Department of Defense
INSTRUCTION

June 18, 1996
NUMBER 4715.4

USD(A&T)

SUBJECT: Pollution Prevention

References: (a) DoD Directive 4715.1, "Environmental Security," February 24, 1996
(b) DoD Instruction 4715.5, "Management of Environmental Compliance at Overseas Installation," April 22, 1996
(c) Overseas Environmental Baseline Guidance Document, October 1992[1]
(d) DoD Directive 5000.1, "Defense Acquisition," March 15, 1996
(e) through (jj) see enclosure 1

A. PURPOSE

This Instruction:

1. Implements policy, assigns responsibility, and prescribes procedures under reference (a) for implementation of pollution prevention programs throughout the Department of Defense.

2. Designates Executive Agents to lead DoD implementation of key pollution prevention programs. Executive Agents are specified in enclosure 2.

B. APPLICABILITY AND SCOPE

This Instruction:

1. Applies to the Office of the Secretary of Defense (OSD); the Military Departments (including the Coast Guard when it is operating as a Military Service in the Navy); the Chairman of the Joint Chiefs of Staff; the Unified Combatant Commands, as appropriate; the Inspector General of the Department of Defense; the Defense Agencies; and the DoD Field Activities; including other integral DoD organizational entity or instrumentality established to perform a governmental function (hereafter referred to collectively as "the DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force and the Marine Corps.

2. Applies to DoD operations, activities, and installations in the United States, Puerto Rico, and territories or possessions over which the United States has jurisdiction, including Government-owned, contractor-operated (GOCO) facilities, and facilities supported by appropriated and non-appropriated funds. Outside the United States, section D and paragraph F.2.c of this Instruction shall apply, consistent with DoD Instruction 4715.5 (reference (b)), international agreements, status

[1] This reference can be found on the Defense Environmental Network Information Exchange (DENIX) electronic bulletin board.

of forces agreements, and Final Governing Standards issued for host nations (or the Overseas Environmental Baseline Guidance Document (reference (c)) where no Final Governing Standards have been issued).

3. Applies to Program Executive Officers, Program Managers, and all other Material Developers, consistent with the policies, requirements, and procedures of DoD Directive 5000.1 (reference (d)) and DoD 5000.2-R (reference (e)).

4. Does not apply to:

a. Procurement, use, generation, storage, processing, disposal, or management in any sense of radioactive materials subject to regulation under E.O. 12344 (reference (f)), 42 U.S.C. 7158 (reference (g)); the Atomic Energy Act, 42 U.S.C. 2011 (reference (h)); or the Low Level Radioactive Waste Policy Act, 42 U.S.C. 2021b (reference (i)).

b. Additional pollution prevention requirements for transportation-related onshore and offshore facilities and vessels that are regulated by the U.S. Coast Guard. See 33 C.F.R. 154-156 (reference (j)) and 33 U.S.C. 1901-1912 (reference (k)).

c. The civil works function of the Department of the Army.

C. DEFINITIONS

To maintain consistency throughout the DoD Components, the terms and definitions in enclosure 3 apply for this Instruction, and shall be used for any supplemental or delegated regulations, instructions, or publications promulgated by the DoD Components.

D. POLICY

1. It is DoD policy to:

a. Ensure installations in the United States comply with applicable Federal, State, interstate, regional, and local environmental laws, regulations, and standards, and with relevant Executive Orders; or in the case of installations located outside the United States, with applicable Executive Orders, international agreements, Federal statutes with extraterritorial effect, and either the Final Governing Standards or the Overseas Environmental Baseline Guidance Document (reference (c)) where no Final Governing Standards have been issued.

b. Reduce the use of hazardous materials, the generation or release of pollutants, and the adverse effects on human health and the environment caused by DoD activities.

c. Reduce pollution through improvements in energy and water efficiency, the use of alternative fuels, and other activities that improve resource utilization.

2. It is DoD policy to accomplish the objectives using a management approach that:

a. Emphasizes pollution prevention, including improvements in energy and resource utilization, as the alternative of "first choice" in achieving compliance with applicable environmental requirements and Executive Orders.

b. Incorporates pollution prevention at installations, and into all phases of acquisition, operations, maintenance, support and ultimate disposal of weapon systems over the system life-cycle.

c. Uses the environmental management hierarchy to develop environmental solutions. In descending order of preference, the Department of Defense will:

(1) Prevent pollution at the source to eliminate or minimize adverse health effects while protecting, preserving, restoring, and enhancing the quality of the environment.

(2) Reuse pollutants that cannot be eliminated. Recycle, in an environmentally safe manner, pollutants that cannot be reused.

(3) Treat, in an environmentally safe manner, pollutants that cannot be eliminated or recycled.

(4) Dispose or release pollutants into the environment only as a last recourse and only where such disposal or release can be controlled and conducted in a manner that is safe for human health and the environment and consistent with applicable legal requirements.

d. Reduces the life cycle costs of weapon systems by avoiding the use of hazardous materials.

e. Plans, programs and budgets to achieve the policies in this Instruction. Component budgeting procedures shall utilize the environmental quality classes defined in enclosure 3 and the following definitions for environmental compliance and pollution prevention:

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

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

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

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

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

E. RESPONSIBILITIES

1. The Deputy Under Secretary of Defense For Environmental Security, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Consistent with the policies in DoD Directive 4715.1 (reference (a)), provide guidance, oversight, advocacy, and representation for environmental security pollution prevention programs.

b. Integrate the Department of Defense's pollution prevention program with other environmental, safety, and health programs.

c. Coordinate interaction with the Congress and Federal, State, Indian tribal, regional, host country, and local offices on pollution prevention issues.

d. Serve as the Department of Defense Environmental Executive in accordance with E.O. 12873 (reference (l)).

