

FINAL

**INTEGRATED SOLID WASTE MANAGEMENT PLAN
FORT GEORGE G. MEADE, MARYLAND**

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1 INTRODUCTION

Increasingly limited solid Waste infrastructure and increased public concern over solid waste problems are placing increased emphasis on solid waste management issues at U.S. Department of Defense (DOD) facilities. The Department of the Army (DA) recognizes the importance of these requirements to overall mission success and has evaluated its solid waste management practices looking for opportunities to reduce the amount of solid waste being generated. The DA's evaluation resulted in an increased emphasis on source reduction, reuse, recycling, composting, and waste-to-energy conversion as alternatives to solid waste disposal. In addition, the DA is strongly encouraging implementing resource recovery programs and the procurement of products with recovered and recycled materials.

DA facility-specific solid waste management data are a key component in county solid waste management planning, which necessitates a comprehensive and accurate assessment of installation solid waste generation. Army Regulations (AR) AR 420-49 and AR 200-1 require that each DA installation develop and implement an installation Integrated Solid Waste Management Plan (ISWMP). The ISWMP documents current waste management practices; evaluates current and future needs based on installation mission size, and economic and environmental considerations; identifies required resources; and outlines a strategy to implement the selected program options. The ISWMP is reviewed and updated every two years in coordination with county requirements for biennial updates to county ISWMPs.

The "integrated" aspect of Integrated Solid Waste Management (ISWM) reflects the U.S. Environmental Protection Agency's (EPA's) pollution prevention (P2) hierarchy, which includes (in order of preference) source reduction, recycling, treatment, and disposal. To fully integrate the waste management system, purchasing of recycled content products, or Affirmative Procurement, is also needed to stimulate markets for recycled goods. Therefore, the ISWMP addresses, in some way, all of these ISWM components by

- (1) Defining source reduction measures that may be used to reduce the waste stream;
- (2) Defining the various elements of the waste stream and identifying the avenues of reuse, recycling or disposal for each;
- (3) Closing the circle on recycling by incorporating Affirmative Procurement into contracting and purchasing;
- (4) Documenting correct procedures for all aspects of solid waste management including storage, collection, segregation, transportation, treatment, recycling, and disposal; and
- (5) Assigning responsibilities and tasks to installation personnel for the effective execution of the solid waste programs.

This ISWMP differs in structure and content from previous plans. It was developed based on new U.S. Army Center for Health Promotion and Preventative Medicine (USACHPPMs) guidance entitled "TG 197 Guide for Developing Integrated Solid Waste Management Plans at Army Installations." TG 197, published in December 1999, is also specified for use by the Army Corps of Engineers (USACE) for developing Army ISWMPs.

2 APPLICABLE REGULATIONS AND REFERENCES

Applicable laws, regulations, and published guidance are listed and described in this section. Though federal legislation has established national solid waste policy, states have the lead for policy implementation, the right to issue more restrictive regulations, and the power of enforcement. State and local requirements are often the most stringent and dominating factors affecting an installation's solid waste management program. All such applicable requirements applicable to the Fort Meade ISWM program are discussed below.

2.1 Resource Conservation and Recovery Act

In 1965 the Solid Waste Disposal Act [Public Law (Pub. L.) 89-72] was enacted to improve solid waste disposal methods. It was amended in 1970 by the Resource Recovery Act (Pub. L. 91-512), which provided the EPA with funding for resource recovery programs. In 1976 Congress enacted the Resource Conservation and Recovery Act (RCRA, Pub. L. 94-580). RCRA established a system for managing non-hazardous and hazardous solid wastes in an environmentally sound manner.

RCRA defines a solid waste as:

“. . . any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial or mining and agricultural operations, and from community activities . . . [excluding] . . . solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows, or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act . . . , or source, special nuclear, or byproduct material as defined by the Atomic Energy Act [AEA] of 1954 [Section 1004(27)].”

Subtitle D of RCRA is titled “State or Regional Solid Waste Plans” and is implemented at 40 CFR 257 and 258 described below:

- 40 CFR 257 focuses on state and local governments as the primary planning, regulating, and implementing entities for the management of non-hazardous solid waste (e.g., household and non-hazardous industrial wastes).
- 40 CFR 258 establishes minimum national criteria for all municipal solid waste landfill (SWLF) units. It also addresses location restrictions (Subpart B), Operating Criteria (Subpart C), Design Criteria (Subpart D), Ground-Water Monitoring and Corrective Action (Subpart E), and Closure and Post-Closure Care (Subpart F) for municipal solid waste landfills.

EPA has delegated RCRA implementation authority to the state of Maryland, because the state meets requirements, for implementing RCRA. Currently, the state of Maryland, and local governments have the basic responsibility for promulgating regulations related to the management of Subtitle D wastes. State governments are encouraged to promote increased use of product separation, source reduction, recycling, and composting to reduce the volume of solid waste requiring disposal.

RCRA introduced and encouraged the practices of waste minimization through source reduction, Affirmative Procurement (use of recovered materials), recycling, and conversion of waste to energy. RCRA Section 6002 specifically requires the federal government to promote standards and practices for the procurement of recycled and recovered materials. RCRA was codified in Title 40, Code of CFR Parts 240-272. Pertinent sections are listed below:

- Part 240: Guidelines for the Thermal Processing of Solid Wastes - contains guidance for the operation of solid waste incinerators and thermal processing units.
- Part 241: Guidelines for the Land Disposal of Solid Wastes - contains guidance applicable to solid waste land disposal facilities.
- Part 243: Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste - establishes requirements and recommended practices for the storage, collection and management of solid waste, and for the operation of vehicles used in the collection, transport, and handling of waste.
- Part 246: Source Separation for Materials Recovery Guidelines - contains recycling requirements for the recovery of paper, corrugated containers, and other consumer goods.
- Part 247: Guidelines for Procurement of Products that Contain Recycled Material - contains guidance regarding "buy recycled" practices that will stimulate the recovered materials market.
- Part 257: Criteria for Classification of Solid Waste Disposal Facilities and Practices - contains guidance for determining whether disposal facilities meet minimum standards to protect human health and the environment.
- Part 258: Criteria for Municipal Solid Waste Landfills - establishes criteria and requirements for operating a municipal solid waste landfill, and includes location restrictions, operating criteria, design criteria, ground-water and explosive gases monitoring, and closure and post-closure requirements.
- Part 261: Identification and Listing of Hazardous Waste - contains the RCRA definition of a solid waste and lists the criteria for characterizing a waste as hazardous.

2.2 Federal Facility Compliance Act

The Federal Facility Compliance Act (FFCA, Pub. L. 102-386) was enacted on October 6, 1992, and, with the waiver of sovereign immunity, EPA can now impose fines and penalties on federal agencies.

Under section 102, The FFCA amends section 6001 of RCRA to specify that federal facilities are subject to *"all civil and administrative penalties and fines, regardless of whether such penalties or fines are punitive or coercive in nature."* These penalties and fines can be levied by EPA or by authorized states. In addition, the FFCA states that *"the United States hereby expressly waives any immunity otherwise applicable to the United States."* It should be noted that federal agents, employees, and officers are not liable for civil penalties, however, they are subject to criminal sanctions. No departments, agencies, or instrumentalities are subject to criminal sanctions. Section 104 (1) and (2) require EPA to conduct annual RCRA inspections of all federal facilities. As part of the first inspection conducted under this authority, EPA is required to *"conduct a comprehensive groundwater monitoring evaluation,"* unless such an evaluation was conducted in the preceding 12 months. Authorized states are also given authority to conduct inspection of federal facilities for the purpose of enforcing compliance with the state hazardous waste program [section 104(3)].

Under section 104(4), the federal agency is required to reimburse EPA for reasonable service charges associated with conducting the inspections of its facilities. States are allowed to recover the costs of inspections under the authority granted in section 102(3). It should be noted that on an annual basis, EPA negotiates Interagency Agreements (IAGs) with other federal agencies, including DOD, for

reimbursement for these costs. Once the IAGs are executed and processed, only a few basic steps must be followed to use and track these funds appropriately.

2.3 Pollution Prevention Act

The Pollution Prevention Act (PPA Pub. L. 101-508, November 5, 1990) established a national policy to prevent or reduce waste generation through source reduction, reuse, recycling, and treatment. It introduced the pollution prevention hierarchy of waste management options (Figure 2.1) that is the cornerstone of integrated solid waste management.

2.4 Federal Property and Administrative Services Act

The Federal Property and Administrative Services Act (FPAS Pub. L. 152) regulates the distribution of proceeds from the sale of recyclable materials on federal facilities.

2.5 Disposal Regulations

10 U.S. Code 2577, "Disposal of Recyclable Materials." contains requirements for the distribution of proceeds generated from installation recycling programs.

2.6 Military Construction Codification Act

Military Construction Codification Act of 1982 (Pub. L. 97-214) was the basis for 10 U.S. Code 2577, and contains a provision allowing net proceeds generated from the sale of Qualifying Recycling Program (QRP) recyclables to be used by installations for certain purposes.

2.7 Executive Orders

Executive Order (EO) 13101 (September 14, 1998), "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition." This EO requires federal agencies to incorporate waste prevention and recycling into daily operations and to increase the use of recovered materials by Environmentally Preferable Purchasing (EPP) and by following published Affirmative Procurement guidelines. EO 13101 Revoked EO 12873, "Federal Acquisition, Recycling, and Waste Prevention," as amended by EO12995, Amendment to EO No. 12873. EO 12873 revoked EO

Figure 2.1 goes here

12780 (October 31, 1991), “Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy.”

EO 13148 (April, 26, 2000), “Greening the Government Through Leadership in Environmental Management.” This EO designates that each federal agency be responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency decision making and long-term planning. Goals set for federal agencies cover areas of environmental management, environmental compliance, right-to-know and pollution prevention, release reduction, use reduction, reduction in ozone-depleting substances, and environmentally and economically beneficial landscaping. EO 13148 revoked EO 12856 (August 3, 1993), “Federal Compliance With Right-To-Know Laws and Pollution Prevention Requirements,” which mandated federal facility compliance with the Pollution Prevention Act.

2.8 Affirmative Procurement Notices and Guidelines

Federal Register Volume 60, Number 21386, "Recovered Materials Advisory Notice" (RMAN) and "Comprehensive Guideline for the Procurement of Products Containing Recovered Materials," (CPG) I May 1995. The CPG identifies 19 items (in addition to the original five designated items) that should contain recycled material and recommends recycled content percentages for each item. The RMAN provides guidance on purchasing the designated products.

Federal Register Volume 62, Number 219, "Recovered Materials Advisory Notice II" and "Comprehensive Guideline for the Procurement of Products Containing Recovered Materials," 13 November 1997. The CPG identified 12 more items (in addition to the 24 previously designated items) that should contain recycled material and recommended recycled content percentages for each item. The RMAN II provides guidance on purchasing the newly designated products.

Federal Register Volume 63, Number 165, "Recovered Materials Advisory Notice III" and "Comprehensive Guideline for the Procurement of Products Containing Recovered Materials; Proposed Rule," (August 26, 1998). The CPG proposes the addition of 19 additional items and the RMAN III provides purchasing guidance.

Federal Register Volume 65, Number 12, “Comprehensive Guideline for Procurement III (CPG III) for procurement of Products Containing Recovered Materials” (January 19, 2000). The CPG proposes the addition of 18 additional items.

Federal Register Volume 65, Number 12, “Recovered Materials Advisory Notices III” (RMANs III)” (January 19, 2000). The RAMAN provides purchasing guidance.

2.9 State of Maryland Regulations

The Code of Maryland Regulations, COMAR 26.03.02 [Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland], requires that each county maintain a current, comprehensive solid waste plan that covers at least the succeeding 10 year period. The county plan includes all or part of the subsidiary plans of the towns, municipal corporations, sanitary districts, privately owned facilities, and local, state, and federal agencies having existing, planned or programmed development within the county to the extent that these inclusions promote public health, safety, and welfare. As such the Fort Meade ISWMP becomes part of the county plan and is incorporated by reference.

In accordance with the FFCA, additional state requirements may apply for managing specific waste categories. These include:

- Maryland Used Oil Recycling Act (Annotated Code of Maryland, Environment §5-1001)
- Scrap Tire Recycling Act (Annotated Code of Maryland, Environment §9-228)
- Asbestos Containing Material regulated under COMAR 26.13.11 – 13
- Sewage Sludge Utilization (Annotated code of Maryland Environment §9-230 – 9-249)
- Natural Wood Waste Recycling Facilities Act (Annotated code of Maryland, Environment §9-1708)

2.10 DOD/DA Instructions, Regulations, and Technical Bulletins

This ISWMP has been prepared in accordance with several DOD and DA regulations, guidelines, policies and approvals, in addition to those at the federal, state, and local levels. The key DOD/DA policy elements consist of those discussed below.

AR 200-1 “Environmental Protection and Enhancement,”— February 21, 1997. Chapter 5 of AR 200-1 defines DA policy for managing hazardous and solid wastes. It references related DA solid waste policy guidance in Assistant Chief of Staff for Installation Management reference memorandum (3/14/95), DAIM-FDF-U: “Interim Guidance on Solid Waste Management” – AR 420-47 (Draft). However, the DA solid waste policy guidance is superceded by AR 420-49 (effective date 4/28/97), which consolidates several ARs. The goals of the Army’s hazardous and solid waste management programs are to protect public health and the environment by minimizing generation of hazardous and solid wastes, developing cost-effective waste management practices, saving energy, and conserving natural resources. The regulatory basis for this Army regulation is found in 40 CFR 261 and applicable state and local, regulations.

Major program requirements for solid waste management include:

- Use of ISWM practices and techniques documented in the facility ISWMP
- Compliance with federal, state, and local environmental regulations related to solid waste management
- Solid waste services will be obtained, where possible, from municipal, regional, cooperative, or private utility systems.
- RCRA permitted Army-owned landfills will meet the criteria of a “Municipal Solid Waste Landfill” as defined by 40 CFR 258 or state approved programs.
- Feasibility analyses for new solid waste projects will include an assessment of environmental risks and compliance cost
- Privatization initiatives will be approved by Headquarters DA (HQDA)
- Army-owned landfills will not be operated as municipal or regional landfills
- Cooperation with local community recycling programs is encouraged

- Installations are encouraged to consider the use of the direct sales authority for recyclables provided for in current DA policy.
- Recycling programs will be operated in conformance to state and local regulations pursuant to AR 420-49.

