies and programs available to increase reduction of materials
Other Waste	Inert solids	Contaminated loads of inert materials inhibit diversion to recycling programs

It is mandated by the Navy and Marine Corps that, at a minimum, the following materials shall be segregated for recycling:

Scrap metal (fired brass, etc.)

High-grade paper

Corrugated containers

Aluminum cans

The following additional materials shall also be considered as recyclable material:

Glass

Plastics

Newspaper from housing areas

Scrap wood

Other waste as markets are found

The waste types and priority for recycling can be determined based on the weight, volume, and hazard of the waste streams and whether or not the material is made from non-renewable resources. Table 3-3 illustrates a hypothetical case for the prioritization of waste types targeted for recycling.

The DOD acknowledges that multiple recycling programs may exist on an installation. Those programs include the commissary, exchange, Industrial Fund and base operations. The former three must participate in the base operations program if they do not have their own independent programs. No matter what the case may be, all programs must report all their data to the QRP manager in regards to recycling.

3.2.2.1 Establishing Qualified Recycling Program. The five main steps to establish a new QRP are:

1. Make Initial Plans. A QRP is established by installation directive or regulation. The commanding officer shall designate a QRP Program Leader who has accountability, authority, and responsibility for the success of the QRP program. The program leader should also form a team to conduct an economic analysis, establish a QRP, and focus on procedures for implementing the QRP.

2. Determine Feasibility. Before a QRP is established, perform a study to:

Identify potentially recyclable materials

Estimate generation rates

Determine if adequate markets exist

Conduct an economic analysis for each material

3. Make the Final Decision. When the economic analysis is completed, the Commander of the installation shall decide whether or not to establish the QRP. Such a decision may be obvious when added costs are less than, or much greater than, the avoided costs and revenue. However, economic considerations should not be the entire driving force behind the decision to implement a QRP. The decision should consider intangible benefits like aesthetics, employee morale, pollution abatement, availability of funds to meet the deficit, and future outlook. In addition, state laws may make recycling mandatory, in which case the state regulations must be complied and the economic analysis has no bearing on the program.

Table 3-3

Prioritization of Waste Types Targeted for Recycling

Waste Type (Recyclable Materials Only)	% by Weight of Waste Generation	Volume	Hazard	Made From Non-Renewable Resources
Yard Wastes	23.8	High	No	No
Newspaper	10.3	High	No	No
Cardboard	7.4	High	No	No
Mixed Paper	6.7	High	No	No
Wood	6.5	High	No	No
Ferrous Metals	5.9	Medium	No	Yes
Glass	5.2	Medium	No	Yes
Inert Materials	4.2	Medium	No	Yes
Film Plastics	1.5	Low	No	Yes
Ledger	1.4	Low	No	No
Nonferrous Metals	0.9	Low	No	Yes
Aluminum	0.9	Low	No	Yes
White Goods	0.7	Medium	No	Yes
Tires/Rubber	0.7	Medium	No	Yes
HDPE	0.4	Low	No	Yes
PETE	0.3	Low	No	Yes
TOTAL*	76.80			

*Total does not equal 100 percent of the waste stream, only those recyclable materials targeted for recycling are listed by priority.

4. Implement the Program. The following steps are necessary to implement a QRP.

Issue an Installation Instruction

Establish a Recycling Planning Board

Procure equipment and construct/designate facilities

Manage proceeds

5. Operate the Program. For a QRP to be officially established, certain requirements must be met. For more information, see "Qualified Recycling Program (QRP) Development Guide, NEESA 5-010A, April 1991."

3.2.3 Incineration. Incineration is a prospective solid waste disposal method that requires further inspection. Incineration technology has evolved from "dirty garbage burners" into "waste to energy" units that generate electricity and possibly steam. Although incineration can reduce the volume of solid waste up to 90 percent, lack of economic viability, environmental issues, and most importantly, strong public opposition have hindered the development of waste to energy as a form of resource recovery.