e. As the Principal Staff Assistant, ensure that the Defense Environmental Security Corporate Information Management (DESCIM) program management office develops and deploys systems that have the capability to support compliance with all applicable environmental laws and Executive Orders referenced by this Instruction, and allow for inventory management.

f. Monitor compliance with this Instruction, including progress toward achieving the appropriate measures of merit (enclosure 4), and periodically review the DoD Component's pollution prevention programs.

g. Actively participate and support weapon system integrated product teams to ensure environmental, safety, and health (ESH) requirements are adequately addressed.

h. Advise the Defense Acquisition Board and the overarching integrated product teams on ESH issues.

i. In coordination with the DoD Components, designate a Service or Defense Agency as lead or Executive Agent for special pollution prevention-related issues or areas.

j. Develop and promulgate Environmental Security pollution prevention goals and objectives, and approve the means of measurement, in coordination with the DoD Components, for attaining those goals and objectives.

2. The Director, Defense Research and Engineering, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Develop an integrated, coordinated Science and Technology Program to address the pollution prevention technology requirements defined by the Deputy Under Secretary of Defense (DUSD(ES)).

b. Issue guidance to the DoD Components concerning pollution prevention Science and Technology Programs.

3. The Deputy Under Secretary of Defense for Logistics, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Develop policy and guidance to incorporate pollution prevention into all logistics activities, including support of weapon systems and hazardous material management systems.

b. Ensure that all environmental compliance statutory and Executive Order requirements that apply to DoD non-tactical vehicles are properly reflected in DoD 4500.36-R (reference (m)).

4. The Assistant Secretary of Defense for Economic Security, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Ensure that the DoD Components revise appropriate specifications, standards, and other standardization documents to eliminate or reduce the use of extremely hazardous substances, toxic chemicals, ozone-depleting substances, and other hazardous materials consistent with the safety, health, and reliability requirements of each Component's mission, as required by E.O. 12856 (reference (n)).

b. Promote the use of environmentally preferable products to the maximum extent practicable by revising specifications and standards, as appropriate, as required by E.O. 12873 (reference (l)).

c. Promote pollution prevention by assisting the DoD Components to develop programs for energy conservation and use of energy from renewable sources, where cost effective.

d. Establish programs and policies for DoD-owned or leased buildings and facilities that promote sustainable development goals in accordance with E.O. 12902 (reference (o)), and coordinate policy and implementation oversight with DUSD(ES) to ensure program environmental goals are achieved.

5. The Director, Defense Logistics Agency, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Establish procedures and controls that ensure that when recyclable materials are consigned for disposal to the Defense Reutilization and Marketing Service (DRMS) on behalf of a qualified recycling program, 100% of any proceeds, less the costs of sales and handling, are returned to installations in accordance with established accounting procedures.

b. Operate and manage the DoD Ozone Depleting Substances Reserve including preparation of reports if required by Congress, through DUSD(ES), in accordance with 10 U.S.C. 2301 (reference (p)). Establish procedures governing operation of the Reserve.

6. The Heads of the DoD Components shall:

a. Ensure compliance with this Instruction.

b. Ensure pollution prevention is incorporated into all acquisition phases and across the entire life cycle (from concept exploration through system demilitarization and disposal) of all weapon systems. Pollution prevention for an active acquisition program shall be done in accordance with DoD Directive 5000.1 (reference (d)) and DoD 5000.2-R (reference (e)). Pollution prevention for fielded weapon systems not included within the scope of an active acquisition program shall be done in accordance with this Instruction.

c. Plan, program, and budget for pollution prevention programs in accordance with DoD guidance and fiscal policies.

7. The Secretaries of the Military Departments, the Directors of the Defense Agencies and the DoD Field Activities shall:

a. Implement programs to monitor and achieve progress toward the Department's pollution prevention measures of merit. Measures of merit are given in enclosure 4.

b. Establish an affirmative procurement program in accordance with 42 U.S.C. 6962 (reference (q)) and E.O. 12873 (reference (l)).

c. Establish a program to purchase and operate alternative-fueled vehicles to reduce the emission of pollutants associated with non-tactical vehicles, as required by P.L. 102-486 (reference (r)), E.O. 12844 (reference (s)), and DoD 4500.36-R (reference (m)).

d. Research and develop innovative pollution prevention technologies in accordance with Director, Defense Research and Engineering guidance through partnerships among Federal agencies, Government laboratories, and the private sector.

e. Establish and execute cost-effective waste prevention and qualified recycling programs to reduce the volume of non-hazardous solid waste in accordance with 10 U.S.C. 2577 (reference (t)) and E.O. 12873 (reference (l)). Establish procedures governing qualified recycling programs.

f. Execute strategies to eliminate reliance on Ozone Depleting Substances (ODS) in accordance with E.O. 12843 (reference (u)) and 10 U.S.C. 2301 (reference (p)).

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

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

i. Carry out the responsibilities of a lead or DoD Executive Agent for specific pollution prevention-related areas when designated by DUSD(ES) under paragraph E.1.i., above. Designated DoD Executive Agents are in enclosure 2. The lead or Executive Agent shall:

(1) Develop a charter outlining functions and responsibilities, to be approved by DUSD(ES) and coordinated with the DoD Components.

(2) Report as appropriate, but at a minimum semi-annually, to the appropriate Defense Environmental Security Council (DESC) committee.

(3) Ensure all policy issues are coordinated by the appropriate DoD Component and OSD chains of command.

j. Raise emerging DoD pollution prevention issues through the DESC, the Environment, Safety and Occupational Health Policy Board, or the DESC Pollution Prevention Committee, as established under DoD Directive 4715.1 (reference (a)).