AR 420-49, Utility Services, 28 April 1997. AR 420-49, Facilities Engineering Utility Services (effective date 4/28/1997), which supersedes AR 420-47, Solid and Hazardous Waste Management. This AR establishes policy and criteria for the operation, maintenance, repair, and construction of facilities and systems for efficient and economical solid (non-hazardous) waste management.

AR 420-49 establishes the DA's commitment to ISWM planning to minimize the solid waste stream through source reduction, reducing the volume of the waste stream, requiring disposal through re-use and recycling, and finally disposing of solid waste through the effective combination of composting, incineration, or landfill treatment. AR 420-49 establishes that an ISWMP will be the tool for documenting the planning process.

Various stipulations of this regulation encourage establishing or expanding programs for source separation, resource recovery, and recycling. The regulation emphasizes the importance of waste reduction, pollution prevention, and resource conservation. It also identifies financial incentives for such programs, including those associated with energy recovery and the sale of recycled materials.

AR 420-49 requires feasibility analyses before initiating waste reduction programs that depend on the market for energy or recovered materials. This regulation states that recycling can be implemented alone or in conjunction with a local or regional recycling program operated by the civilian community. AR 420-49 also specifies the responsibilities of the installation commander and other personnel in planning and administering the ISWM program.

As part of the ISWM program, installations may establish recycling programs, which in addition to reducing solid waste disposal volumes, may provide income or cost savings to the installation. One hundred percent of the proceeds from sales of recyclable materials is returned to the installation if it has a Qualified Recycling Program (QRP). After program operating costs have been recovered, remaining proceeds are available to finance projects or pollution abatement, energy conservation, and occupational safety and health activities, as well as morale, welfare and recreation programs.

ARs 200-1 and 420-49 define the interrelationships between DA environmental and solid waste management policy. Standard Operating Procedures (SOPs) must comply with these policies.

DAIM-FDF-UE (AR 420-49), "Guidelines for Construction and Demolition Waste Management." These guidelines are for the development and implementation of programs to effectively manage solid waste generated during Construction and Demolition (C&D) activities. They are intended to minimize the amount of non-hazardous solid waste disposed through landfilling or incineration and to promote more efficient use of new construction materials.

DA PAM 200-1, "Environmental Protection and Enhancement," – August 23, 1999, establishes that installation solid waste management programs will be conducted in accordance with AR 200-1 and AR 420-49 (see above). DA PAM 200-1 also provides a list of guidance documents that outline the technical and procedural requirements for the solid waste management program.

PWTB 420-47-03, "Integrated Solid Waste Management" – May 03, 1993, Use of USACHPPM "Guide for Developing ISWM Plans at Army Installations, TG 197" (10/1993 updated 12/1999).

Assistant Chief of Staff for Installation Management (DAIM-FDF-E) Memorandum, June 22, 1998, Fielding of Solid Waste Annual Report (SWAR) Software.

Assistant Chief of Staff for Installation Management (DAIM-FD) Memorandum, January 11, 1999, Implementation of Solid Waste Annual Report (SWAR) - Update.

Assistant Chief of Staff for Installation Management (DAIM-FDF-E) Memorandum, undated (draft), "Interim Policy for Management of Construction and Demolition Waste."

DOD Instruction (DODI) 4715.4, Pollution Prevention, June 18, 1996. This DODI establishes a requirement for installation QRPs, calls for Affirmative Procurement, and authorizes direct sales of recyclables.

Memorandum, Office of the Under Secretary of Defense, May 13, 1998, "New DOD Pollution Prevention Measure of Merit". DOD issued this policy that sets forth a new Measure of Merit (MOM) as follows: *"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."*

DOD Instruction No. 7310.1, July 10, 1989; Revised: July 26, 1993, "Disposition of Proceeds from DOD Sales of Surplus Personal Property". This DOD Instruction provides instructions on the collection and disposition of cash and cash equivalents received by DOD Components for the DOD sale of surplus personal property.

2.11 Additional Sources of Information

- Decision-Maker's Guide to Solid Waste Management, Second Edition, EPA 530-R-95-023, August 1995.
- Characterization of Municipal Solid Waste in the United States: 1997 Update, EPA 530-R-98-007, May 1998.
- Measuring Recycling - A Guide for State and Local Governments, EPA 530-R-97-011, September 1997.
- The Consumer's Handbook for Reducing Solid Waste, EPA 530-K-96-003, September 1996.
- Installation Recycling Guide, U.S. Army Engineering and Housing Support Center, TN 420-47-02, 1 September 1991.
- Analysis of U.S. Army Solid Waste Management Policy, Army Environmental Policy Institute, July 1992.
- ISWM, U.S. Army Engineering and Housing Support Center, PWB 420-47-03, 3 May 1993.
- Supply Catalogue, U.S. General Services Administration, Federal Supply Service, Spring 1997.
- Environmental Products Guide, U.S. General Services Administration, Federal Supply Service, Spring 1998.
- Environmental Products, Defense Logistics Agency (DLA), December 1996.

- U.S. EPA Office of Solid Waste – provides guidance and information on a variety of solid waste topics. <<http://www.epa.gov/osw/>>
- U.S. EPA Environmentally Preferable Purchasing – the Office of Pollution Prevention and Toxics guidance on green purchasing. <<http://www.epa.gov/opptintr/epp/>>
- U.S. EPA Comprehensive Procurement Guidelines - contains CPGs and RMANs as well as product information and supplier lists. <http://www.epa.gov/epaoswer/nonhw/procure/index.htm>
- U.S. EPA publications list for landfills – assortment of EPA documents on the subject of municipal solid waste landfills. <<http://www.epa.gov/epaoswer/non-hw/muncpl/landfill.htm>>
- Enviro\$en\$e - part of the EPA's web site, it provides a single repository for pollution prevention, compliance assurance, and enforcement information and data bases. The search engine searches multiple web sites, both inside and outside the EPA. <<http://es.epa.gov/>>
- Defense Environmental Network Information Exchange – the DOD's comprehensive environmental network provides access to legislative, compliance, restoration, cleanup, and DOD guidance and information. <<http://www.denix.osd.mil/>>
- Office of the Federal Environmental Executive – provides direction and policies for the national challenges of source reduction and recycling. <<http://www.ofee.gov/>>
- Code of Federal Regulations – online access and search of the CFR to provide the public with enhanced access to codified regulations. <<http://www.access.gpo.gov/nara/cfr/index.html>>
- Solid Waste Association of North America – an educational association and advocacy group for solid waste professionals in the public and private sector. <<http://www.swana.org/>>
- Waste Prevention World – part of the California Integrated Waste Management Board, this focuses on source reduction. <<http://www.ciwmb.ca.gov/WPW/>>
- National Recycling Coalition – dedicated to increasing awareness of recycling and relaying the positive impact of recycling. <<http://www.nrc-recycle.org/>>
- Global Recycling Network – a business-oriented free-access site dedicated to recycling information. <<http://grn.com/grn/home.htm>>

3 PURPOSE

The purpose of the ISWMP is to:

- Define and document Fort Meade's current solid waste management program
- Establish goals for improving solid waste management through the practices of source reduction and Affirmative Procurement
- Specify strategies and responsibilities for achieving solid waste management goals
- Meet regulatory and DA requirements for implementation of the Fort Meade ISWM program and the development of the associated ISWMP such that the program is conducted in a manner that is protective of public health and the environment.

4 PROGRAM OBJECTIVES

Major program objectives are established to meet the solid waste management needs of Fort Meade while maintaining compliance with federal, state, and local regulations and DA policies. These objectives include:

- Effectively manage solid waste in a manner that protects human health and the environment
-
- Comply with applicable federal, state, local, and DA solid waste management regulations and policies
-
- Reduce the volume of solid waste generated to meet or surpass state, DOD, and DA waste reduction goals
-
- Reuse or recycle elements of the solid waste stream to the maximum extent possible
-
- Following Affirmative Procurement guidelines and maximize environmentally preferable purchasing.

5 BACKGROUND INFORMATION

Fort George G. Meade became an Army installation in 1917. The installation was one of 16 cantonments constructed for troops drafted during World War I. Fort Meade served as a limited training center during WWI, expanding to over 200 units during WWII. Post-WWII crises in Korea, West Berlin, Cuba, Vietnam, and more recently, Saudi Arabia also initiated military activity at the post. Presently, Fort Meade serves as an administrative post providing support and services for 24 tenant organizations.

5.1 Location

Fort Meade is located midway between the cities of Baltimore and Washington D.C. in Anne Arundel County and Howard County, Maryland (Figure 5.1). The facility occupies an area of approximately 5,415 acres. It lies approximately four miles east of Interstate 95 and one-half mile east of the Baltimore-Washington Parkway, between Maryland state routes 175 and 198.

Due to the population density in the Baltimore/Washington D.C. metroplex, Fort Meade is in close proximity to ~40 SW and rubble landfills (Table 5.1) that can provide SW disposal options for the installation. Note that in Table 5.1 the Annapolis Transfer Station, the solid waste deposit point for Fort Meade solid waste, is referred to by its previous name – Garnet of Maryland PF&TS.

5.2 Land Use

At Fort Meade there is an exchange mall, bank, credit union, post office, medical center, riding stable, medal of honor library, two museums, two 18-hole golf courses, modern fitness centers, plus many other facilities. Fort Meade is also home to the National Security Agency (NSA), Army Intelligence and Security Command, the Defense Courier Service, the U.S. Army Field Band, the U.S. Army Intelligence and Security Command, First U.S. Army (East), the Naval Security Group Activity, the 694th Intelligence Group (U.S. Air Force) and the U.S. Environmental Protection Agency Center. Fort Meade, a “*Community of Excellence*”, is dedicated to providing support to service members and their families, retirees and their families, and DOD civilian employees.

Within the facility boundaries, Fort Meade has 65.5 miles of paved roads and 3.2 miles of secondary roadways. There are 1,503 buildings on the post comprising 8,515,414 ft² of building space. 1,306 buildings are permanent structures, 187 buildings are temporary, and 10 buildings are semi-permanent. Of this total, 926 buildings are family housing units.

5.3 Mission

The current mission of Fort Meade is to provide base operations support to facilities and infrastructure, quality of life, and protective services in support of DOD activities and federal agencies.

Figure 5.1

Table 5.1 Regional Solid Waste and Rubble Landfills (Note: Annapolis Junction Transfer Station is listed under its old name, Garnet of Maryland PF&TS)

MARYLAND DEPARTMENT OF THE ENVIRONMENT									
Solid Waste Program									
78 Permitted Solid Waste Acceptance Facilities - Authority: Environment Article 9-204									
01/03/2001									
COUNTY/ CITY	EPSC NO.	FACILITY NAME	WASTE TYPE	OWNER TYPE	MD. GRID EIN	PERMIT NUMBER	EXPIRATION DATE	FILL/SITE ACREAGE	COMMENTS
DORCHESTER	2794	Beulah Municipal Landfill (HE)	WMF	CTY	1115/307	1999-WMF-0544	06/01/2004	40/290	Lined.
FREDERICK	2157	Eastlco Industrial Waste Landfill	WIF	PRI	650/535	1998-WIF-0537	10/29/2003	1177/1000+	Lined. Accepts industrial waste from EASTALCO only
	1348	Fort Detrick Municipal Landfill	WMF	FED	672/583	2000-WMF-0327	05/04/2005	61/297	Lined. Fort Detrick Area B
	3190	Fort Detrick	WV	FED	678/582	2000-WV-0341	06/25/2005	<1/1	Fort Detrick Area A, East off Beasley Dr.
	2861	Site B Municipal Landfill	WMF	CTY	702/581	2000-WMF-0307	03/09/2005	55/184	Lined. Accepts rubble in a separate cell. 97-DP-3210
GARRETT	5026	Garrett Co. SWDLRF	WMF	CTY	116/804	1995-WMF-0094	03/12/2001	30/183	Accepts rubble in separate cells A&B. 95-DP-2770
HARFORD	5745	Gravel Hill Rubble Landfill	WRF	PRI	1027/631	1998-WRF-0517	06/15/2002	35/55.41	Not yet operating. 92-DP-2926
	2799	Harford W.D.C Municipal LF	WMF	CTY	1000/850	2000-WMF-0098	08/03/2005	60/259	Lined. Located east of Scarboro Road, South of MD Rt. 440
	5742	Harford Co. W.T.E Facility	WTE	PRI	994/573	2000-WM-0100	07/16/2005	<1/22	Produces steam for APG
	5744	MRI/CD Medical Waste Incinerator	WMI	FED	1002/589	1995-WMF-0547	10/05/2003	<1/1000+	Medical Waste Incinerator at APG
	2802	Oak Avenue Rubble Landfill	WRF	PRI	982/580	1999-WRF-01040	12/22/2004	39/42.8	GWD Permit is under review by MDE
	5743	Phillips Army Airfield RLF	WRF	FED	1000/571	1998-WRF-0555	07/01/2001	13.6/1000+	95-DP-3049
	2804	Wheatwood Rubble Landfill	WRF	FED	1000/555	1999-WRF-0108	07/01/2001	27/1000+	92-DP-2567
HOWARD	2805	Alpha Ridge Municipal Landfill	WMF	CTY	823/539	2000-WMF-1100	08/03/2005	195/590	Lined.
KENT	2806	DuIn Rubble Landfill	WRF	CTY	1038/498	1999-WRF-0204	07/01/2001	4.5/5	
MONTGOMERY	2808	MCRRF	WTE	CTY	671/501	1998-WTE-0538	04/22/2003	<1/35	Northeast Maryland Waste Disposal Authority (co-permittee)
	5562	Montgomery Co. Site 2 MLF	WMF	CTY	680/490	1990-WMF-0237	04/14/2003	125/850	Stopped accepting waste
	2809	Shady Grove TS	WTS	CTY	845/485	1996-WTS-03284	05/10/2001	<1/43	
PRINCE GEORGE	2812	Brandywine/Cross Roads Trial RLF	WRF	PRI	855/320	1996-WRF-0515	03/30/2002	169/177	94-DP-2052
	2813	Brown Station Road Landfill B	WMF	CTY	865/365	2000-WMF-0124	10/01/2005	120/280	Lined
	5419	Dower House PF	WPF	PRI	843/355	1999-WPF-0563	07/05/2004	10.0/10.0	Operated by MES
	2815	Ritchie Land Rubble Landfill	WRF	PRI	848/372	1994-WRF-01260	10/24/1999	79/258	Renewal Application is under review by MDE. 91-DP-2297
	3011	Sheriff Road PF&TS	WPT	PRI	826/391	1993-WPT-0218	09/14/2002	<1/2	
	2816	Sandy Hill Municipal Landfill	WMF	CTY	853/432	1992-WMF-0128	04/30/2002	150/217	Unlined. Ceased accepting waste on 6/23/2000
QUEEN ANNE	2817	Baker Rubble Landfill	WRF	PRI	1046/429	1997-WRF-0520	09/30/2002	12/18.5	Unlined. 97-DP-2979
	2817	Baker Rubble Landfill (HE)	WRF	PRI	1046/429	1994-WRF-0132	05/17/2004	13/18.5	Lined Rubble Cells
ST. MARY'S	2818	Knott Land Clearing Landfill	WLC	PRI	949/140	1996-WLC-0134	04/04/2001	4.29/55	Unlined. Accepts rubble in a separate cell. 95-DP-3266 Valid thru 2003.
	2819	Saint Andrews Municipal Landfill	WMF	CTY	934/167	1993-WSP-01380	10/04/2000	40/115	Ceased accepting waste in March 1998. New cells will be lined.
SOMERSET	2821	Falmount Rd Municipal Landfill	WMF	CTY	1158/154	1999-WMF-0268	09/12/2004	33/62	Lined. Started operation on 1/5/1998
	3467	Smith Island Incinerator	WV	CTY	1076/057	2000-WV-0140	08/22/2005	<1/1	
TALBOT	4323	Midshore Regional Municipal LF	WMF	MES	1080/356	1999-WMF-0144	02/13/2005	50/220	Lined. serves Queen Anne's, Kent, Caroline & Talbot Counties. Accepts rubble in separate cell. 95-DP-2748
	4323	Midshore Transfer Station	WTS	MES	1080/356	1999-WTS-0549	08/25/2004	<1/220	Located at the existing municipal landfill

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Table 5.1 Regional Solid Waste and Rubble Landfills (Cont.)