For the purpose of siting and permitting incinerators, a well informed public can be a powerful ally. NIMBY - NOT IN MY BACKYARD - has become a universal rallying cry of environmental grassroots activist movements around the world. The Coalition for Responsible Waste Incineration (CRWI) has as its number one priority, public education. The goal of CRWI is to actively support the use of high technology incineration as a viable waste management tool.

Navy and Marine Corps waste materials, including trash, rubbish, dunnage, garbage, construction debris, and liquid wastes shall not be burned in open fires, except in permitted situations as determined by health or safety considerations and with the approval of the appropriate local agency, state, and EPA regulatory office.

The number of incinerators at Navy and Marine Corps installations is on the decline due to environmental constraints. With the passage of the Clean Air Act Amendments of 15 November 1990 incineration operations have become even more restrictive.

3.2.4 Composting. In addition to source reduction and recycling, composting is a proven method of reducing solid waste. Composting is a method of waste treatment in which organic solid wastes are biochemically decomposed under controlled aerobic or anaerobic conditions. The objectives of composting programs are to expose solid waste, yard waste, and sewage sludge to this process in order to reduce their volume, neutralize reactivity, and produce usable end- products. This end-product is called compost, which can be used for soil conditioning.

Mulching is an alternative to composting. Mulching is a process where chipped yard waste is spread over the ground to enrich the soil. Composting and mulching are methods of diverting green waste and organic waste from landfill disposal.

Grass clippings, leaves, and other yard waste can either be composted or mulched.

The following examples are recommended as candidates for waste diversion from landfill through composting:

Green waste - Generated by the base grounds maintenance of grass lawns, trees, and landscapes. If it is currently handled by the contractor, the new grounds maintenance contract should specify the contractor be responsible for diverting the debris from landfills. The contractor can either compost the green waste at their own facility or haul it to a landfill with a composting program.

Shredded paper - Shredded paper is not as marketable as mix paper due to the reduced fiber size. An alternative to recycling shredded paper, which just like any other green waste, is to compost it. Composting may take place in centralized facilities, or through backyard composting at the point of generation. Backyard composting is considered to be a source reduction technology, so diversion credit is taken in the Source Reduction Component.

3.2.5 Landfill. Landfilling will continue to be used as a final disposal option for Navy and Marine Corps activities; however, with rising landfilling cost and local government imposed restrictions, landfilling of solid waste has become the least desirable disposal option. Source reduction, recycling, incineration, composting, and other diversion techniques should be evaluated for each solid waste stream before landfilling is considered.

Navy policy recommended Navy and Marine Corps installations should first consider using the local and municipal owned landfill facilities.

Navy- or Marine Corps-owned landfills shall be designed to meet the most stringent of federal, state, or local regulations and shall meet the following minimum criteria:

Avoid constructing major structures on a completed land disposal site.

Evaluate the hydrogeology of the site to provide for the protection of ground water resources.

Construct and grade the land disposal site to promote rapid surface water run-off without excessive erosion.

Ensure the landfill has a double liner with a leachate collection system.

Construct a groundwater monitoring system for the landfill.

Ensure the landfill is equipped with laced monitoring and disposal system in place and operational for a minimum of 30 years after landfill closure.

3.2.6 Special Wastes. Many solid wastes may not be disposed of as normal municipal refuse and require special handling and/or disposal. Check with the installation environmental specialist for information regarding special handling and disposal requirements. RCRA defines a solid waste as "any solid, liquid, semi-solid or contained gaseous material which has served its purpose or has been discarded."

Examples of wastes that may be regulated or require special handling are listed below:

Used oils and solvents

Infectious and medical wastes

Sandblast grit

3.3. ECONOMICS. Solid Waste Management is essentially an environmental program. However, like any other program on a Naval or Marine Corps installation, attention must be given to the most economical methods available to achieve the goals of the program. The point should be made that economic factors should not be the sole consideration in determining how to achieve Solid Waste Minimization Goals.

There are a number of factors that affect the market value of a material. First, the quality of the material must be considered. The quality of a material is generally determined by its homogeneity. The degree of homogeneity is affected largely by how well materials can be segregated.