F. PROCEDURES

1. The Heads of the DoD Components shall establish procedures that ensure that fielded weapon systems, not included within the scope of an active acquisition program, establish and maintain a pollution prevention program. The scope of the pollution prevention program shall, at a minimum, include the requirements that are applicable to active acquisition programs as required in DoD 5000.2-R (reference (e)), paragraphs 3.3.6, 4.3.7.2, 4.3.7.4, and 4.3.7.5.

2. The Secretaries of the Military Departments, the Directors of the Defense Agencies and the DoD Field Activities shall:

a. Participate in annual pollution prevention reviews as required by DUSD(ES). The review shall include, at a minimum, a progress report on the measures of merit outlined in enclosure 4.

b. Report to DLA estimates for ODS Defense requirements and provide them the data necessary to prepare any required reports, including those in 10 U.S.C. 2301 (reference (p)).

c. Ensure that all installations worldwide:

(1) Maintain inventory management and control processes that minimize the use of hazardous materials, as appropriate, in the most economical manner.

(2) Maintain and execute pollution prevention plans that identify goals and cost-effective management processes or technologies to eliminate or reduce the use and disposal of hazardous materials.

(3) Establish recycling programs and procedures that:

(a) Ensure, where cost effective, that all installations and activities have, or participate in, qualified recycling programs, and that installation recycling programs are available to serve all host and tenant organizations occupying space on the installation, including leased space.

(b) Ensure, where cost effective, that contracts, awarded after the effective date of this Instruction, that provide for contractor operation of a government-owned or leased facility located within the United States, its territories, or possessions, include provisions that obligate the contractor to participate in a recycling program. Where cost effective, existing contracts covering GOCO facilities should be modified to incorporate recycling provisions. The DoD Components should require participation by contractors operating government-owned or leased facilities overseas where recycling programs are available.

(c) Ensure that qualified recycling program procedures address recyclable materials, excluded materials, and other qualified recycling program materials. See definitions.

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

(e) Establish controls that ensure excluded materials (see definition), including those listed in 32 C.F.R. 172.2(b)(3) (reference (w)), are not sold through a qualified recycling program.

(f) Authorize installation commanders, as appropriate, to sell directly recyclable and other qualified recycling program materials, or to consign them to the DRMS for sale.

1 Installations must implement Component procedures that ensure U.S. trade security control policies are followed in accordance with DoD Instruction 4160.27 (reference (x))

and DoD 4160.21-M-1 (reference (y)), prior to directly selling firing-range-expended brass or mixed metals gleaned from firing range cleanup that do not require demilitarization and that are Munitions List Items (MLI) or Strategic List Items (SLI). Expended brass shall be crushed, shredded, or otherwise destroyed prior to public sale.

2 Reuse Screening: Prior to selling directly other qualified recycling program materials, installations shall implement Component procedures for local reuse screening to consider reutilization, transfer, and donation programs in accordance with DoD 4160.21-M (reference (v)).

3 Ensure that outside the United States, disposition of recyclable and other qualified recycling program materials, derived from goods that have been imported duty-free, is accomplished, if at all, consistent with the provisions contained in status of forces, surplus or excess property agreements, or other international agreements with host nations

(g) Ensure that distribution of recycling proceeds is consistent with 10 U.S.C. 2577 (reference (t)).

1 Sale proceeds shall first be used to cover the costs directly attributable to all installation recycling programs, including, but not limited to, manpower, facilities, equipment, overhead, and other capital investments. After these costs are recovered, installation commanders may use up to 50% of the remaining proceeds for pollution abatement, pollution prevention, composting and alternative fueled vehicle infrastructure support and vehicle conversion, energy conservation, or occupational safety and health projects, with first consideration given to projects included in the installation's pollution prevention plan. Any remaining proceeds may be transferred to the non-appropriated Morale, Welfare and Recreation account for any approved programs.

2 An accounting and control system shall be established for recycling programs that provides detailed management and audit information, tracks material quantity handled, calculates sales and handling costs for recycled material, and tracks expenditures made for appropriate projects and Morale, Welfare and Recreation programs. Integrity of the audit trail will be a priority concern.

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

(4) Operate a composting program or participate in a regional composting program, if it is practicable to do so.

d. Ensure all installations in customs territory of the United States and Guam meet the following additional requirements:

(1) Comply with the Toxic Release Inventory and Pollution Prevention Act Reporting requirements of section 3-304 of Executive Order 12856 (reference(n)).

(2) Comply with the Emergency Planning and Community Right-to-Know Reporting Responsibilities requirements of section 3-305 of Executive Order 12856 (reference (n)).

(3) Ensure that pollution prevention plans required by subparagraph F.2.c.(2), above, also comply with sections 3-302(d), 5-505, and 5-508 of Executive Order 12856 (reference (n)). In addition, the pollution prevention plans shall describe how the installation will contribute to meeting the goals of the Pollution Prevention Measures of Merit contained in enclosure 4.

e. Ensure all installations in the United States establish and execute a program to reduce the emission of air pollutants by DoD non-tactical vehicles by:

(1) Acquiring alternative-fueled vehicles to meet the requirements of P.L. 102-486 (reference (r)), Executive Order 12844 (reference (s)), and DoD 4500.36-R (reference (m)), ensuring that such alternative-fueled vehicles meet mission needs.

(2) Ensuring sufficient supporting infrastructure for alternative-fueled vehicles, relying on commercial infrastructure where feasible.

(3) Planning placement of alternative-fueled vehicles to obtain maximum air quality benefits, including Clean Air Act credits under 42 U.S.C. 7401-7671 (reference (z)).

3. The Director, Defense Logistics Agency, under the Under Secretary of Defense for Acquisition and Technology, shall:

a. Ensure that a uniform control system is established by the DRMS for recyclable materials consigned for disposal. This system shall be sufficiently detailed to provide management audit information to permit the DRMS to properly calculate sales and handling costs, and reimburse installations and organizations 100% of the proceeds, net of costs, for materials sold.

b. Prepare ODS report for DoD submission to Congress as required by 10 U.S.C. 2301 (reference (p)). The report control symbol (RCS) is (DD-A&T(Q)1958).