MARYLAND DEPARTMENT OF THE ENVIRONMENT									
Solid Waste Program									
78 Permitted Solid Waste Acceptance Facilities - Authority: Environment Article 9-204									
01/03/2001									
COUNTY/CITY	EPSC NO.	FACILITY NAME	WASTE TYPE	OWNER TYPE	MD. GRID EN	PERMIT NUMBER	EXPIRATION DATE	FILL/SITE ACREAGE	COMMENTS
ALLEGANY	2772	Amcalle Rubble Landfill	WRF	CTY	289/649	1999-WRF-2060	07/01/2001	06/29.0	99-DP-3091 expires on 11/16/2004
	2228	Mountainview Municipal Landfill	WMF	PRI	262/652	1995-WMF-0010	04/11/2001	40/395	Lined
ANNE ARUNDEL	6167	Curtis Creek PF&TS	WPT	PRI	917/500	1995-WPT-0539	11/12/2003	8/12.8	
	5442	Garnet of Maryland PF&TS	WPT	PRI	850/470	1995-WTS-01580	12/25/2000	17/33.0	Renewal Application is under review by MDE
	2773	Millersville Municipal Landfill	WMF	CTY	895/460	1999-WMF-0240	02/27/2005	330/567	Lined
	5731	PST Rubble Landfill Expansion	WRF	PRI	899/370	1992-WRF-00280	06/26/2001	106/150	RD & 92-DP-2941 Cover old and expansion landfill
BALTIMORE CITY	5701	Baltimore Environmental PF	WPF	PRI	903/526	1996-WPF-0510T	08/08/2002	1.72/1.72	1401 W. Hamburg Street, operated by Sanfil of Maryland
	2051	Baltimore Processing Center	WPF	PRI	921/499	1995-WPF-0032	07/29/2002	<1/4.5	Owned and Operated by BFI - Formerly FERST
	3322	Baltimore Regional Medical	WMF	PRI	928/568	1994-WM-00360	02/15/2001	<1/4.0	Phoenix Services - Formerly Medical Waste Assoc. Inc.
	3013	BRESOCO	WTE	PRI	904/523	2000-WM-0030	07/04/2005	<1/15	1801 Annapolis Road 740,000 T/Y
	2775	CS&D Processing Facility	WPF	PRI	904/527	1998-WPF-0546	10/05/2003	<1/1	Cosmetics Processor
	3323	BFI Special Waste Incinerator	WMF	PRI	921/501	1995-WM-00340	06/25/2005	<1/2.4	Formerly called Med. Net. Inc.
	2776	Northwest Transfer Station	WTS	MUN	855/550	2000-WTS-00380	08/03/2005	<1/9.8	Gamton Blvd. & Reisterstown Rd.
	4202	Quarantine Rd Municipal Landfill	WMF	MUN	922/502	2000-WMF-0325	01/23/2005	124.6/159	Lined
	5313	HPP Industrial Waste Landfill	WIP	PRI	925/501	1997-WIP-0527	04/01/2004	95/57	
	5191	University of MD @ Baltimore	WM	MUN	907/532	1996-WM-0512	03/07/2005	<1	Waste from University of MD Systems and State Medical Examiner Office
BALTIMORE	2779	BCRRF	WPT	CTY	900/507	2000-WPT-0048	04/03/2005	<1/6	MRC
	5268	Days Cove Rubble Landfill (HE)	WRF	PRI	975/570	1994-WRF-03470	05/21/2001	20/27	Lined rubble landfill. 95-DP-3166
	2781	Eastern Municipal Landfill	WMF	CTY	974/570	2000-WMF-0052	04/23/2005	200/367	Lined
	2781	Eastern Transfer Station	WTS	CTY	974/570	1996-WTS-0508	11/25/2001	1.55/267	
	5189	ER&WR Processing Facility	WPF	PRI	940/508	1998-WPF-0545	12/03/2003	7/10.0	
	3244	Honeygo Run Rubble Landfill	WRF	PRI	958/564	1993-WRF-0338	01/07/2002	48/68	Approved design includes a liner system
	3308	Recovermat Mid-Atlantic, LLC	WPF	PRI	898/508	2000-WPF-0341	06/21/2005	<1/8.5	2200 Halethorpe Farms Road
	2782	Western Acceptance TS	WTS	CTY	905/510	2000-WTS-0540	03/21/2005	<1/5.2	
CALVERT	2783	Appel Municipal Landfill	WMF	CTY	961/200	1997-WMF-0531	10/07/2002	78/302	Lined
	5864	Calvert County Transfer Station	WTS	PRI	961/200	1997-WTS-0519	04/29/2002	<1/1	Located at the Appel MLF, and operated by Gamet of Maryland
	2865	Hence Land Clearing Debris LF	WLC	PRI	923/246	2000-WLC-0252	05/15/2005	10.2/23.6	Renewal Application is under review by MDE
	2784	Hill Land Clearing Debris LF	WLC	PRI	914/004	1998-WLC-0551	05/02/2004	2.8/17.6	
	2785	M.T. Paran Land Clearing Debris	WLC	PRI	945/227	1998-WLC-0550	11/08/2004	6.6/7.3	
6721	Southern Maryland PF&TS	WPT	PRI	910/310	1998-WPT-0540	10/05/2003	0.138/6.64		
CAROLINE		None						Hubbs Road Rubble Landfill is closed. GWDP No. 97-DP-8242	
CARROLL	4344	Northern Municipal Landfill	WMF	CTY	816/626	1989-WMF-0660	08/03/2005	80/220	Only accepts rubble in separate cell. GWDP No. 92-DP-2338
	4344	Northern PF&TS	WPT	CTY	816/626	1998-WPT-0541	08/16/2003	80/220	Located at Northern Landfill
	5388	Roll-Off Express PF	WPF	PRI	832/805	1995-WPF-0159	01/12/2003	0.75/6.8	
CECIL	2789	Cecil Co. Central Landfill	WMF	CTY	1107/644	1997-WMF-0532	10/30/2002	40/418	Also known as Hog Hill Landfill. Lined. Cell 4, Phase 1 is clay lined
	2790	Stemmer's Run Transfer Station	WTS	CTY	1095/581	2000-WTS-0072	03/19/2005	<1/10	
	2791	Woodlawn Transfer Station	WTS	CTY	1058/658	2000-WTS-0074	03/13/2005	<1/30	
CHARLES	2792	Charles Co. Municipal LF NO. 2	WMF	CTY	832/289	1995-WSF-00760	06/27/2000	73/114	Lined. Renewal application is under review by MDE.
	3364	Naval Surface Incinerator	WIN	FED	750/275	1997-WIN-0529	03/04/2004	<1/2500	Incinerate only waste minutely contaminated with PEP

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Table 5.1 Regional Solid Waste and Rubble Landfills (Cont.)

MARYLAND DEPARTMENT OF THE ENVIRONMENT WASTE MANAGEMENT ADMINISTRATION SOLID WASTE PROGRAM 14 PERMITTED RUBBLE LANDFILLS 01/04/2001							
COUNTY/ CITY	SITE NAME	PERMIT NUMBERS	OWNER	EXPIRATION DATE	MD GRID COORD. EAST NORTH	FILL/SITE ACREAGE	COMMENTS
ALLEGANY	AMCELLE RLF	1999-WRF-0206	CTY	07/01/2001	299/649	8/29	GWDP 99-DP-3091 will expire 11/16/2004
ANNE ARUNDEL	PST RLF EXP AL-RAY RLF CUNNINGHAM RLF	1992-WRF-00280	PRI	06/26/2001	899/070	106/190	GWDP 99-DP-2941 is regulated under NPDES Permit No. MD066087, and will expire on 4/31/2004. Closed RLF, GWDP 95-DP-2130 will expire on 10/16/2001. Closed RLF, GWDP 96-DP-3269 will expire on 03/02/2005.
BALTIMORE CITY	NONE						None
BALTIMORE	DAYS COVE RLF (HE) DAYS COVE RLF (NE) HONEYGO RUN RLF	1994-WRF-0347-0	PRF	05/21/2001	975/570	20/27	Lined RLF, GWDP 95-DP-3166 will expire on 06/27/2001. Closed RLF, GWDP 99-DP-2311 will expire on 10/23/2004. Lined RLF.
CALVERT	NONE						None
CAROLINE	HOBBS ROAD						Closed MLF, accepted rubble only during last few years of operation. GWDP 97-DP-3242 will expire on 12/11/2002.
CARROLL	NONE						Northern MLF accepts rubble in separate cell. GWDP 92-DP-2338 expired on 3/6/1992.
CECIL	NONE						Bainbridge RLF is capped, GWDP 97-DP-2913 will expire on 4/17/2002.
CHARLES	NONE						None
DORCHESTER	HUNTER RIDGE RLF						RLF is capped, GWDP 97-DP-2090 will expire on 4/3/2002.
FREDERICK	NONE						Site B MLF accepts rubble in separate cell. GWDP 97-DP-3210 expires on 5/11/2002.
GARRETT	NONE						Garrett Co. SWD&RF MLF accepts rubble in separate cell. GWDP 98-DP-2770 will expire on 7/1/2001.
HARFORD	GRAVEL HILL RLF OAK AVENUE RLF PHILLIPS ARMY RLF/APG WESTWOOD RLF/APG	1996-WRF-0517 1999-WRF-0104 1998-WRF-0555 1999-WRF-0108	PRF PRF FED FED	06/15/2002 12/22/2004 07/01/2001 07/01/2001	1037/631 982/580 1000/571 1000/555	35/55.41 39/42.8 13.6/1000+ 27/1000+	GWDP 92-DP-2926 expired 12/11/1997, and hasn't been renewed because the landfill had not started operating yet. GWDP 99-DP-3049 will expire on 9/12/2004. GWDP 92-DP-2967 will expire on 7/18/2001.
HOWARD	NONE						Spencer's RLF, GWDP 83-DP-2070 expired on 7/24/1995.
KENT	DULIN RLF	1999-WRF-0204	CTY	07/01/2001	1038/496	4.5/5	GWDP 2000-DP-2978 will expire on 03/19/2005.
MONTGOMERY	LAYHILL/BONIFANT RD RLF						Closed RLF - GWDP 97-DP-2696 will expire on 3/11/2003.
PRINCE GEORGE'S	BRANDYWINE RLF RITCHIE LAND REC. RLF	1996-WRF-0515 1994-WRF-0126-0	PRF PRF	03/31/2002 10/24/1999	855/320 849/372	169/177 78/258	GWDP 94-DP-2052 will expire on 1/8/2001. RD Permit is under review by MDE. GWDP 91-DP-2297 will expire on 1/8/2001.
QUEEN ANNE'S	BAKER RLF BAKER RLF (HE)	1997-WRF-0520 1997-WRF-0132	PRF PRF	08/03/2002 05/17/2004	1046/429 1046/429	12/18.5 13/18.5	GWDP 97-DP-2979 will expire 7/1/2001. Equipped with liner & leachate collection system.
SOMERSET	NONE						None

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Table 5.1 Regional Solid Waste and Rubble Landfills (Cont.)

DEPARTMENT OF THE ENVIRONMENT
WASTE MANAGEMENT ADMINISTRATION
SOLID WASTE PROGRAM
14 PERMITTED RUBBLE LANDFILLS
 01/04/2001

COUNTY	SITE NAME	PERMIT NUMBERS	OWNER	EXPIRATION DATE	MD GRID COORD. EAST NORTH	FILL/SITE ACREAGE	COMMENTS
TALBOT	NONE						Midshore MLF accepts rubble in separate cell. GWDP 95-DP-2748 will expire on 5/11/2002. St. Andrews MLF accepts rubble in separate cell. GWDP 92-DP-3286 will expire on 8/3/2003.
ST. MARY'S	NONE						
WASHINGTON	WASHINGTON CO. REC. RLF	1999-WRF-0270	CTY	05/27/2004	568052	75/100	First Lined RLF. Formerly known as Maletta.
WICOMCO	WEST RD. RLF						Inactive RLF. No renewal Refuse Disposal Permit Application was submitted to MDE. GWDP 96-DP-3193 will expire 5/10/2001.
WORCESTER	NONE						Central MLF accepts rubble in separate cell. GWDP 98-DP-2664 will expire on 3/24/2003

CTY: COUNTY GOVERNMENT (3)

FED: FEDERAL GOVERNMENT (2)

PR: PRIVATE (COMMERCIAL) (9)

HE: HORIZONTAL EXTENSION VE: VERTICAL EXTENSION

NOTES: LOCATION GIVEN IN MARYLAND GRID COORDINATES ESTIMATED

Questions concerning this list can be directed to the Solid Waste Facilities Section @ (410) 631-3375

Table 5.1 Regional Solid Waste and Rubble Landfills (Cont.)