Second, the marketability of the material. For example, the segregated paper and glasses will have better market price than the mixed paper and glasses. Third, the regional market prices. A DRMO market analysis shall identify which wastes are marketable in any areas. Request from DRMO a determination of local markets for all materials that are being considered for recycling. Information to be obtained from DRMO includes:

Market price

Prognosis of price future

Pickup point changes

Any preparation required, such as baling, special tying, etc.

After receiving the market analysis report and the estimated sales revenue from DRMO, the installation should conduct an economic analysis to determine if a QRP would be cost effective.

3.3.1 Economic Analysis Methodology. Selling recyclable material raises revenue, but it may not always be economical because the costs of operating the program may exceed the revenues generated. Therefore, before any recycling operation is officially approved, an economic analysis should be performed for each material considered for recycling. Recycling of a material is economically feasible if:

Added Costs < [Avoided Costs + Revenue]

It is noted that material segregation and recycling is sometimes mandated by state or local government no matter whether it is economical or not.

3.3.1.1 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.

3.3.1.2 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, versus disposal cost. This may or may not be a significant factor, depending on the material. An example of avoided costs at Navy and Marine Corps facilities are the reductions in tipping fees. Savings can be realized by fewer 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.

3.3.1.3 Revenue. For each recyclable material, estimate annual sales revenue. Use DRMO market survey data for these estimates. Table 3-4 lists estimated resale prices of some selected recyclable materials paid by end users, which are mills, foundries, factories, refiners, plants, etc. Table 3-5 lists the resale prices paid by the processors, which are dealers, brokers, scrap yards, municipal centers, etc.

Table 3-6 provides a worksheet for documenting an economic analysis. A sample economic analysis is shown in Table 3-7.

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. For more information on methods

for performing economic analyses, see NAVFAC Publication P-442, "Economic Analysis Handbook."

3.4 **RECORDKEEPING SYSTEM**. To determine solid waste management requirements each installation shall keep records of solid waste disposed of and materials recycled. Records may be kept in the form of weight tickets, number and size of truckloads delivered, contractor billings, or any other means of accurately determining or establishing solid waste generation. Each installation shall also keep records of quantities recycled on a weight basis, proceeds from the sale of recyclable materials, and avoided costs for disposal.

After an organized QRP has been established, or concurrent with such program development, the installation shall coordinate with the DRMO to determine whether the specific materials to be sold are actually recyclable materials. Recyclable material shall be sold by the DRMO and 100 percent of the proceeds returned to the installation for use. The present Navy and Marine Corps policy requires that most recyclables be sold through the DRMO is being reviewed. Sales of recyclable material through the DRMO generally results in lower revenue and delays in returning sales revenues to the installation. Direct sales of recyclables by the installation as an alternative to DRMO sales is being studied. Until the policy is changed, recyclable materials must be officially sold through DRMO.

Proceeds from the sale of recyclable materials at an installation with a qualifying recycling program shall be deposited to F3875 "Budget Clearing Account (suspense)." The accumulation of funds in F3875 is not affected by fiscal year end, so proceeds acquired during one fiscal year may be carried forward and merged with proceeds of subsequent fiscal years. The proceeds shall be segregated within the account to allow accounting as to the amounts collected and their disposition. The Recycling Planning Commission mentioned in Section 3.2.2.1, number 4, should make all decisions as to the utilization of recycling funds. The Board should be convened to determine the desired and permissible distribution of any portion or all of the funds accrued.

Proceeds shall first be withdrawn from F3875 to cover costs of operations, maintenance, and overhead for processing and handling the recyclable materials (including the cost of any equipment purchased for recycling purposes). Military personnel shall not be reimbursed from the proceeds of this account.