G. INFORMATION REQUIREMENTS

1. Emergency Planning and Community Right-to-Know Act (EPCRA) Reporting. All DoD facilities within the customs territory of the United States and Guam meeting the 42 U.S.C. 11049(4) (reference (aa)) definition of "facility," regardless of Standard Industrial Classification Code, shall meet all requirements of Executive Order 12856 (reference (n)). All DoD facilities exceeding the Section 313 of 42 U.S.C. 11023 (reference (bb)) toxic chemical thresholds must file a Toxic Chemical Release Inventory report, Form R, to the Environmental Protection Agency (EPA) and appropriate State regulatory agency for each toxic chemical meeting threshold requirements.

even if no releases or off-site transfers have occurred. Each DoD Component shall submit a copy of each Form R from their installations to DUSD(ES).

2. Alternative-Fueled Vehicle Reporting. The DoD Components shall provide required information to Department of Energy's (DoE) Energy Information Administration (Form EIA 886, Part III), the General Services Administration (GSA Standard Form 82), and will prepare an annual report as required by Section 6 of E.O. 12844 (reference (s)). Each Component will forward a copy of its annual report to DUSD(ES).

3. Alternative Fuels Reporting. The DoD Components shall report directly to the ASD(ES) on DoE's Federal Energy Management Program (DoE Form 6200.2).

4. Office of Federal Procurement Policy and E.O. 12873 (reference (l)). The DoD Components are required annually to provide data to DUSD(ES) that summarizes their purchases of commodities not purchased through other government agencies meeting the EPA guideline requirements and other actions they are taking to meet the intent of the Executive Order. See 42 U.S.C. 6962 (reference (q)) and E.O. 12873 (reference (l)).

5. Annual Pollution Prevention Review. The DoD Components will present an IPR on their program (per subparagraph E.7.h., above) to DUSD(ES).

6. Executive Order 12856 (reference (n)). The DoD Components are required to provide information annually to DUSD(ES) that summarizes their actions taken to implement the requirements of reference (n).

H. EFFECTIVE DATE

This Instruction is effective immediately.

Paul Kaminski

Paul Kaminski
Under Secretary of Defense
for Acquisition and Technology

Enclosures, - 4

1. References
2. Executive Agents for Environmental Media and Specialty Areas
3. Definitions
4. DoD Pollution Prevention Measures of Merit

REFERENCES

(e) DoD 5000.2-R "Mandatory Procedures for Major Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs," March 15, 1996
(f) Executive Order 12344, "Naval Nuclear Propulsion Program," February 1, 1982
(g) Section 7158 of title 42, United States Code
(h) Section 2011 of title 42, United States Code
(i) Section 2021 of title 42, United States Code
(j) Title 33, Code of Federal Regulations, Section 154-156
(k) Sections 1901-1912 of title 33, United States Code
(l) Executive Order 12873, "Federal Acquisition, Recycling, and Waste Prevention," October 20, 1993
(m) DoD 4500.36-R "Management, Acquisition, and Use of Motor Vehicles," March 29, 1994
(n) Executive Order 12856, "Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements," August 3, 1993
(o) Executive Order 12902, "Energy Efficiency and Water Conservation at Federal Facilities," March 8, 1994
(p) Section 326 of Public Law 102-484, section 2301 of title 10, United States Code, note[2]
(q) Section 6962 of title 42, United States Code
(r) Public Law 102-486, "Energy Policy Act of 1992," October 24, 1992[3]
(s) Executive Order 12844, "Federal Use of Alternative Fueled Vehicles," April 21, 1993
(t) Section 2577 of title 10, United States Code
(u) Executive Order 12843, "Procurement Requirements and Policies for Federal Agencies for Ozone Depleting Substances," April 21, 1993
(v) DoD 4160.21-M, "Defense Reutilization and Marketing Manual," March 23, 1990, authorized by DoD Directive 4160.21, December 5, 1980
(w) Title 32, Code of Federal Regulations, Part 172
(x) DoD Instruction 4160.27, "Demilitarization of Materiel," December 14, 1988
(y) DoD 4160.21-M-1, "Defense Demilitarization Manual," October 21, 1991, authorized by DoD Directive 4160.21, December 5, 1980
(z) Sections 7401-7671 of title 42, United States Code
(aa) Section 11049 of title 42, United States Code
(bb) Section 11023 of title 42, United States Code
(cc) Section 6374 of title 42, United States Code
(dd) Section 1401 of title 19, United States Code
(ee) Sections 4321-4370 of title 42, United States Code
(ff) Title 40, Code of Federal Regulations, Part 302
(gg) Section 7671 of title 42, United States Code
(hh) Federal Register, Volume 57, page 33753, July 30, 1992

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[2] 10 U.S.C. 2301 has been repealed, but the requirement remains in the note and still applies.

[3] Refers to multiple parts of the law.

(ii) Sections 13101-13109 of title 42, United States Code
(jj) Section 6903 of title 42, United States Code

EXECUTIVE AGENTS FOR ENVIRONMENTAL MEDIA AND SPECIALTY AREAS

Navy- Ozone Depleting Substances

DEFINITIONS

1. Acquisition Program. A directed, funded effort that is designed to provide a new, improved, or continuing weapons system or automated information system (AIS) capability in response to a validated operational need. Acquisition programs are divided into categories, which are established to facilitate decentralized decision-making and execution and compliance with statutory requirements. (DoD Directive 5000.1 (reference (d)).