MARYLAND DEPARTMENT OF THE ENVIRONMENT
Solid Waste Program
 78 Permitted Solid Waste Acceptance Facilities - Authority: Environment Article 9-204
 01/03/2001

COUNTY/ CITY	EPSC NO.	FACILITY NAME	WASTE TYPE	OWNER TYPE	MD. GRID EN	PERMIT NUMBER	EXPIRATION DATE	FILL/SITE ACREAGE	COMMENTS
WASHINGTON	2882	Forty West Municipal Landfill	WMF	CTY	575/673	1993-WMF-0266	06/13/2005	185/425	New municipal Landfill with liner and leachate collection system
	4395	Reah Road II Municipal Landfill	WMF	CTY	575/673	2000-WMF-0148	06/03/2005	75/140	Lined. Located near Broadfording & Reah Rds.
	3535	Washington Co. Hospital A.M.W.I	WMF	PRI	658/598	1998-WMI-0553	05/01/2005	2.07.66	Medical Waste Incinerator
	2823	Washington Co. Rubble Landfill	WRF	CTY	568/652	1999-WRF-02700	06/27/2004	75/100	First Lined RF, Formerly known as Maketa
WICOMICO	2824	Newland Park Municipal Landfill	WMF	CTY	1180/200	2000-WMF-0283	01/16/2005	45/125	Lined, cell 4 accepting waste beginning 8/7/97
	2576	Peninsula Medical Waste PF	WPM	PRI	1201/186	1998-WPM-0505	12/15/2001	<1/23	Medical waste processing facility
WORCESTER	2826	Central Municipal Landfill	WMF	CTY	1278/140	1993-WSF-01520	02/07/2000	150/725	Lined. Accepts rubble in a separate cell. 98-DP-2664, Renewal Application is under review by MDE
	2827	Ocean City Transfer Station	WTS	MUN	1353/207	2000-WTS-0156	08/03/2005	<0.25/0.25	

WMF: Municipal Landfill 24
 WRF: Rubble Landfill 14
 WLC: Land Clearing Debris LF 4
 WIF: Industrial Landfill 2
 WIN: Incinerator 4
 WMI: Medical Waste Incinerator 4
 WPF: Processing Facility 7
 WPM: Special Medical Waste Processing Facility 1
 WTS: Transfer Station 9
 WPT: Processing Facility & Transfer Station 6
 WTE: Waste to Energy/INC 3

TOTAL 78

CTY: County Government 32
 PRI: Private (Commercial) 34
 MUN: Municipal Government 4
 FED: Federal Government 6
 MES: Maryland Environmental Service 2

TOTAL 78

HE: Horizontal Expansion
 VE: Vertical Expansion
 MRC: Materials Recovery Facility
 GWDP: Groundwater Discharge Permit

Notes: Location in Maryland Grid Coordinates NE * Estimated

Figure 5.2

Demographics

Fort Meade is home to over 9,000 military personnel and 25,000 civilian employees. Roughly 6,000 family members also reside on the installation. The post population of 50, 075 is primarily NSA civilian employees (~44%), assigned military personnel (~20%), and their families (~12%). Table 5.2 provides a breakdown of the post population. ISWM planning considers future changes in the constituent population and the consequent effects on the quantity and composition of solid waste generated at the installation. Since Fort Meade serves as an administrative post, the nature of operations and the number of personnel employed on Fort Meade have remained relatively unchanged in the past few years, and are expected to be maintained at a constant level in the foreseeable future. Moreover, populations at a military installation do not exhibit typical growth patterns as reflected in national population trends because the growth is controlled by mission requirements.

Fort Meade provides a base of operations for numerous strategic, tactical, and support organizations. These major tenant organizations are listed in Table 5.3.

5.4 Master Planning

Table 5.4 provides a breakdown of major and minor construction projects that have been approved for completion through FY04. While this list may change due to priorities and funding availability, it represents potential changes in SW generation for the time period covered by this ISWMP. Additional activities that may affect SW generation include the possible privatization of the Family Housing Office, Water/Waste Water Office, and the Gas and Electric office. Based on data and information from the Directorate of Public Works, Engineering Plans and Services Division, Master Planning Branch, it can be reasonably concluded that the proposed changes in land use will result primarily in the relocation of personnel rather than an influx/exodus of personnel. This activity is not expected to result in a net change in SW generation at Fort Meade for the foreseeable future.

5.5 Planning Factors

Major factors highlighted in this ISWMP that affect solid waste management planning and decision-making at Fort Mead include the following:

- Identifying alternative contractors to collect and receive waste;
- Incorporating new regulations governing solid waste management and specific requirements for managing C&D waste;
- Purchasing equipment to improve recycling capabilities;
- Implementing Affirmative Procurement through Environmentally Preferable Purchasing (EPP).

These planning factors are discussed in detail in Section 11.

Table 5.2 goes here

Table 5.3 goes here

Table 5.4 goes here

6 RESPONSIBILITIES

ISWM is the responsibility of every individual who works or resides at Fort Meade. However, key proponent organizations have responsibility for ISWM implementation. The Environmental Quality Control Committee (EQCC) is the forum where these organizations address the administration of ISWM and identify and resolve ISWM issues (Table 6.1 lists participating organizations). The following sections describe the roles and responsibilities of these proponent organizations.

6.1 Garrison Commander

- Establish and/or maintain a functional organizational structure to plan, execute, and monitor the solid waste program
- Provide command emphasis on solid waste reduction, materials reuse, recycling, and Affirmative Procurement.
- Formally establish an installation recycling program or QRP and designate the installation activity responsible for oversight of the program
- Chair the EQCC or other installation forum that addresses solid waste management and recycling issues
- Ensure that the proceeds from the QRP are used in accordance with Public Law 152 and DOD Instruction 7310.1
- Support recycling programs by ensuring that the Affirmative Procurement requirements of Executive Order 13101 are met, and designate the installation activity responsible for oversight of the program

6.2 All Directors

- Advise directorate activities of state, federal, and Army requirements for managing and reducing solid wastes, recycling, and Affirmative Procurement
- Monitor directorate activities for compliance with state, federal, and Army solid waste management requirements, and recommend changes in policies or procedures to improve program management when necessary
- Support and emphasize the practices of waste reduction, Affirmative Procurement, recycling, and yard waste composting
- Ensure that all required training is approved, funded, accomplished, and documented
- Participate in the EQCC or installation forum that addresses solid waste management and recycling issues

Table 6.1 goes here

6.3 Directorate of Public Works

- Ensure that solid waste storage, collection, transportation, and disposal are conducted in accordance with state, federal, and Army regulations
- Program, budget, and support the resource requirements needed to manage the solid waste program, to comply with federal, state, and Army regulations, and to achieve state and DOD waste reduction goals
- Participate in the EQCC or installation forum that addresses solid waste management and recycling issues

6.4 Environmental Management Office

- Identify a person to be responsible for managing the solid waste program. The solid waste manager may also be designated to assume any or all of the responsibilities listed below
- Oversee all aspects of the solid waste program including Affirmative Procurement, source reduction, resource recovery, and recycling
- Maintain liaison and coordinate as necessary with county and state solid waste regulators
- Maintain liaison with and request support from the Major Command (MACOM) on solid waste related issues
- Submit Environmental Program Requirements (EPRs) to the MACOM to achieve solid waste management goals
- Coordinate recycling operations and SW operations

6.5 DPW Engineering Plans and Services, Contracts Management Branch

- Ensure that construction and procurement contracts meet federal Affirmative Procurement requirements and source reduction strategies, as follows:
- Require the use of environmentally preferable products where applicable, including those containing recycled content, using less energy, and/or containing less or reusable packaging
- Stipulate in contracts that paper products contain 30% recycled content paper or are printed on tree-free paper, and that contractor documents be printed double-sided
- Include the requirement to consider sustainable construction, including the use of biobased materials in construction contracts
- For building deconstruction (demolition) contracts, ensure measures for the salvaging, reuse, and recovery of materials are incorporated. Include provisions for quantifying the materials diverted from the waste stream.

- Participate in the EQCC or installation forum that addresses solid waste management and recycling issues

6.6 DPW Engineering Plans and Services, Contracts Management Branch, Services Contract Section

- Periodically review the solid waste management contracts for overall effectiveness and monitor the performance of the contractor. Evaluate such factors as number, size, and location of pickup stations, truck routes, type of equipment, scheduling, supervision, and effective use of manpower.
- Coordinate with the QRP manager to develop strategies for improved recycling and, if necessary, modify contracts to implement those strategies
- Include provisions for Affirmative Procurement and recycling in all contracts as appropriate. Example of types of contracts include: construction, deconstruction, janitorial, supply/procurement, engineering/design, and utilities.
- Periodically review recycling contracts for overall effectiveness and monitor the performance of the contractor

6.7 Solid Waste Manager, Environmental Management Office

- Periodically review and monitor compliance with all applicable state, federal, and Army requirements for solid waste management and recycling. Ensure compliance at tenant activities and subinstallations.
- Determine the most cost-effective and efficient means of source reduction, and waste storage, collection, treatment, and/or disposal
- Recommend changes in policies or procedures to improve program management when necessary
- Advise all waste-generating activities of federal, state, and Army requirements for managing solid wastes, including requirements for permitting, reporting, and record keeping
- Serve as the installation point of contact for questions, complaints, or other notification regarding solid waste management.
- Ensure sufficient funding levels to comply with regulatory requirements and support waste reduction initiatives
- Report solid waste management activities to the MACOM using the Solid Waste Annual Reporting system (SWAR)
- Review contracts related to solid waste management for environmental compliance
- Provide guidelines on source reduction strategies, yard waste management, pollution prevention, and recycling to on-post residents and installation personnel
- Report to the EQCC or other installation forum on a regular basis on issues related to solid waste management and recycling

- Identify and monitor responsibilities of all providers of solid waste management services, whether contractors or in-house personnel

6.8 Recycling Program/QRP Manager

- Oversee daily operation of the recycling facility and all recycling operations
- Hire and supervise personnel to accomplish recycling duties
- Ensure proper training of facility personnel. Training may include Ammunition, Explosives, and Dangerous Articles (AEDA) certification if the installation operates a QRP that handles firing range scrap.
- Request, justify, and procure equipment necessary to perform recycling operations
- Develop and manage contracts in support of the program
- Develop, implement, and update SOPs for operation of the program
- Establish and oversee a recyclable materials accounting procedure to track the materials processed/sold and a financial accounting system for the receipts and disbursements of funds
- Address customer complaints regarding the recycling program
- Monitor participation in the program and implement corrective measures when participation is poor
- Implement an aggressive promotional and educational campaign for the recycling program
- Maintain a list of recycling POCs in each activity or building and coordinate the program's activities and changes through them
- Assist the solid waste manager in reporting recycling activities to the MACOM using the SWAR system
- Report on the status of the recycling program to the EQCC or installation forum that addresses solid waste management and recycling issues

6.9 Defense Reutilization and Marketing Office

- Accept qualified recyclable materials from the QRP, and reimburse installation for the designated proceeds from the sale of recyclables in accordance with current DLA policy and DLA financial management regulations
- Accept materials excluded from QRPs for recycling or other disposal. Deposit the recycling proceeds, if any, to the U.S. Treasury, within the required reporting time frame.
- Serve as the local representative of the DLA

- Assist the recycling program manager by providing technical advice, performing market research, and selling recyclable commodities, when requested
- Advise generating activities on the required turn-in procedures, including packaging, labeling, and transporting of materials to facilitate sales/recycling
- Assume accountability for materials properly turned in for disposal, resale, or recycling
- Periodically conduct sales, and/or make the DOD bidders list available to activities conducting direct sales of recyclables
- Dispose of hazardous property generated by the installation
- Maintain records concerning types and quantities of materials turned in, and proceeds for various resale/recycling activities
- Defense Finance and Accounting Service (DFAS). Process financial documents and vouchers forwarded from the DRMO or DOD Components. The proceeds are deposited into the installation QRP account as directed in accordance with 10 U.S.C. 2577. DFAS also tracks DD Form 1348-1, Disposal Turn-In Document, and ensures timely and accurate financial recording of sales of recyclables.

6.10 DPW Operations Chief Refuse Branch

- Works with the solid waste manager to ensure that pickup and disposal is conducted according to regulatory guidelines
- Coordinates DPW waste pickup at non-residential areas
- Maintains and manages dumpster inventory
- Provides maintenance and replacement of dumpsters
- Works with recycling program manager to ensure that recyclables are recovered to the maximum extent possible

6.11 DPW Contract Inspector

- Incorporating C&D waste management requirements in the subcontractor scoping documentation and bid specifications for C&D projects
- Ensures that DAIM-FDF-UE (420-49) Memorandum, “Management of Construction and Demolition Wastes” – March 1, 2001, and the referenced Army Corps of Engineers “Construction and Demolition Waste Management Guidance”, CECS – 01572, is followed by contractors conducting C&D projects.
- Responsibility for QA during the execution of C&DWM projects also lies with this organization.

6.12 All Installation Organizations, Units, and Tenant Activities

- Reduce the amount of solid waste generated through procurement of products with less or reusable packaging, buying only the amounts needed, investigating new recycling/ reuse opportunities, and altering operations to reduce wastes (e.g., using double-sided copies).
- Support recycling by procuring items with recycled materials content
- Ensure safe and effective solid waste management through the proper storage of solid wastes and recyclables
- Support the recycling program by identifying, collecting, separating, and removing contaminants from all potential recyclable materials
- Designate a recycling coordinator for your activity to organize the recycling efforts, coordinate with the recycling program manager, and participate in the installation forum that addresses solid waste management and recycling issues
- Coordinate with the installation environmental office on all matters involving solid waste management, Affirmative Procurement, recycling, or pollution prevention.

Figure 6.1 provides the ISWMP organizational support structure.

Figure 6.1 goes here

7 GENERATION OF SOLID WASTE AND RECYCLABLES

The basis for all solid waste management decision-making is a characterization of the wastes generated. The characterization involves identifying each element of the waste stream, identifying the primary sources of each element, and measuring the amounts generated for each. This has been accomplished through in-house record keeping (SWAR and supporting documentation), and a Waste Characterization Study (WCS). Resources used to gather this data include generator interviews, regulatory agency inquiries, solid waste removal /disposal contracts, waste hauler records, disposal facility records, turn-in documents, records from the environmental office and DRMO interviews with key personnel, and interviews with contractors.