Table 3-4
Resale Prices in $/Ton of Recyclable Materials
Paid by End Users/Mills

Material	Northeast	East Central	South	West Central	West
PAPER					
Newspaper	10-25	5-15	0-25	15-25	17-20
Corrugated	20-30	25-30	35-40	25-40	40-50
Mixed Office	0-5	5-10	5-10	0-10	0-12
Comp. Print Out	195-230	135-180	200-220	n/a	125-200
White Ledger	75-105	100-155	n/a	n/a	45-50
Colored Ledger	25-80	45-60	n/a	n/a	40-50
Magazine Paper	0	0	0	0	0-15
GLASS					
Clear (flint)	43-50	40-50	50	50	40
Brown (amber)	20-25	22-25	50	50	20
Green (emerald)	0-15	0-15	10-20	10	10
PLASTICS					
Clear Loose PET	120-140	120-200	80-100	120-160	120-160
Mixed Color PET	80-120	120-160	n/a	80-100	80-160
Mixed PET & HDPE	80-100	80-100	0-30	0-20	0-40
HDPE (clear milk jugs)	120-200	80-120	120-160	80-140	0-100
HDPE (mixed color)	80	120-140	80	60	60
ALUMINUM					
Used Beverage Can (UBC)	900-920	760-820	800-880	840-880	820-1800

Notes:
1. Reference: Waste Age's "Recycling Times," The Newspaper of Recycling Markets, April 7, 1992.
2. Processors are dealers, brokers, scrap yards, municipal centers, etc.
3. All prices for baled material in dollars per ton, large quantities, relatively free of contamination.

Table 3-5
Resale Prices in $/Ton of Recyclable Materials
Paid by Processors

Material	Northeast	East Central	South	West Central	West
PAPER					
Newspaper	0-5	-15-5	-25	0-10	0-18
Corrugated	5-15	10	20	8-20	35-40
Mixed Office	-40-0	22	0-2	0	-25-0
Computer Print-Out	100	-20-0	60-120	90-100	100-165
White Ledger	30-50	22-50	25-40	20-40	50-90
Colored Ledger	15-20	30-40	10-20	10-15	25-30
Magazine Paper	-60-0	20-25	0	-10	0
GLASS					
Clear (flint)	0-10	0-10	0-10	0-10	0-14
Brown (amber)	0-10	0-10	0-10	0	0-14
Green (emerald)	0	0	0	0	0
ALUMINUM					
Used Beverage Can (UBC)	560-600	520-620	560-600	520-640	540-640

Notes:
1. Reference: Waste Age's "Recycling Times," The Newspaper of Recycling Markets, April 7, 1992.
2. Processors are dealers, brokers, scrap yards, municipal centers, etc.
3. All prices for baled material in dollars per ton, large quantities, relatively free of contamination.

Table 3-6

Worksheet for Determining Waste Sales Economic Analysis

Installation _____ Preparer _____
Location _____ Date _____
Target Recyclable Material _____ Tons-lb-gal/yr _____

ESTIMATED ADDED COSTS

1. Source separation and material preparation

a.	Equipment (amortize over life of equipment)	$_____/yr
b.	Labor	
	(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

a.	Equipment and facilities (amortize over life of equipment or facility)	_____/yr
b.	Labor	
	(1) Procurement (amortize over life of equipment or facility)	_____/yr
	(2) Operations	_____/yr
	(3) Maintenance	_____/yr
c.	Other (materials, supplies)	_____/yr
		Subtotal $_____/yr

3. Program administration

a.	Instructions and operating procedures	_____/yr
b.	Fiscal management	_____/yr
c.	Publicity	_____/yr
		Subtotal $_____/yr

TOTAL ADDED COSTS $____/yr

ESTIMATED AVOIDED COSTS AND REVENUE

1. Savings resulting from reduced volume of waste going to disposal facilities $_____/yr

2. Sales revenue (tons-lb-gal/yr) x ($/ton-lb-gal) $_____/yr

TOTAL AVOIDED COSTS + REVENUE $____/yr

Estimated Return

(Total Avoided Costs + Revenue) - (Total Added Cost) = $____/yr

Table 3-7
Sample Economic Analysis

Installation _____**Example**_____ Preparer ____**John Doe**_____
Location _____**Nowhere**_____ Date _**18 September 1984**_____
Target Recyclable Material _____**IAB Cards**_____ Tons-lb-gal/yr __**200 net tons/yr**_