2. Alternative Fuel. A fuel as defined in 42 U.S.C. 6374 (g)(2) (reference (cc)).

3. Alternative Fueled Vehicle. A vehicle as defined in Section 6374 (g)(3) of reference (cc).

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

5. Customs Territory. "All Territories and possessions of the United States except the Virgin Islands, American Samoa, Wake Island, Midway Island, Kingman Reef, Johnston Island and the Island of Guam." (from 19 U.S.C. 1401(h) (reference (dd))).

6. Environment. The term "environment" includes water, air, and land and the interrelationship which exist among and between water, air, and land and all living things. (from 42 U.S.C. 11049(2) (reference (aa)))

7. Environmental Security. A program that enhances readiness by institutionalizing the Department of Defense's environmental, safety and occupational health awareness, making it an integral part of the Department's daily activities. Environmental Security is comprised of cleanup, compliance, conservation, pollution prevention, safety, occupational health, explosives safety, fire and emergency services, pest management, environmental security technology and international activities.

8. Environmentally Preferable. 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. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service. (from Executive Order 12873, section 201 (reference (l)))

9. Environmental Quality Classes. This includes the following designations:

a. Class 0 - Includes activities needed to cover the recurring administrative, personnel and other costs associated with managing environmental programs that are necessary to meet applicable compliance requirements (Federal, State, and local laws, regulations, E.O.s, DoD policies, and Final Governing Standards overseas or the "Overseas Environmental Baseline Guidance Document" (reference (c)) or which are in direct support of the military mission. Also,

includes environmental management activities associated with the operation of facilities, installations and deployed weapon systems. Recurring costs consist of manpower, training, supplies, hazardous waste disposal, operating recycling activities, permits, fees, testing and monitoring and/or sampling and analysis, reporting and record keeping (e.g. Toxic Release Inventory reporting), maintenance of environmental equipment, and compliance self assessments.

b. Class I - Projects and activities needed that are currently out of compliance (have received an enforcement action from a duly authorized Federal, State, or local authority; have a signed compliance agreement or received a consent order; and/or have not met requirements based on applicable Federal, State, and local laws, regulations, E.O.s, DoD policies, and Final Governing Standards overseas or the Overseas Environmental Baseline Guidance Document (reference (c)). This class also includes projects and activities needed that are not currently out of compliance (deadlines or requirements have been established by applicable requirements, but deadlines have not passed or requirements are not in force) but shall be if projects or activities are not implemented within the current program year. Those activities include the preparation of plans (e.g., National Environmental Policy Act, 42 U.S.C. 4321-4370(d) (reference (ee)), documentation, master plans, emergency response plans, integrated natural and cultural resource management plans, pollution prevention plans; etc.), opportunity assessments and inventories. The preferred approach is to use pollution prevention projects or activities, if cost effective, to bring a facility into compliance. Overseas, that class includes projects and activities necessary to alleviate the human health threats to ongoing operations or necessary to comply with applicable treaties and agreements.

c. Class II - Projects and activities needed that are not currently out of compliance (deadlines or requirements have been established by applicable Federal, State, and local laws, regulations, E.O.s, DoD policies and Final Governing Standards overseas or reference (c), but deadlines have not passed or requirements are not in force) but shall be if projects or activities are not implemented in time to meet an established deadline beyond the current program year. The preferred approach is to use pollution prevention projects or activities, if cost effective, as the means of maintaining or bringing a facility into compliance. Overseas, that class includes projects and activities identified using risk based prioritization practices that meet the long term objective of full implementation of the Final Governing Standards for each foreign country where DoD maintains substantial installations.

d. Class III - Includes projects and activities that are not explicitly required by law but are needed to address overall environmental goals and objectives.

10. Excluded Materials. Excluded materials may not be sold through a qualified recycling program, and the proceeds from their sale SHALL NOT be returned to a qualified recycling program. Excluded items include, but are not limited to:

a. Government-furnished material:

b. Precious metal bearing scrap;
c. Hazardous waste (including household hazardous waste);
d. Ozone depleting substances;
e. Electrical components;
f. Unopened containers of solvents, paints, or oil;
g. Fuels;
h. Material that can be sold (as is) as a usable item;
i. Repairable items that may be used again for their original purposes or functions; e.g., used vehicles, vehicle or machine parts, etc.;
j. Ships, aircraft, weapons, and other material required to be demilitarized or mutilated, and scrap resulting from demilitarization.
k. All Munitions List Items (MLI) and Strategic List Items (SLI) as defined in DoD 4160.21-M-1 (reference (y)), except firing range expended brass and mixed metals gleaned from firing range cleanup.
l. Types of surplus personal property whose sales proceeds must be deposited to accounts other than a qualified recycling program per 32 CFR 172, Appendix B (reference (w)).
(1) Scrap generated from Defense Business Operations Fund (DBOF) activities;
(2) Usable personal property purchased by DBOF activities;
(3) Property purchased with commissary surcharge funds;
(4) Automatic data processing equipment owned by the General Services Administration;
(5) Property purchased for the Military Assistance Program or purchased with Foreign Military Sales Administrative funds:
(6) Coast Guard property;
(7) Property owned by nonappropriated fund activities:
(8) Lost, abandoned, or unclaimed privately owned personal property;
(9) Property owed by a country or international organization;
(10) Bones, fats, and meat trimmings generated by a commissary.

11. Extremely Hazardous Substances. A substance as defined 42 U.S.C. 11049(3) (reference (aa)).

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

13. Government-Furnished Material. Property that may incorporated into or attached to a deliverable end item or that may be consumed or expensed in performing a contract. It includes assemblies, component parts, raw and processed materials and small tools and supplies that may be consumed in normal use in performing a contract.

14. Hazardous Substance. Any substance listed in Table 302.4 of 40 CFR Part 302 (reference (ff)).

15. Other Qualified Recycling Program Materials. Materials that fit neither the definition of recyclable materials nor the definition of excluded materials are classified as other qualified recycling program materials.