Using this information, the percentage of material that can realistically be captured or diverted from the waste stream can be quantified. Also heavy or bulky items can be targeted for source reduction and recycling programs.

The majority of wastes generated at Fort Meade are managed through contracts with off-post municipalities or vendors. Fort Meade supplements these contracts with DPW staff focusing on collection, processing and transport of materials. DPW collects solid waste year-around, but only in on-post nonresidential areas. The DPW recycling center collects recyclables year-around post-wide including housing areas and nonhousing areas.

This section summarizes existing waste characterization data and management systems as defined through existing waste management contracts and permits. Existing off-post and on-post waste management operations and facilities used to store, treat, process, or dispose of solid waste and recyclables generated at Fort Meade are identified. This includes waste generated by active Army operations and tenant organizations such as other federal agencies, and contractor activities. An exception is solid waste from NSA. Due to the nature of NSA's mission, NSA handles solid waste independently and is governed by its own ISWMP. Information was supplemented through interviews with responsible offices, and directorates at Fort Meade.

7.1 Residential Waste

Residential waste typically includes wastes from single and multi-family dwellings, bachelor, and transient quarters, and temporary housing. This waste may be the most easily characterized and measured and usually consists of paper, glass, metal, plastics, food wastes, bulky items, furniture, and yard waste. At Fort Meade, recyclable materials are segregated from other wastes for separate collection.

Fort Meade has a total of 2,862 sets of quarters, of which 488 are allocated to officers and 2,374 to enlisted personnel. These quarters are located in five major housing areas on post:

- Argonne Hills;
- Meade Heights;
- Geraghty Village;
- MacArthur Manor;
- Shea Court.

Argonne Hills (7000-8135) consists of single, double, and multiple family units, and provides housing for both officer and enlisted personnel. Old Meade Heights is composed of 250 housing units in two-story apartment buildings, with two to four bedroom apartments. Newly constructed housing (1995-1996) for junior enlisted personnel consists of 115 housing units in New Meade Heights (1800-1900)

and 147 housing units at the Clark Road Site (3300-3400). The units are in two-story apartment buildings with two, three and four bedrooms. Geraghty Village (2682-2694) is composed of multi-dwelling three bedroom quarters and provides housing for company grade officer personnel. MacArthur Manor (2901-3564) is composed of multi-dwelling quarters and provides housing for officer and enlisted personnel. Shea Court, located in the 4800 area, is composed of multi-dwelling quarters consisting of two and four bedroom units designated as officer housing for four bedroom and two bedroom for junior enlisted personnel. The 2500 and 4200 areas are composed of single family Cape Cod houses. They are designated for enlisted personnel in the grade of E9. The 4300 and 4500 areas are designated for general and flag officers, colonels, and Navy captains.

Permanent Party, Bachelor, and Transient Housing accommodations also contribute to the SW stream at Fort Meade. Accommodations for permanent party personnel consist of 32 bachelor housing officer units. There are also 30 permanent party bachelor housing senior enlisted units. Transient housing includes 191 visiting officer/visiting enlisted units and seven transient housing distinguished visitor quarters.

Policy Letter #39, Mandatory Recycling Policy, requires recycling to minimize the amount of SW generated at Fort Meade. Curbside pickup and drop-off centers are provided in residential areas for recycling. Recycled items include: paper, plastic, aluminum and steel cans, and glass. Table 7.2 Summarizes the amount of recycled material collected at Fort Meade.

7.2 Commercial and Institutional Waste

Because Fort Meade is primarily an administrative post providing support to tenant organizations, a large portion of the SW generated at the post is commercial and institutional waste consisting of paper, cardboard, food wastes, clothing/textiles, furniture, and packing materials. Table 5.3 lists the organizations currently supported by Fort Meade. These organizations are the major contributors of commercial and institutional waste at the post.

Solid waste from Fort Meade Non-residential areas, which excludes NSA, includes collection of refuse from 135 buildings comprising 172 dumpsters ranging in capacity from 6 – 8 yd³. These wastes consist primarily of paper, plastic, food waste, and glass typical of SW and do not require special handling. Recyclable wastes and special wastes are handled separately as discussed in various other sections of the ISWMP. Table 7.1 summarizes the location and dumpster capacities. These dumpsters form the basis for waste characterization sampling from non-residential areas. Cardboard is accumulated separately for recycling. Table 7.1 lists these dumpsters separately as “cardboard only.”

7.3 Industrial (Non-hazardous) Waste

Industrial Waste includes materials discarded from industrial operations and manufacturing processes, such as scrap metals, non-hazardous solvents, greases and oils. At Fort Meade, the typical sources of industrial waste are motor pools, service stations, maintenance shops, and auto

Table 7.1 goes here

Table 7.1 goes here

Table 7.1 goes here

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Table 7.2 goes here

craft shops. In general, Fort Meade does not conduct industrial operations. Wastes generated by these types of activities are discussed below in Section 7.6 as “Other Special Waste.”

7.4 Construction and Demolition Waste

DPW handles a small quantity of C&D waste generated by noncontracted activities. C&D waste collected by DPW is taken directly to the Annapolis Junction Transfer Station (Permit No. 1995WTS01580), located at 8077 Brock Bridge Rd., Jessup, MD 20794. This C&D waste is tracked through the Environmental Management Office (EMO). Concrete and asphalt are taken to an off-post asphalt plant and disposed of free of charge. A weight/load tracking system is in place to account for this specific source of C&D waste.

All other C&D waste is the responsibility of the C&D contractor. Currently, under the Facility Reduction Program, old buildings are being demolished and new facilities are being erected. K & K Adams, Inc., 2901 Druid Park Dr. Suite 104, Baltimore, Maryland 21215 has been awarded a one year contract for Demolition Services (FY 2001). K & K is responsible for removing all materials from the demolition sites. Materials that are recycled include:

- Concrete items (i.e., sidewalk, foundations, brick, asphalt, etc.) are taken to a concrete crushing plant where the materials are then reused for highway road base and parking lots
- Metallic items such as copper, aluminum, and cast iron are taken to scrap dealers
- Unpainted wood beams are sent to either a wood mulcher to recycle into chips and/or recycle for new hared wood flooring in new homes.

All proceeds from demolition recycling are retained by K & K. No documentation quantifying C&D waste recycling are available.

No documentation pertaining to construction waste exist for the post. All construction is competitively bid on a per project basis and waste disposal is the responsibility of the contractor.

Guidelines for the development and implementation of programs to effectively manage solid waste generated during C&D activities have been drafted by the Army (DAIM-FDF-UE [AR 420-49] “Guidelines for Construction and Demolition Waste Management” – March 1, 2001). A final version is expected in August 2001. These guidelines are intended to minimize the amount of non-hazardous solid waste disposed through landfilling or incineration and to promote more efficient use of new construction materials. Record keeping and reporting requirements outlined in these guidelines and USACE “Guide Specifications for Construction” (CEGS-01572) will result in quantification and reporting of C&D waste diverted through sale, reuse, or recycling and the quantity of waste disposed by land fill or incineration for all future C&D projects. The C&D waste management plan implementing their new DA policy, is provided in Appendix A.

7.5 Yard and Wood Waste

Non-contaminated yard and wood waste from non-housing areas of the installation is collected by the Department of Public Works (DPW) and temporarily stockpiled, as authorized by the state, at the closed Fort Meade Landfill. DPW hauls this yard and wood waste to A-A Recycle and Sand, Inc., 8217 Baltimore-Annapolis Blvd., Pasadena, MD 21122 for processing and, on occasion, to the MES Regional Composting Facility, 7101 Dorsey Run Rd., Baltimore, MD 21227. Realm Industries Inc.,

50 West Edmonton Dr., Rockville, MD, 20852 hauls this yard and wood waste from the housing areas to the MES Regional Composting Facility.

Yard and wood waste at Fort Meade consists primarily of leaves and Christmas trees plus tree stumps, limbs, brush and shrubs. Some of the surface and sub-surface soil accumulated during collection is mixed into the waste and is also disposed of at the authorized disposal site without being separated. The waste contains various physical properties typically found in the clearing of dead or dying trees and shrubs, debris resulting from electrical power line tree trimming, and various other tree and shrub clearing and trimming efforts conducted by DPW.

Table 7.3 summarizes current data quantifying yard and wood waste generated for FY 2001 (October – January). No other data are available.

7.6 Medical Waste

Through February 1999, medical waste was incinerated according to a March 1, 1994 state of Maryland permit (No. 02-003322 – Expiration Date February 28, 1999) requiring incineration to conform to COMAR 26.11.02.20. This provision of Maryland law, requires conformance with emission standards for specified pollutants. The permit allows the operation of a single Environmental Control Products Incinerator Model 300E Special Medical Waste Incinerator, rated at 300 lbs/hr and limited to a charging rate of 240 lbs/hr.

Based on data for FY97 – FY00, the average tonnage of medical waste incinerated per year is 19.01 tons. For the most recent year, FY00, 16.03 tons were incinerated.

As of December 27, 2000, incineration at Fort Meade stopped. Currently incineration is performed by a contractor at a permitted offsite incinerator. The contractor is Stericycle Inc., 1419 Lake Cook Road, Suite 410, Deerfield, Illinois 60015-5228. Stericycle operates a medical waste incinerator under Permit No. 1995-WIN-0034-0 issued June 26, 1995, expiration date June 25, 2000. A permit renewal application has been issued to the state and it is expected to be approved. The incinerator is located at 5901 Chemical Road, Baltimore MD, 21226. Permitted output is 1200 lbs/hour. Because Stericycle has only been handling Fort Meade medical waste since the beginning of this CY, data on incineration is limited. Since January 1, 2001 through April 13, 2001, 778 boxes of medical waste have been processed by Stericycle. The average weight of medical waste per box is 18 lbs, which gives an estimated average of 14,004 lbs to-date in CY 2001.

7.7 Other Special Wastes

7.7.1 Waste Oil

Approximately 25,000 gal of waste motor oil are collected for recycling each year at Fort Meade. For residential recycling, a collection station is provided at Bldg. 2250. This collection station consists of two 6,000 gal above ground tanks that are used to temporarily store waste motor oil until pickup by the waste oil recycling contractor. DPW uses a 3,000 gal vacuum truck to collect used motor oil from the motor pools, auto craft shops, and the NSA's facilities. Pickup of used motor oil is conducted at the following locations: Bldgs. 1251, 2246D, 72A, 8485, 4680, 2120C, 2253, 6530, and 8486. In addition, two 800 gal tanks at the NSA facility are also collected.

Pickup, transport, and recycling is handled through a 1-year subcontract with Free State Oil, administered by the Defense Reutilization and Marketing Organization (DRMO). Under this contract, waste oil stored at Bldg. 2250 is picked up on an as-needed basis. The contract specifies

Table 7.3 goes here

an upper limit of 25,000 gal/yr (plus 50%) as an upper limit on the amount of oil that will be picked up by the contractor. In FY2000 39.24 tons, or ~11,224.64 gals were collected (Table 7.2). Data for previous years was unavailable.

7.7.2 Scrap Tires

Under Maryland Department of Environment (MDE) requirements, tire storage facilities are categorized into three types:

- Primary storage facility licensed to store 1,501 or more tires
- Secondary storage area licensed to store between 51 and 1,500 tires
- General storage area with a maximum allowable storage of 50 tires

MDE requires that primary and secondary tire storage facilities be permitted. Presently, there are two licensed secondary storage areas at Fort Meade, the DRMO (license No. 1999-RSC-00097) and the Army Air Force Exchange Service (AAFES) Car Care Center (license No. 1999-RSC-00098). Fort Meade is required to provide semi-annual reports on scrap tire collection activities to MDE. A summary of collection activities from Calendar Year (CY) 2000 are provided in Table 7.1. Because SWAR reporting is by FY, CY data is used to characterize tire waste by FY. Table 7.2 provides the FY SWAR reported tonnage of tires recycled.

7.7.3 Batteries

Nickel-Cadmium and alkaline batteries from the on-post residential waste stream are collected for recycling by DRMO. Because records are not kept longer than a year, data for past years is not available. DRMO staff (Mr. Sam Swearngen) provided an estimate of 50 tons for FY00.

7.7.4 Asbestos Containing Materials

Asbestos Containing Materials (ACM) requiring disposal are periodically generated at Fort Meade as a result of asbestos removal projects in existing buildings. Friable ACM is excluded from shipment off-site with construction and demolition waste. Asbestos removal and re-insulation in existing buildings is conducted under contract with Delaware Corner Stone Builders Inc. Table 7.4 summarizes the ACM removal during FY 2001. Data for past removals is not available. Because data for ACM is quantified as bags with no weight, the contribution as waste diverted from the SW stream could not be assessed.

7.7.5 Food Processing Wastes (Including Grease Trap Wastes)

As of December 16, 2001 food processing waste is no longer collected by DRMO contractors for disposal. DRMO established that no market exists for this waste stream and, therefore, does not handle and provide disposal/recycling services. Individual generators are now responsible for disposal of food processing wastes.

Table 7.4 goes here

7.7.6 Sewage Sludge

Sewage sludge is generated at Fort Meade's Federally-Owned Treatment Works (FOTW). Based on FY 2000 Solid Waste Annual Reporting (SWAR) data, the FOTW generates 1,482.23 Dry Tons requiring off-site land application. Fort Meade currently contracts with Delmare Systems Inc. of Alexandria, Virginia to pick up and properly dispose of the sewage sludge. Primary method of disposal is farmland/agricultural land application. Disposal sites have been throughout various counties in Maryland and West Moorland County VA. Table 7.2 provides the annual disposal quantities.

7.8 Waste Generation Rates

Table 7.5 provides waste generation rates by FY for SW (Variable R) and for items that are recycled or otherwise diverted from the SW stream. Complete data were only available for FY1999 and FY2000. In addition to typical recycling (e.g., paper, glass, metal, plastic, motor oil, wood, etc.), compost waste, fluorescent light tubes, and tires are also recycled, increasing the overall diversion rate.

Some diverted items could not be quantified., No records on the amount of Construction and Demolition (C&D) waste recycled are available. C&D waste disposal is the responsibility of the contractor. Quantities will be quantified and reported beginning in FY02.

Asbestos, when removed is recorded. However, those data are presented in terms of "bags removed" and cannot be reliably quantified by weight. Table 7.4 provides FY 2001 asbestos removal information. As of March 2001, 6,959 bags of asbestos containing material have been removed. No other asbestos data are available.