ESTIMATED ADDED COSTS	
1. Source separation and material preparation	
a. Equipment - none necessary	
b. Labor	
(1) Operations	
(0.2 manyr/yr) ($25,000/manyr)	
(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) Front-end loader ($30,000) (1 day/wk)/20 yr	$ 300/yr
(3) Warehouse (1300 ft^2) ($25.10/$ft^2$)/20 yr	$ 1,631.5/yr
b. Labor	
(1) Procurement (0.2 manyr) ($25,000/manyr)	
(1.12-overhead)/20 yr	$ 280/yr
(2) Operations (1 manday/wk) ($25,000/manyr)	
(1.12-overhead)	$ 5,600/yr
(3) Maintenance (0.1 manyr) ($25,000/manyr)	
(1.12-overhead)	$ 2,800/yr
c. Other (pallets, shelves, fuel)	$ 2,000/yr
Subtotal	$12,861.5/yr
3. Program administration	
a. Instructions and operating procedures	
(0.1 manyr/yr) ($25,000/manyr) (1.12)	$ 2,800/yr
b. Fiscal management	
25,000/manyr) (1.12)	$ 1,400/yr
c. Publicity (0.05 manyr/yr) ($25,000/manyr) (1.12)	$ 1,400/yr
Subtotal	$ 5,600/yr
TOTAL ADDED COSTS	$25,061.5/yr
ESTIMATED AVOIDED COSTS AND REVENUE	
1. Tipping Fee Savings ($10/ton) (200 tons/yr)	$ 2,000/yr
2. Sales revenue (200 net tons/yr) x ($180/net ton) =	$36,000/yr
TOTAL AVOIDED COSTS + REVENUE	$38,000/yr
ESTIMATED RETURN	
Estimated Return = $38,000/yr - $25,061.5/yr =	$12,938.5/yr

If a balance remains for a non-DBOF (non-NIF) activity, not more than 50 percent of that balance may be used at the installation for projects regarding pollution abatement, energy conservation, and occupational safety and health activities. Not more than 50 percent of a minor construction project shall be paid for with proceeds from recyclable materials sales. Any remaining balance may be transferred to one or more of the local non-appropriated funding instruments supporting morale, welfare, and recreation (MWR) activities of the installation.

If the balance of an installation's proceeds remaining in F3875 exceeds $2,000,000 at the end of a fiscal year, the amount in excess of $2,000,000 shall be deposited into the U.S. Treasury as miscellaneous receipts. Further guidance on the disbursement and use of recycling funds may be found in Public Law 97-214. The reader is encouraged to consult this document if any questions arise.

3.5 SOLID WASTE ANNUAL REPORT (SWAR). The Solid Waste Annual Report (SWAR) requires solid waste information be collected and reported to NEESA each year per OPNAVINST 5090.1A and MCO P5090.2. The FY92 SWAR form appears as appendix G to illustrate the solid waste information that must be collected.

3.5.1 SWAR Guide. A guide to assist shore activity personnel in collecting and filling out the required solid waste information is available from NEESA Document Center. Call DSN 551-2629 and ask for the SWAR guide or give the NEESA document number. The current guide is FY92 Solid Waste Annual Report (SWAR) Guide, NEESA 5.0-001B of September 1992. The Guide is updated each year. The guide is mailed each summer to solid waste managers on the SWAR mailing list. The installation SWAR is divided into six sections:

Section 1, Basic Installation Information
Section 2, Solid Waste Recycling
Section 3, Solid Waste Collection/Transportation
Section 4, Disposal of Installation Solid Wastes
Section 5, Installation Landfill Operations
Section 6, Comments/Related Information

3.5.2 Environmental Media Information Solid Waste System (EMI SW) software. NEESA developed a software system to collect solid waste information and produce the SWAR. It requires a "286" or better computer and hard disk drive. The Environmental Media Information Solid Waste System (EMI SW) software and user guide is available from NEESA Document Center number listed above. The EMI SW system has several features useful for solid waste managers such as tracking solid waste disposal and recycling supported with reports and graphics. Using the EMI SW throughout the year will simplify the task of producing the SWAR. No forms have to be filled out. At the end of the year the SWAR is downloaded to a floppy disk which is mailed to NEESA for processing.

The SWAR Guide and the EMI SW System is updated annually and mailed to the NEESA SWAR mailing list.