16. Ozone Depleting Substances. Means the substances controlled internationally under the Montreal Protocol and nationally under Title VI of the Clean Air Act Amendments (reference (gg)). This includes both Class I and Class II substances as follows:

a. "Class I substance" means any substance designated as Class I in 57 FR 33753 (reference (hh)), including chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform and any other substance so designated by the Environmental Protection Agency (EPA) by regulation at a later date.

b. "Class II substance" means any substance designated as class II in 57 FR 33753 (reference (hh)), including hydrochlorofluorocarbons and any other substance so designated by the EPA by regulation at a later date.

17. Pollution and/or Pollutants. The terms "pollution" and "pollutant " refer to all nonproduct outputs, irrespective of any recycling or treatment that will or may reasonably be anticipated to cause deleterious affects to the public health or the environment.

18. Pollution Prevention. "Pollution prevention" means "source reduction," as defined in the Pollution Prevention Act (PPA) of 1990, 42 U.S.C. Sections 13101-13109 (reference (ii)), and other practices that reduce or eliminate the creation of pollutants through: (a) increased efficiency in the use of raw materials, energy, water, or other resources; or (b) protection of natural resources by conservation. (Also See "Source Reduction").

19. Procurement. The acquiring by contract with appropriated funds for supplies or services by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated and evaluated.

20. Qualified Recycling Program (QRP). Organized operations that require concerted efforts to divert or recover scrap or waste, as well as efforts to identify, segregate, and maintain the integrity of the recyclable materials in order to maintain or enhance their marketability. If the program is administered by a DoD component, a QRP includes adherence to a control process providing accountability for all materials processed through program operations.

21. Recovered Material. Waste materials and by-products that have been recovered or diverted from solid waste, but such term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process. (42 U.S.C. 6903(19) (reference (jj))).

22. Recyclable Materials. Recyclable materials can include, but are not be limited to: high-quality paper and paper products; mixed paper; newspaper; cardboard; plastic; metal cans; glass; used oil (except when hazardous waste; batteries; and tires). In addition, scrap (including ferrous and non-ferrous scrap) and firing range expended brass and mixed metals gleaned from firing

range cleanup that do not require demilitarization may be included in a qualified recycling program.

23. Recycling. The series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion (from Executive Order 12873, Section 207 (reference (l))).

24. Source Reduction. As defined in the Federal Pollution Prevention Act (reference (ii)), source reduction is "any practice that a.) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, and disposal; and b.) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. The term includes equipment or technology modification, process or procedure modification, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control." Source reduction does not entail any form of waste management (e.g., recycling and treatment).

25. Standardization Document. A generic term for a document used to standardize on an item of supply, process, procedure, method, data, practice, or engineering approach. Standardization documents include military specifications, standards handbooks and bulletins; Federal specifications and standards; guide specifications; Commercial Item Descriptions; and Non-Government Standards.

26. Toxic Chemical. A chemical as defined in 42 U.S.C. 11023(c) (reference (bb)).

27. Waste Minimization. Source reduction and the following types of recycling: (a.) beneficial use/reuse and (b.) reclamation. Waste minimization does not include recycling activities whose uses constitute disposal and burning for energy recovery.

DoD Pollution Prevention Measures of Merit

1. By the end of Calendar Year (CY) 1999, reduce total releases and off-site transfers of toxic chemicals 50% from the 1994 toxic release inventory baseline. The amount of toxic releases and off-site transfers will be measured and reported in pounds.

2. By the end of CY 1999, reduce the disposal of hazardous waste 50% from the 1992 baseline. The amount of hazardous waste disposal will be measured and reported in pounds.

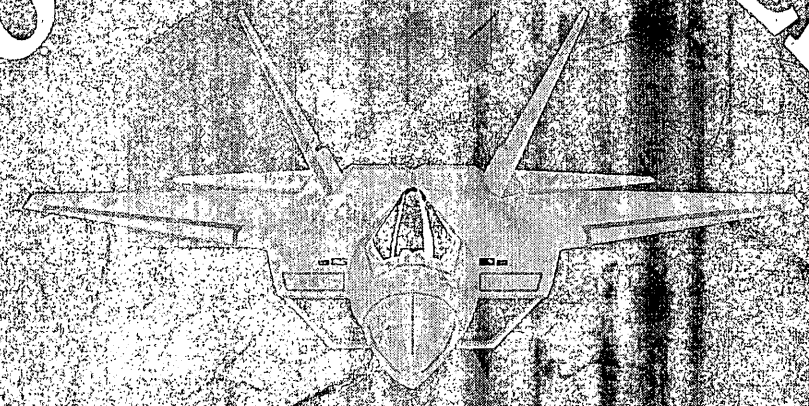
3. By the end of CY 1999, reduce the disposal of non-hazardous solid waste 50% from the 1992 baseline. The amount of solid waste disposal will be measured and reported in pounds.

4. By the end of CY 1999, ensure that 50% of non-hazardous solid waste generated will be recycled. The amount of non-hazardous solid waste recovered and sold DoD-wide for reuse will be measure and reported in pounds.

5. By the end of CY 1999, ensure that 75% of DoD Acquisitions of new, non-tactical vehicles are alternatively fueled vehicles.

Air Force

RESOURCE RECOVERY & RECYCLING PROGRAM GUIDE



May 1995

Air Force

RECYCLING PROGRAM GUIDE

May 1995

TABLE OF CONTENTS

AIR FORCE RECYCLING GUIDANCE

1. GOAL. The goal of Air Force recycling is solid waste reduction, pollution prevention, and conservation of natural resources.

2. AUTHORITY. The installation commander is responsible for implementing a recycling program that complies with public law, Executive Order, and Department of Defense policy and regulations (Attachment), as well as applicable state or local requirements.