Mercury collection for recycling occurs during the preparation of fluorescent lights for recycling. Table 7.6 provides the annual breakdown of mercury removal for FY1997 – FY2000: 441.6g, 480g, 1073.6, and 3201.6g respectively.

PCBs are removed from fluorescent light ballasts. However no records are available on the annual quantities.

Table 7.5 goes here

Table 7.6 goes here

7.9 Waste Characterization Study

Six samples, consisting of 24 buildings and two major housing areas (Table 7.7), were selected for sampling from the list of Fort Meade dumpster locations provided by the Refuse Section of DPW. The buildings were randomly selected by generating a list of random numbers based on the number of dumpsters at the installation. Using those numbers, buildings were selected that corresponded to the dumpster location list. For buildings with multiple dumpsters, the DPW collector selected the dumpster with the most waste. In several cases, the selected dumpsters did not contain sufficient quantities of solid waste to support the characterization effort. In these cases, the DPW Chief of the Refuse Section selected additional dumpsters with adequate waste quantities to supplement those that were randomly selected. While this approach introduces some bias into the sampling, it was the only method available to obtain adequate quantities for the waste characterization effort.

Residential sampling was conducted at the Annapolis Transfer Station in coordination with Realm Industries Incorporated, the contracted residential waste hauler. To minimize the logistics and time required for sample collection and to maximize time spent collecting data, waste was sorted on a “first come first serve” basis. That is, the first Realm truck to arrive at the Annapolis Transfer Station was directed to the staging area to deposit its load for sorting and sampling. Because of the volume of solid waste contained in the waste trucks, only a single truck load was sampled. Alternative methods were considered, but all involved expending too much time collecting solid waste samples and not enough time collecting composition data. This approach provided the most representative sample of solid waste within the constraints of the installation infrastructure, project budget and project schedule for the Fort Meade ISWMP.

7.9.1 Waste Characterization Study Results

Table 7.8 provides the sampling results of the WCS. Table 7.9 and Figure 7.1 summarize these data providing an overall characterization of the solid waste stream at Fort Meade. By weight, the largest category of solid waste was paper (Figure 7.2). Sampling results indicate that 39% (2,753.8 lbs) was paper. Most of this paper (41% or 1,141.3 lbs) was mixed low quality paper, consisting of paper towels, packaging paper, and other paper that could not be classified. The remaining 51% consisted of a variety of recyclable papers including phone books (1% or 38.7 lbs), Magazines (8% or 213.2 lbs), cardboard (14% or 372.2), corrugated boxes (24% or 652.0 lbs), and newsprint (12% or 336.4 lbs). High grade computer and typing paper were virtually absent from the solid waste stream and were not even included as a solid waste category. This is an indication of the successful recycling of high grade paper waste at the installation.

Although by weight, corrugated boxes were not the dominant paper waste, by volume corrugated boxes were important. In general, each sample contained enough corrugated boxes to fill an 8 cy dumpster. Therefore, by volume, corrugated boxes represent one of the most important solid waste components relative to waste handling and processing.

The second largest category of solid waste was “other” waste. Sampling results indicate that 23% (1,635.9 lbs) (Figure 7.3) was other waste. Other waste consists primarily of food waste (53% or 849.9 lbs), which contained mostly food fluids (e.g., milk) and food solids. Yard waste comprised 30% (494.2 lbs) of the other category and consisted of grass clippings, leaves, and brush. The remaining 24% of other waste consisted of unique items that were not classifiable (e.g., clothing and fabric, military equipment, rubber, a bicycle, furniture, etc.). None of these lesser categories of other waste contributed appreciably to the waste stream.

Table 7.7 Sample regimen for waste characterization study

Sample No.	Area/Bldg. No.
Sample No. 1	Bldg. 69
	Bldg. 186
	Bldg. 909
Sample No. 2	Bldg. 2793
	Bldg. 6300
	Bldg. 8601
	Bldg. 8501
Sample No. 3	Areas 7000 – 7300
	Areas 7400 – 7700
Sample No. 4	Bldg. 2250
	Bldg. 2211
	Bldg. 2246D
Sample No. 5	Bldg. 04
	Bldg. 4215
	Bldg. 4411
	Bldg. 2724
	Bldg. 2490
	Bldg. 917
	Bldg. 4725
	Bldg. 4550
Sample No. 6	Bldg. 8503
	Bldg. 8479
	Bldg. 4587
	Bldg. 1900
	Bldg. 4552
	Bldg. 4554

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Plastic comprised 15% (1058.9 lbs) of the solid waste samples. Of the plastic collected (Figure 7.4), 82% (869.2 lbs) was other plastics that were not recyclable or not identifiable. Other plastics included plastic bags, toys, cups, plates, bowls, knives, spoons, coffee mugs, microwave meal packaging, tarps and other similar items. Recyclable plastics, while considerable in volume, did not comprise an appreciable quantity by weight. Only 10% (109.2 lbs) of all plastics were #1 PET plastic bottles and only 7% (71.5 lbs) were #2 HDPE plastics, suggesting that the plastic recycling program at the installation is effectively capturing and diverting most plastics.

The remaining 23% of the solid waste sampled consists of six low weight categories: glass, appliances/electronics, construction/demolition, hazardous, medical, and metals. 3% (179.4 lbs) is glass (Figure 7.5). Of this quantity, 5% (9 lbs) is other glass such as light fixtures, windows and other broken glass waste. Recyclable glass categories comprised 35% of all glass. Clear glass (65% or 115.2 lbs) was the largest category followed by brown glass (23% or 41.8 lbs) and green glass (7% or 13.4 lbs). Once again, the relatively small quantities of glass in the samples indicate the success of the glass recycling program.

6% (399.4 lbs) of the samples contained metal in various forms. Figure 7.6 illustrates that 67% by weight was 267 lbs unclassifiable scrap metal. 18% (71.8 lbs) contained metal cans. Of the aluminum collected, 11% (43.6 lbs) was aluminum cans and 4% or 17 lbs was aluminum foil and other unidentifiable aluminum items (foil wrappers etc.).

5% (373 lbs) of the samples contained C&D waste. Based on observations, this waste was not from contracted C&D activities. Instead, this C&D waste was from small scale home or installation repair type projects. Of the C&D waste, 87% (324.2 lbs) was scrap wood and 13% (48.8 lbs) was concrete (Figure 7.7).

2% (100.2 lbs) of the samples contained appliances/electronics. This category consisted of electric fans, computers, yard equipment, etc. (Figure 7.8). Of note is that 16% (19.6 lbs) consisted of computer equipment, including hard drives and other potentially sensitive computer equipment that should receive special handling and then be recycled.

Medical waste consisted of 5% (335.2 lbs) of the total solid waste stream samples. Diapers were included in this category and comprised 94% (316.2 lbs) of the medical waste found (Figure 7.9). The source of the diapers is the day care facility. The remaining 6% (19 lbs) of medical waste consisted of blood sampling equipment and used and unused urinalysis vials. Except for the diapers, this waste should have been diverted to the medical waste hauler for incineration.

Unauthorized waste was limited to a few small containers of used motor oil, used automotive antifreeze, and chemical deicer (Figure 7.10), all of which were deposited with the Controlled Hazardous Substance Storage Facility after weighing. The deicer (69% or 72 lbs) was reusable in its current state and will be redistributed. The antifreeze (6% or 6.6 lbs) and motor oil (3% or 3.2 lbs) will be properly disposed of through service contracts. Paint chips (22% or 23 lbs) were included in this category due to the potential for lead. As with other key recycled wastes, the lack of unauthorized wastes found in the solid waste stream attests to the success of the hazardous waste collection and recycling program.

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8 SOURCE REDUCTION

In the Pollution Prevention Act of 1990, EPA designated source reduction as the highest priority for effectively managing the solid waste stream. Benefits are derived from reducing solid waste in the form of natural resource conservation, reduction in treatment/disposal costs, and removal of risks and liabilities associated with disposal. Source reduction differs from recycling. It focuses on reducing the waste stream at the source, and includes Affirmative Procurement policies such as Environmentally Preferable Purchasing (EPP). Source reduction, according to the EPA definition, also includes the reuse of materials with little or no “processing” involved. Planning and implementing source reduction measures should play a greater role in meeting waste reduction goals at Fort Meade.

8.1 Purchasing Programs

Purchasing programs should be formalized in an Affirmative Procurement plan to include guidelines for Affirmative Procurement and EPP.

8.1.1 Affirmative Procurement

Affirmative Procurement, or buying materials with recycled content, is just one aspect of a purchasing program. Others include purchasing materials that produce less waste and materials that are themselves easily recyclable. Programs to educate consumers at the installation on purchasing “environmentally friendly” products is important as well.

The Federal Acquisition Regulation (FAR) was amended in 1997. Eight other sections of the FAR were updated in June 2000 to incorporate Affirmative Procurement requirements. For example, FAR Part 23 sets policy regarding recovered material certification, estimation of recycled content, and waste reduction; FAR Part 4 requires paper documents to be printed/copied double sided on recycled paper.

Under Section 6002 of RCRA, federal agencies using appropriated funds to purchase certain items are to establish procurement programs to allow the use of recovered materials to the maximum extent possible. Designated items include (but are not limited to) paper and paper products, cement and concrete, carpet, floor tiles, fiberboard, plastic desktop accessories, binders, toner cartridges, trash bags, hydraulic mulch, printer ribbons, plastic envelopes, and pallets. Table 8.1 provides a comprehensive list of designated items.

Although an Affirmative Procurement program may not actually reduce amounts of wastes generated, it is considered a key component of ISWM. Buying products with recycled content "completes the circle," stimulating the market for recycled materials, conserving natural resources, and saving energy otherwise used to make products from virgin materials.

In general it can be estimated that over 1/3 of a solid waste stream consists of packaging materials, including various types of cardboard, paper, plastics, and styrofoam. Therefore, reducing or eliminating this waste component will significantly reduce the wastes generated. Purchasing items with reduced packaging (or reusing the packing materials) is an effective means of reducing this waste. The installation should reduce packaging waste by evaluating purchases according to packaging preferences in Figure 8.1.

Figure 8.1 goes here

Executive Order 13101: *“Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition”* states that *“agencies shall comply with executive branch policies for the acquisition and use of environmentally preferable products and services and implement cost-effective procurement preference programs favoring the purchase of these products and services.”* EPA was required to designate products that are or can be made with recovered materials, and to recommend practices for buying these products. To meet this requirement, EPA published Comprehensive Procurement Guidelines (CPGs) to designate products and specify recycled content recommendations. EPA also issues guidance on buying recycled content products in RMANs.

The first CPG contained procurement guidelines for 24 products. It was published in the associated RMAN in the Federal Register on May 1, 1995 with an effective date of May 1, 1996. The second CPG and RMAN (CPG II and RMAN II) were published in the Federal Register on November 13, 1997. CPG II provided purchasing requirements for another 12 items that became effective on November 13, 1998. CPG III and RMAN III, published in January 2000, proposed the designation of 18 more items. Table 8.1 provides a list of all EPA designated and proposed items.

Fort Meade is responsible for developing and implementing an Affirmative Procurement program. In doing so, Fort Meade must ensure that the purchasing guidelines are followed for the designated items and must develop a system for tracking and reporting Affirmative Procurement efforts. The Executive Order requires that *“responsibilities for preparation, implementation, and monitoring of affirmative procurement programs are shared between the program personnel and acquisition and procurement personnel.”* It is therefore the responsibilities of both procuring parties and users to follow the CPGs and associated RMANs and overall intent of the Executive Order. The effectiveness of the program relies heavily on participation at the installation level in following the EPA guidelines. Detailed guidance is available in the CPGs and RMANs. Other guidance is available in the EPA publication titled *“Greening the Government. Guide to Implementing Executive Order 13101.”*

8.1.2 Environmentally Preferable Purchasing

EPP, according to Executive Order 13101, is buying *“products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.”* All installation activities involved in purchasing, including government credit card holders, should be made aware of, and expected to follow, the EPP practices. References such as the GSA Environmental Products Guide and the DLA catalog of environmental products should be used by the Directorate of Logistics and Directorate of Contracting to make purchasing decisions.

8.2 Pollution Prevention

The pollution Prevention Act of 1990 established Pollution Prevention (P2) as a national objective in reducing wastes at the source. This is achieved by lessening the toxicity and/or the quantity of the waste generated, through such tools as material substitution, use of raw materials, procurement policies, or process changes. Most of the P2 measures taken will effectively reduce the generation of solid waste. In some cases, however, reducing the use of hazardous constituents in a process results in the creation of more non-hazardous solid waste. However, this is an acceptable trade-off.

Table 8.1 goes here

The installation maintains a separate P2 plan outlining material substitutions, process changes, and other methods used to reduce the toxicity or quantity of wastes. The Fort Meade P2 plan outlines several P2 initiatives. In order for these P2 initiatives to be effective, awareness programs such as Recycling, Process Modification/Substitution, and Hazardous Materials/Waste Management must be widely disseminated. The installation places responsibility of environmental stewardship with a network of appointed activity Environmental Coordinators (ECs). These ECs are appointed as a result of the Garrison Policy Letter supporting the development of the P2 program.

Significant accomplishments of the Fort Meade P2 program are summarized below.

8.2.1 Process Modification or Improvement

The installation has made process modification in the area of parts cleaning and degreasing. Citrus-based biodegradable parts cleaners were purchased for activities associated with vehicle maintenance, thus eliminating the need for solvents that generated listed hazardous waste upon their use.

Reductions in volatile organic compounds and hazardous waste generation from solvent based parts cleaning to non-solvent based parts cleaning is approximately 15,000 lb/year based on most recent 1994 data).

8.2.2 Improved Materials Management

The installation purchased fluorescent tube crushers to recover mercury and other hazardous constituents from fluorescent light tubes to prevent this hazardous waste from entering the SW stream. Additionally, fluorescent tube ballasts, which may contain Polychlorinated Biphenyls (PCBs) or di(2-ethylhexyl) phthalate (DEHP) are retrieved for hazardous waste disposal, rather than disposal as SW. All contracts originating from DPW or through the Army Corps of Engineers contracting vehicles include provisions to collect fluorescent tubes and ballasts as a result of renovation or demolition operations and turn them in for appropriate treatment and or disposal through the EMO.

Reduction of mercury into the SW stream was initially approximately 550 grams (1.2 pounds) of mercury in a single calendar year (1996), assuming 40mg of mercury per fluorescent tube, with each tube weighing 0.5 lb. Using this same assumption and the most recent data on fluorescent tube collection (1997 & 1998), the amount of mercury removed from the SW stream is estimated in equations (1) and (2) below.