3. QUALIFIED RECYCLING PROGRAM (QRP). Each Air Force installation, worldwide, will have a single QRP to serve all Air Force and tenant organizations occupying space on the installation, including leased space. Contracts covering government owned, contractor operated (GOCO) facilities, awarded after 20 Oct 93, shall include provisions that obligate the contractor to participate with a DoD installation QRP or establish their own QRP if there are no DoD installation QRPs that can incorporate the GOCO facility. Where economically feasible and to the extent required by law, existing contracts covering GOCOs should be modified to incorporate these QRP provisions. Each installation commander will be responsible for the organization and operation of the QRP, subject to the following requirements:

a. Organization. The QRP will be an umbrella organization, consisting of up to four separate recycling parts: an appropriated funded (APF) activity, a Services (nonappropriated funds) operation, an Army Air Force Exchange Service (AAFES) section, and a Defense Commissary Agency (DeCA) portion. The umbrella organization of the QRP will employ the following guidelines:

1) Functional Relationships. All recycling parts (APF, Services, AAFES, and DeCA) will forward information on their programs to the QRP manager as requested.

2) QRP Manager. The designated QRP manager is the single point of contact for all aspects of the program including: solid waste reduction and reporting, composting, affirmative procurement reporting, environmental compliance, and education.

b. Program Extent. All organizations will actively participate in the QRP. Services, AAFES and DeCA are required to coordinate their recycling activities with the QRP manager and provide information requested by the QRP manager. Each facility, other than AAFES and DeCA facilities, will collect and segregate recyclable materials for collection by the QRP.

1) Recycling. Each installation will strive to recycle as much of the solid waste stream as possible. As a minimum, each QRP will recycle metals, plastic, glass, used oil, lead acid batteries, tires, high quality copier paper, cardboard, and newspaper. Each installation will conduct an annual opportunity assessment of the solid waste stream to identify source reduction potential and additional recyclable materials. Items excluded from recycling by 32 CFR 172.2 include: a) precious metal-bearing scrap and items that may be used again for their original purposes or functions without any special processing (e.g., used vehicles, vehicle or machine parts, electrical components, and unopened containers of oil or solvent); b) ships, planes, or

weapons that must undergo demilitarization or mutilation before sale; c) scrap generated from Defense Business Operations Fund (DBOF) activities; and d) bones, fats, and meat trimmings generated by a commissary store or exchange.

2) Composting. Each installation will, as appropriate, operate a composting program or participate in a regional composting program. As a minimum, the composting program will include yard wastes.

3) Affirmative Procurement Reporting. In accordance with Air Force Instructions (AFI) 32-7080, Pollution Prevention Program, and 32-7002, Environmental Information Management System, the QRP manger will submit the installation's affirmative procurement program report. Procurement of EPA Guideline Items by the installation's contracting offices will be reported via the Work Information Management System - Environmental Subsystem (WIMS-ES).

c. Funding and Proceeds Distribution. Recycling proceeds generated from the direct sale of nonappropriated fund owned (Services and AAFES), and DeCA material will be returned to the respective organization. Recycling proceeds returned to the installation from the Defense Reutilization Marketing Service and from direct sales of appropriated funded material will first be used to recover appropriated fund costs incurred managing and operating the QRP to include but not limited to: manpower, equipment, utility, and real property costs. After APF cost reimbursement, the installation commander may use up to 50 percent of the remaining sale proceeds for pollution abatement, energy conservation, and occupational safety and health activities. Projects may be funded up to 50 percent of the cost of a minor construction project. Any remaining proceeds may be transferred to the Morale, Welfare, and Recreation Fund to be used for base morale, welfare, and recreation activities. Accounting for recycling proceeds and the distribution thereof shall be in accordance with AFR 177-102, Chapter 29, Paragraph 29.

d. Recurring Operating and Start-up Costs. In accordance with AFI 32-7001, Environmental Budgeting, recurring operating (proceeds shortfall) and start-up costs for the recycling and composting programs will be programmed in Program Element Code (PEC) 78054f. Operating costs are classified as a recurring requirement and start-up costs are identified as a Level PI requirement.

4. REPORTING. The installation program manager will report required information on solid waste disposal, recycling, and affirmative procurement via WIMS-ES in accordance with AFIs 32-7002 and 32-7080.

Attachment:
References

REFERENCES

(a) Public Law 97-214, 10 U.S.C. Section 2577, *Disposal of Recyclable Materials.*

(b) Executive Order 12873, *Federal Acquisition, Recycling, and Waste Prevention,* October 20, 1993.

(c) Deputy Under Secretary of Defense (Environmental Security) Memorandum, *Policy for DoD Recycling*, September 28, 1993.

(d) DoD Instruction 7310.1, *Disposition of Proceeds from DoD Sales of Surplus Personal Property*, July 10, 1989.

MEMORANDUM FOR ALMAJCOM-FOA/CE/FM/JA/LG/SV

FROM: HQ USAF/CE
1260 Air Force Pentagon
Washington DC 20330-1260

SUBJECT: Air Force Recycling Guidance (HQ USAF/CE Ltr, 13 Oct 93) - ACTION MEMORANDUM

The Air Force Recycling Guidance is attached. This guidance implements DoD Recycling Policy, 28 Sep 93, which was distributed with the 13 Oct 93 letter. This guidance states that each installation (worldwide) will have a Qualified Recycling Program (QRP). Each installation commander will be responsible for the organization and operation of the QRP.