Estimated number of fluorescent light tubes disposed

$$N = \frac{W_T \times CF_1}{W_t} \tag{1}$$

Where:

N	=	Estimated number of fluorescent light tubes (tubes)
W _T	=	Total weight of fluorescent light tubes collected in a given year (tons)
CF ₁	=	Conversion of tons to pounds (lbs/ton)
W _t	=	Weight of an individual fluorescent light tube (lbs)

Estimated quantity of mercury (Hg) disposed of

$$Hg_Q = Hg_t \times CF_2 \times N \quad (2)$$

Where:

Hg _Q	=	Estimated quantity of mercury diverted from SW stream (g)
Hg _t	=	Quantity of mercury in each fluorescent light tube (mg)
CF ₂	=	Conversion of milligrams to grams (g/mg)
N	=	Defined in equation (1)

Table 7.6 provides estimates for mercury disposal based on 1997 and 1998 data, which indicate that for 1997 and 1998 approximately 442g (0.972 lbs) and 480g (1.056 lbs) of mercury, respectively, were diverted from the SW stream through recycling/disposal activities.

Reductions of PCBs released into the SW stream is approximately 206 lbs per CY (1996 data) assuming 6,592 lbs of fluorescent light ballasts at 2 lbs/ballast.

Reducing oil contamination in the SW stream from oil filter disposal is achieved by using crushers to remove oil from filters prior to disposal. This additional recycling step added approximately 23,000 lb of oil for recycling in 1996. This estimate assumes disposal of 7,667 lbs of dry oil filters, which, when full, weigh approximately three times that of dry filters. Oil collected from the filters is deposited into existing used oil collection stations and is accounted for in the overall used oil data for the installation. Oil filters are recycled as appropriate in the metals recycling stream and accounted for in the metals recycling data for the installation.

Reductions of the SW stream through the post recycling program have been significant during the reporting period (1997 – 2000). The average for the four year period is 1,946.89 tons, which is a mean diversion rate of 35.26% (Table 7.5) for the years with complete data covered by this ISWMP. Table 7.2 provides a detailed breakdown of the quantities and types of items recycled.

8.2.3 Recycling

Fort Meade has expanded its recycling program to include:

- Cardboard
- Manila folders
- Wooden pallets
- Card stock
- Newspapers and telephone books
- Laser printer cartridges
- Aluminum and steel cans
- 55 gallon drums (unusable)
- Shrink wrap
- Compact disks
- White paper (whole and shredded)
- Fluorescent light tubes
- Brown paper bags and plastic bags
- Plastic soda bottles
- Plastic milk containers
- Clear glass

The recycling program has expanded its scope to curbside recycling for family housing. This has resulted in significant reductions from the SW stream providing a cost savings for SW disposal.

8.3 Reuse

The Defense Reutilization and Marketing Office (DRMO) is part of the Defense Reutilization Marketing Service (DRMS) of the Defense Logistics Agency (DLA). DRMO Returns, Transfers, Donates (R/T/D) or sells materials for the installation in accordance with DOD Directive 4160.21-M. Reutilization is within DOD, transfers are within the federal government, and donations are usually to states. DRMO returns funds to the installation in accordance with DOD Directive 7310.1 for financial accounting procedures. 100% of the proceeds from the sale of recyclable materials at the installation are credited to the installation F3875 Budget Clearing Account.

Material transfer forms, available from the DRMO are used to describe surplus or reusable items or materials. The DRMO office catalogs the material based on a generalized groupings list (paint, acid, cleaning compound, etc.). This general description makes up the first four digits of an item's stock number resulting in a searchable DOD-wide database for similar materials. The database indicates the items stock number, general category, name, specific chemical ingredients, percent of hazardous components, manufacturer quantity, supplier name & location, and data listed in the database. Items remain on the list until they are exchanged, sold, or disposed. If no request has been made for items by other DOD installations, surplus items are made available to other federal agencies through the General Services Administration (GSA), state and local governments, and the public. Approximately 60 percent of surplus items generated by the military are sold to federal, state, local, and private interests. An additional 15 percent is traded with the DOD. The remaining 25% is disposed as waste.

8.4 Management Practices

It is highly recommended that installation partners (tenant organizations) take part in practices that minimize the generation of solid waste. Recommendations for minimizing generation of solid waste for general management practices as follows:

- Eliminate preferences for virgin material and encourage the use of EPA Guideline Items (see Table 8.1);
- Items in the post supply store should be replaced with environmentally preferable products whenever possible and ensure the GSA Environmental Products Guide (<http://www.fss.gsa.gov/environ/>) is available for users;

- Replace materials associated with maintenance and operations with EPA guideline items where possible; Writing, letterhead, and copier paper should meet recycled content requirements;
- All contract submittals, specifications, and change orders should have requirements to meet recycled content specifications and be printed double-sided;
- All post news papers, magazines, and post directories should contain recycled newsprint;
- All newly acquired/leased copy machines should be set to automatically default to two-sided copies;
- Recycled toner cartridges should be used in all copy machines and laser printers.

9 RECYCLING PROGRAM

Section 705 of Executive Order 13101 mandates that federal agencies initiate a program to promote cost-effective waste prevention and recycling of reusable materials in all facilities. This takes the form of a QRP where funds received from the sale of recyclables are returned to the installation's recycling account, and in turn distributed to environmental, safety, and recycling programs. The Executive Order also requires that each installation have a designated recycling coordinator.

9.1 Qualifying Recycling Program

At Fort Meade Recycling by all organizations is mandatory as established by Fort Meade Memorandum ANME-PWE: Policy Letter #39, Mandatory Recycling Policy. Based on this long standing policy, Fort Meade has maintained a QRP since 1991. The proponent organization for the recycling program is the DPW where the QRP is coordinated out of the EMO.

The recycling program provides curbside pickup and central drop-off collection of recyclable materials. The Recycling Center, located at Building 2250 is open Monday through Friday from 7am to 3pm. An inventory of the recycling equipment is provided in Table 9.1.

Curbside pickup is provided by the recycling center for 2,750 on-post residences once per week. Gray recycle bins are provided to each residence.

There are five recycling drop-off centers located throughout the Fort Meade post. These centers are at the following locations:

- Senior NCO Quarters (parking lot)
- Recycling Center (parking lot)
- Argonne Hills (near shoppette)
- Meade Heights Housing Area
- Rear of Commissary (near on-post Burger King restaurant)

Drop-off centers are constructed of wood and measure 8' x 16'. Each structure has three drop off windows labeled for specific recyclable items. Items deposited at the recycle centers are collected three times/week, brought to the central recycling Center (Bldg.2250), and processed accordingly by a staff of 9 personnel. Items accepted for recycling and the respective proponent organizations are listed in Table 7.2.

Recycled/recyclable materials are returned to market through contracts with vendors that provide pickup, transport, and marketing services. Market research is conducted by the QRP coordinator.

Table 9.1 goes here

9.2 Funding and Financial Accounting

Recycling proceeds returned to the installation from direct sales of material is used to recover costs incurred from managing and operating the QRP. This includes, but is not limited to manpower, equipment, utility, and real property costs. After expenses are reimbursed, any remaining revenues from the fiscal year's sales can be used at the installation commanders discretion within the following guidelines. The installation commander may use up to 50% of the remaining sale proceeds for pollution abatement, energy conservation, and occupational safety and health activities. Any remaining proceeds may be transferred to the Morale, Welfare, and Recreation Fund to be used for morale, welfare, and recreation activities. Currently, all revenues are required for reinvestment into the QRP.

In cases where tenants request direct disposal of solid waste, the EMO issues disposal site permits to ensure that reusable and recyclable materials are not disposed of inadvertently and so that tenant organizations can gain financial credit for recycled or reused materials. DA Form 1348-1A must be filled out when turning in items to DRMO or the recycle center. The fund cite number must be stamped on the form. EMO provides this stamp upon request. The stamping process ensures proper financial accountability of items submitted for the Fort Meade Recycle Program for reuse or recycling.

9.3 Diversion of Solid Waste From the Solid Waste Stream

Pursuant to AR 200-1, Environmental Protection and Enhancement, Hazardous and Solid Waste Management Policy, Army military and civil works activities and tenants will, among other provisions, minimize waste generation, treatment, and disposal through pollution prevention actions. This will be accomplished according to specific policy goals outlined in AR 200-1 as updated by new policy directives. Previously AR 200-1 specified a performance measure based on a baseline production year. Current DOD policy outlined in "DOD Solid Waste Measure of Merit – DAIM-ED-P (200-1)" and "Memorandum, Deputy Under Secretary of defense (Environmental Security), May 13, 1998, Subject: New DOD Pollution Prevention Measure of Merit", specify that the baseline year, comparison metric be suspended. The DOD policy establishes a new DOD MOM as of FY99. This MOM establishes a diversion rate goal of >40% by the end of FY2005.

"By the end of FY2005, ensure the diversion rate for non-hazardous solid waste is greater than 40%, while insuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using landfilling and incineration alone."

The key metric used to evaluate the attainment of these goals is the diversion rate. The diversion rate equals the rate at which non-hazardous solid waste is diverted from entering a disposal facility. Solid waste diversion rates, for the years covered by this ISWMP, are based on DOD Non-Hazardous Solid Waste Diversion Rate MOM. Under this MOM, facilities must report their diversion rate and cost avoidance resulting from the use of ISWM, and, optionally may report the amount of solid waste disposed through waste-to-energy incineration. Facilities report annually on a FY basis, using the following units, as appropriate: percentage, tons (2,000lbs/ton), and dollars.

Disposal facilities include landfills (both solid waste and inert) and incinerators. Composting, mulching, recycling, reuse, and donation are generally accepted waste diversion methods. The diversion rate is calculated as follows:

$$DR(\%) = \frac{R}{R + L} \times 100$$

Where;

- DR% = Diversion Rate calculated as a percent of the total SW generated
- R = Tonnage of non-hazardous solid waste (including construction and demolition debris) that is composted, mulched, recycled, reused, donated, or otherwise diverted from a disposal facility.
- L = Tonnage of solid waste (including construction and demolition debris) transferred to a disposal facility.

Note: The official definition of R and L includes C&D debris; however, at Fort Meade this waste stream is not adequately documented for inclusion in the current calculations. Beginning in FY01 C&D debris will be included per the March 2001 DAIM-FDF-UE (AR 420-49) Memorandum: "Guidelines for Construction and Demolition waste Management" as outlined in the C&D Waste Management Plan (Appendix A).

Table 7.5 provides calculated diversion rates for FY1999 and FY2000. Data were insufficient to accurately estimate diversion rate for previous years. Note that diversion rates calculated in Table 7.5 differ slightly from those reported in the SWAR system. Table 7.5 includes recycling of fluorescent light tubes (glass & mercury), which increases the diversion rate slightly from the SWAR. PCBs are also removed from fluorescent light ballasts. However no records are available on the annual quantities.

10 COMPOSTING

Composting at Fort Meade is limited to voluntary backyard composting. Backyard composting is performed by individual homeowners on a voluntary basis with low technology equipment. In addition, yard and wood waste are collected by the DPW for temporary storage at a permitted on-site facility. This facility is within the confines of the Fort Meade Landfill, which was closed under RCRA on January 29, 1996 but was permitted by the state of Maryland on April 25, 1997 for temporary storage of yard waste (Letter to Mr. Don Marquardt from Alex M. Cox, Head Investigation & Remediation Section, Maryland Department of Environment).

Non-contaminated yard and wood waste from non-housing areas of the installation is collected by the Department of Public Works (DPW) and temporarily stockpiled, as authorized by the state, at the closed Fort Meade Landfill. DPW hauls this yard and wood waste to A-A Recycle and Sand, Inc. for processing and, on occasion, to the MES Regional Composting Facility. Realm Industries hauls yard and wood waste from housing areas to the MES Regional Composting Facility (see Section 7.5 for additional detail). End uses include mulches and soil conditioners used in landscaping and gardens. Table 7.3 provides the annual quantities of yard and wood waste collected for FY1999 and FY2000. Also, monthly pickup statistics are provided for FY2001 through the month of January.

Yard and wood waste at Fort Meade is picked up once per week between April and November with extra one-time pickups after November as needed (e.g., Christmas tree pickup in January).

Contractors used include:

Maryland Environmental Service
(Disposal Site)
2011 Commerce Park Drive
Annapolis, Maryland 21401,
Realm Industries Corporation

Realm Industries Corporation (Hauler)
50 West Edmonton Drive, Suite 405
Rockville, MD 20852

A-A Recycle and Sand Inc. (Disposal Site)
8217 B&A Boulevard
P.O. Box 412
Linthicum Heights, MD 21090

11 SOLID WASTE AND RECYCLABLES STORAGE, COLLECTION, AND DISPOSAL

11.1 Residential Waste and Recyclables

Residential waste and recyclables are collected through a combination of in house DPW resources and the use of subcontractors. SW and yard waste from housing areas is collected by a contractor, Realm Industries Inc., 50 West Edmonton Dr., Rockville, MD, 20852. Currently curbside pickup of residential waste by Realm Industries Inc., is conducted according to the schedule in Table 11.1. Realm uses standard Rear Loading Compaction Vehicles (RCV) for pickups.

As discussed in Section 9, Fort Meade, through the DPW recycling center, operates an in-house QRP. The QRP provides curbside pickup and recycling drop-off centers for the collection of recyclable materials. These materials are segregated, preprocessed to reduce volume, and sold to recycling vendors that pickup and process the recyclables, whereupon they are sold in the form of recycled products or recycled “raw materials.” A more detailed discussion is provided in Section 9.

For solid waste, records of deliveries and weight of each delivery are maintained by the solid waste contractor and DPW. The weight recorded includes the date, time, gross delivery weight, tar weight, net weight of solid waste, truck identification. These data are located with invoices documenting the amount of SW deposited at the landfill or transfer station.

11.2 Offices and Other Facility Wastes and Recyclables

SW from post facilities, other than NSA, is collected by the refuse section of DPW. NSA refuse is handled separately and is not within the scope of this ISWMP. Offices and other facilities serviced by DPW use approximately 200, 8 yd³ dumpsters. Figure 5.2 shows the location of these post dumpsters serviced by DPW. DPW provides minor maintenance for the dumpsters. Minor maintenance consists of replacing tops, painting, replacing doors, and sanitizing. Sanitizing is conducted as needed. However, during the summer months, the dining facility sanitizes twice per week using a pressure washer.

On-post SW collection, excluding housing areas, is conducted according to the two or three day per week schedule in Table 7.1.

11.3 Yard Wastes

Non-contaminated yard and wood waste from non-housing areas of the installation is collected by the Department of Public Works (DPW) and temporarily stockpiled, as authorized by the state, at the closed Fort Meade Landfill. DPW hauls this yard and wood waste to A-A Recycle and Sand, Inc. for processing and, on occasion, to the MES Regional Composting Facility. Realm Industries Inc. hauls this yard and wood waste to the MES Regional Composting Facility (see Section 7.5 for additional detail).

Table 11.1 goes here

11.4 Construction & Demolition Wastes and Recyclables

Because past practices have not adequately captured the C&D waste stream from Fort Meade, a C&D Waste Management Plan has been developed (Appendix A) to address Draft DAIM-FDF-UE (AR 420-49) Memorandum: “Guidelines for Construction and Demolition waste Management.”

11.5 Special Wastes

Special wastes that cannot or should not be disposed of as solid waste such as scrap tires, asbestos, motor oil, batteries, fluorescent light tubes and others are recycled in programs specific to the type of waste. Section 7.6 outlines the types of special wastes, how they are handled, and the quantity processed at Fort Meade. Table 7.2 provides all recycling data covered by this ISWMP.

12 SOLID WASTE MANAGEMENT FACILITIES

12.1 On-Post Solid Waste Landfills

No on-site solid waste management facilities currently exist at Fort Meade. The Fort Meade Landfill stopped accepting waste in 1996 and received regulatory closure certification on January 29, 1996. A permitted temporary storage site for yard and wood waste located within the boundaries of the former Fort Meade Landfill is used to temporarily (2-3 weeks or less) stockpile yard and wood waste prior to pickup by DPW for transport to A. A. Recycle and Sand Inc. and MES Regional Composting Facility

12.2 Municipal/County/Regional Landfills

All SW at Fort Meade is disposed of at county municipal landfills. Currently either the Annapolis Junction Transfer Station, which ships solid waste out by rail to Virginia, or the Millersville Landfill (Figure 5.1), both located in Anne Arundel County, Maryland, are under contract to receive SW from Fort Meade. Millersville Landfill (Permit No. 1994WRF02400) is located at 389 Burns Crossing Rd., Severn, MD and is open 8:00am to 4:00pm daily (closed on holidays). Millersville landfill has a fill-site of 330 acres and property acreage of 567 acres. The useful capacity of the landfill is expected to last until 2063.

The Annapolis Junction Transfer Station (Permit No. 1995WTS01580) is located at 8077 Brock Bridge Rd., Jessup, MD 20794 and is open Monday – Friday 6:00am to 5:00pm and Saturday 6:00am to 4:00pm. The fill-site is approximately 17 acres and the total property acreage is 33 acres.

A number of other county and regional SW facilities exist in the vicinity of Fort Meade. Table 5.1 lists these facilities.

12.3 Construction and Demolition Debris Landfills

In the state of Maryland all permitted landfills and recycling facilities must also accept C&D debris to the extent that they have adequate capacity. Table 5.1 lists these facilities. The responsibility of C&D waste disposal generally lies with the contractor performing the work. However, DPW does some demolition work (concrete, brick, etc.) and hauls associated C&D waste to a nearby recycling site. No tonnage or tipping fee is imposed and there is no accounting for weights.

13 PROGRAM PROMOTION

Aspects of the solid waste management program require some education and/or promotion. Education and publicity are essential elements of a successful solid waste program. Promotion is particularly important in the areas of recycling, composting, and Affirmative Procurement.

13.1 Promotional Strategies by Program Area

At Fort Meade, solid waste management and recycling are promoted through the efforts of the QRP because of the need to integrate recycling and solid waste disposal activities. Promotional activities for Affirmative Procurement are outlined in the Affirmative Procurement Plan.

The recycling program at Fort Meade is mandatory per DA Memorandum ANME-PWE: Policy Letter #39, Mandatory Recycling Policy. Mechanisms for promoting the recycling program at the post include a recycling packet that is distributed to new tenants. The packet contains a Military Family Housing Questionnaire, which is used to collect user data and raise awareness of the recycling program. The packet also contains a recycling brochure-style news letter, highlighting key issues related to the recycling program and its goals. Recycled paper coloring books are also included as a means of raising awareness about recycling at the post. Signs on public bulletin boards are used to remind tenants of the recycling locations and the types of items that can be recycled.

In addition to the distribution of promotional items, the recycling program sponsors two recycling promotional events each year to raise public awareness. In November, America Recycles Day is celebrated and on April 22 each year Earth Day is celebrated. Both events are used to promote the recycling program and remind tenant organizations of their responsibility to take advantage of the recycling opportunities that are available.

Specific periodicals “the Weekly Bulletin” and “Sound-off” are also used as a means to communicate information concerning solid waste management programs, especially changes or updates on how operations will occur or to introduce new components or requirements of solid waste management programs. Electronic message signs are also used to “get the word out.”

13.2 Training

Proper and relevant training is integral to the success and safety of solid waste management operations and recycling programs. Training key managers of DPW programs such as recycling, solid waste, procurement, and P2 keeps those in charge of various programs up to date on new technologies, methods, regulations, and opportunities for program improvement.

Key managers requiring continuing training for proper management of the solid waste program include the Solid Waste Manager and the Recycling Manager. Training for these job functions is currently based on experience in recycling, solid waste management, procurement procedures, and project management. Additional experience gained through on-the-job training is a critical component of training for these positions. No specific training for these manager positions exists. However, these individuals pursue training as needed based on job requirements and available training funding. Below is a summary of current training:

1. Solid Waste Manager: Attended Solid Waste Association of North America conferences and associated courses

2. Recycling Manager: Attended Metals ID & AEDA course obtaining certification for Brass ammunition recycling.
3. Recycling Manager: Attended DOD Recycling conferences

Due to the importance of maintaining a prepared workforce and to ensure regulatory compliance, the EMO plans to assess training needs, and current and potential future training requirements.

Possible sources of training include:

- National Recycling Coalition/Office of Federal Environmental Executive annual conference held each year in September. The Army Logistics Management College (ALMC) offers a defense metal identification and recycling course for recycling managers. Also AEDA training is offered by the U.S. Army Corps of Engineers for identified segregation of firing range scrap in QRPs.
- Buy Recycled/Affirmative Procurement training is designed for environmental staff, procurement logistics personnel, government credit card holders, and contracting officers. USACHPPM has developed an onsite Affirmative Procurement seminar available to installations and facilities. Maryland Environmental Services in conjunction with the Buy Recycled Training Institute also offers training on buying recycled.
- Recommended sources of training materials for solid waste and P2 are the Solid Waste Association of North America annual conference, the Joint Services Pollution Prevention conference and the National P2 Roundtable. Conference information is available through Defense Environmental Network Information and Exchange (DENIX). The ALMC also offers a course on P2 in the Acquisition Process.

In addition to the training of key managers, all new residents, during their orientation activities, are provided with informational materials discussing recycling policies and procedures to ensure compliance with post recycling mandates.

14 RECORD KEEPING

14.1 Solid Waste Annual Reporting

Record keeping is simplified by the use of the Solid Waste Annual Reporting System (SWAR), which is the DOD's system used to track and report installation solid waste and recycling data. SWAR captures all data on solid waste generated, recycled, and disposed on Fort Meade with the exception of NSA. NSA handles solid waste reporting separately for security reasons. SWAR also compares data with DOD MOMs and provides trend analysis capabilities. As of April 1999, all installations were required to submit quarterly reports through their MACOM, who in turn reports to HQDA.

At Fort Meade the DPW records data in SWARs and reports quarterly to the MACOM. The Environmental Management Office bears the responsibility of this task. Sources of needed data include: The Recycling Program, Procurement, contractors, DRMO, Refuse Section, and the Hazardous Substance Storage Facility.

14.2 Construction and Demolition Resource Recovery Reporting

Record keeping must be consistent with the final version of the March , 1, 2001 Draft DAIM-FDF-UE (AR 420-49) Memorandum: "Guidelines for Construction and Demolition waste Management," the final version of which is expected in August 2001. These guidelines are based on Army Corps of Engineers guide specifications" (CEGS-01572) referenced in the subject memorandum, contractors conducting C&D projects at Fort Meade must submit a C&D waste management plan to the DPW within 15 days of contract award. This C&D waste management plan, demonstrating how C&D wastes will be minimized through resale, reuse, return, or recycling.

During C&D project execution, records documenting the quantity of waste generated; the quantity of waste diverted through sale, reuse, or recycling; and the quantity of waste disposed by landfill or incineration. The records will be made available to the contracting officer during construction/demolition, and a copy of the records will be delivered to the contracting officer upon project completion. These data will be captured in SWAR. C&D waste record keeping is also addressed in the C&D Waste Management Plan (Appendix A).

14.3 Affirmative Procurement Reporting

With the issuance of Executive Order 13101, all federal agencies (including DOD) have the responsibility for developing, tracking, and monitoring systems to demonstrate compliance with Affirmative Procurement mandates. Currently, no specific guidance is available for installations to begin this tracking process.

14.4 Refuse Collection and Recycling Reporting

The Refuse Section of DPW is responsible for maintaining DPW records for SW disposal including solid waste manifests issued by Fort Meade and weight tickets issued by the disposal facility.

15 FACTORS AFFECTING SOLID WASTE MANAGEMENT DECISION-MAKING

Fort Meade is a unique facility because many of the factors affecting solid waste management decision-making are managed by virtue of Fort Meade's mission or by the fact that many SW activities are contracted to private industry. Mission-specific issues affecting SW management are installation size and population. Fort Meade's mission as a host to tenant organizations such as NSA, Army Intelligence and Security Command, the Defense Courier Service, the U.S. Army Field Band, the U.S. Army Intelligence and Security Command, First U.S. Army (East), the Naval Security Group Activity, the 694th Intelligence Group(U.S. Air Force) and the EPA Center provides staffing and troop levels that do not fluctuate considerably with specific military actions. This fact creates a SW stream that is not expected to rise or fall dramatically through time. Numerous building projects are underway and are planned for the future. However, the majority of these projects are designed to upgrade or replace existing facilities as Fort Meade is modernized to meet today's military challenges. No net change in SW generation is expected as a result of these future activities.

Currently, there is no on-post landfill. With the exception of temporary storage of yard and wood waste, the Fort Meade Landfill is closed and all SW is transported to commercially operated landfills in the surrounding community.

DA draft policy, DAIM-FDF-UE (AR 420-49), "Guidelines for Construction and Demolition Waste Management," requires a C&D waste management plan along with full accounting of C&D waste. When finalized (expected August 2001), implementation of the policy will minimize landfill disposal and maximize resale, reuse, return, and recycling. In response to this new guidance, a C&D Waste Management Plan (Appendix A) has been developed for immediate implementation.

Affirmative Procurement through EPP Programs is not currently maximized through the institution of a formal program at Fort Meade. In response an Affirmative Procurement Plan should be developed to provide guidance for implementing such a program. Proponent organizations should set goals for instituting Affirmative Procurement so that Fort Meade can maximize its efforts to purchase, when possible, recycled or recyclable materials to reduce the use of virgin content products.

Potential for added cost avoidance, increased recycling, and decreased landfilling exists through cardboard recycling. Currently cardboard is stockpiled for recycling, but the Recycling Center does not have the proper conveyance to pickup and transport cardboard. As a result, cardboard is sent to the landfill as SW. Planning for the purchase of a front end loading fork type cardboard recycling container truck would allow cardboard recycling and significantly improve management of SW.

Based on an analysis of available SWAR data on SW disposal and recycling costs it is evident that the primary driving force behind increases in costs of managing SW is collection costs (Figure 15.1 and 15.2), which rose 92% due solely to contractor cost increases. Contractor costs rose from \$91,000 to \$175,000. While some of this cost can be attributed to increased scope of work for the contractor (pick up of residential SW), the increase remains appreciable given the government cost did not show a corresponding decrease.

An important contributor to controlling SW disposal costs may be the increased cost avoidance. As more organizations recycle or otherwise divert solid waste from the waste stream, less waste is landfilled. Figure 15.3 illustrates the dramatic 14% increase (\$171,124 to \$195,025) in cost avoidance between FY1999 and FY2000. Setting goals for additional cost avoidance as a means of controlling disposal costs may be an effective way to control SW disposal costs. In an effort to reduce SW disposal costs an increased emphasis will be placed on resale, reuse, return, and recycling to increase revenues and cost avoidance while reducing the amount of SW shipped to landfills.

Another factor potentially affecting solid waste management planning at Fort Meade is the planned development of the Architect of the Capitol. This agency is responsible to Congress for the structural and mechanical care of the Capitol, the legislative office buildings, the Library of Congress buildings, the Supreme Court building, the surrounding grounds, and other elements of the Capitol Complex. The Architect is also responsible for the care and conservation of numerous works of art. The Architect of the Capitol facility will be developed over the next 10 years requiring coordination of solid waste management planning activities.

Figure 15.1 goes here

Figure 15.2 goes here

Figure 15.3 goes here

16 CONTINGENCY PLANNING

Contingency planning is critical to uninterrupted SW processing and the continued uninterrupted operation of Fort Meade. Disposal/transfer facilities, points of contact, federal contacts, and other military installations are listed in Tables 16.1 and 16.2 to provide contingency options to Fort Meade's DPW in handling solid waste at the installation. These facilities and contacts provide a variety of options open to Fort Meade to handle temporary planned or unplanned interruptions in SW disposal.

Table 16.1 goes here

Table 16.2 goes here

17 SOLID WASTE MANAGEMENT ACTION ITEMS

solid waste management action items are provided to identify future activities that are needed to fulfill the goals and objectives set forth in the ISWMP. Each Action Item (AI) is listed in Table 17.1 with information on the proponent organization and/or point of contact, and a schedule goal for completing the AI. The AI's have not been prioritized. Note that while it is DA policy that that installation-operated landfills not accept wastes from outside sources, as a contingency (only) this option may be considered.

Table 17.1 goes here

18 PERIODIC EVALUATIONS

This ISWMP will be reevaluated on a two year cycle consistent with county updates of SW management plans. In addition, should significant regulatory changes in the types or quantities of wastes generated, reductions in the waste stream due to successful minimization/recycling, changes in the availability of regional disposal facilities, and/or new or amended contracts that affect solid waste management, the ISWMP will be updated so that these changes can be documented and incorporated into the overall planning process for Fort Meade.