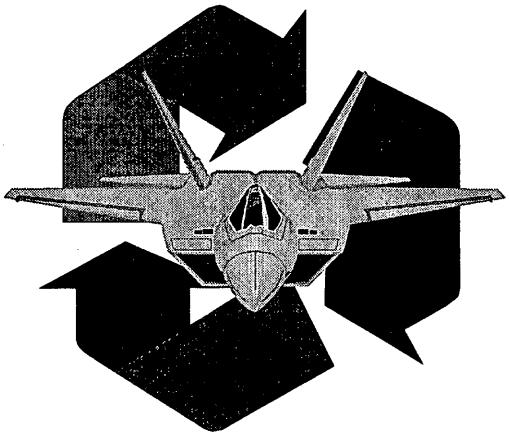
This guidance defines the minimum QRP requirements. Installation commanders will determine the best methods to meet the Air Force goals outlined in the Pollution Prevention Plan, 7 Jan 93. This guidance is incorporated into, and will be superseded by, Air Force Instruction 32-7080, Pollution Prevention Program (the AFI contains no new requirements). This instruction will be published by Jun 94.

At many installations, the recycling programs operated by Services and funded with nonappropriated funds (NAF) may have to be scaled down or discontinued. HQ USAF/SV is developing a transition plan to provide guidance and procedures for reducing or phasing out an installation's NAF funded recycling operation, to include the possible sale or transfer of NAF-purchased recycling equipment. Once approved, this plan will be sent to each MAJCOM for implementation. The point of contact for this effort is Lieutenant Colonel Larry Flowers, DSN 286-3935.

The Air Force recycling point of contact is Captain Dave Maharrey, HQ USAF/CEVV, DSN 227-2797.

Attachment:
Air Force Recycling Guidance

cc:
SAF/AQ/FM/GC/MI
HQ USAF/CE/JA/LG/SV



AIR FORCE
RESOURCE RECOVERY & RECYCLING PROGRAM GUIDE

CHAPTER 1 - INTRODUCTION

This document describes the general elements found in successful resource recovery and recycling programs (RRRP) and provides guidance for implementing a program. The target audience for this guide is the RRRP manager (also called the qualified recycling program (QRP) manager). There are a number of ways to set up a RRRP and it is expected that installations will tailor this program to fit the specific conditions and goals of the installation. This guide supersedes the ***Air Force Recycling How-To-Guide,*** published June 1994. Additional copies of the RRRP guide may be obtained from the Air Force Center for Environmental Excellence, Pollution Prevention Directorate (AFCEE/EP) DSN 240-4964.

1.1 Strategic Goal. The goal of the Air Force RRRP is solid waste reduction, pollution prevention, and conservation of natural resources. Objectives include:

- Minimize the amount of waste discarded in landfills;
- Increase the percentage of waste that is recycled;
- Stimulate market demand for environmentally preferable products by increasing both the type of products and the amount of products purchased;
- Expand the education program with a focus on public awareness and support of recycling and composting programs;
- Maximize proceeds both now and in the future; and
- Comply with Federal, State and local mandates.

1.2 Program Start-up. The most important part of the RRRP Manager's job is resource advocacy; acquiring the manpower, equipment, vehicles, and funding necessary to create a program that reduces waste disposal at the least cost. This section focuses on the overall RRRP program and provides general guidance about program resources.

Later chapters concentrate on the specific program elements (e.g., recycling, composting) and provide detailed suggestions.

1.2.1 Selecting a RRRP Manager. Selecting a dedicated, enthusiastic, and creative program manager is critical to the success of any RRRP. It is strongly recommended that the RRRP manager have no other full-time responsibilities. The program manager must be able to dedicate 100% of his/her time to the RRRP.

The RRRP manager is responsible for consolidating information from all recycling activities, reporting on solid waste reduction and affirmative procurement activities, composting, environmental compliance of the program, and education.

The program manager should also develop a strategic five-year RRRP plan, program requirements in the Work Information Management System-Environmental Subsystem's (WIMS-ES) A-106 and Pollution Prevention Modules, and advocate for funding. The RRRP manager is responsible for the functioning of the RRRP Subcommittee (**See 1.2.3 Organization Participation**).

1.2.2 Program Responsibility. The installation commander has overall responsibility for implementing a resource recovery and recycling program. The RRRP must comply with public law, Executive Orders, Department of Defense and Air Force policies and regulations, as well as applicable state or local requirements (**See 5.1 Legal Requirements**).

1.2.3 Organization Participation. Support from the installation's senior leadership and other organizations is essential to the RRRP's success. The most effective way to incorporate installation organizations into the RRRP is through the Environmental Protection Committee (EPC). The EPC should be used to report results, advance new ideas, describe problems, and identify solutions while ensuring that each organization knows its role for the program to succeed.

Increased installation emphasis can be obtained through the establishment of a RRRP Subcommittee which reports directly to the EPC. The RRRP Subcommittee allows installation-wide participation in this highly visible wing program. Committee members establish program objectives designed to maximize recycling of materials and minimizing solid waste disposal. The committee includes the RRRP manager and should be composed of representatives from a variety of base organizations, to include tenants. As a minimum, recommend representatives from the following organizations be members of the RRRP Subcommittee (installations may not have all these organizations):

- ✈ Aircraft Maintenance;
- ✈ Army and Air Force Exchange Service (AAFES);

- Base Comptroller;
- Civil Engineer Operations;
- Contracting;
- Defense Commissary Agency (DeCA);
- Defense Reutilization and Marketing Organization (DRMO);
- Environmental Management;
- Legal;
- Public Affairs;
- Services;
- Supply; and
- Vehicle Maintenance.

The initial tasks facing the RRRP Subcommittee are to obtain a waste stream characterization, identify available resources, identify potential markets, determine method of program accomplishment, identify facility, equipment, and vehicle requirements, and promote education. On the basis of this data, the subcommittee will develop a program start-up strategy and obtain organizational support for the identified initiatives. The installation commander has ultimate ownership of the program and is responsible for ensuring the program meets or exceeds Air Force goals.

Once the RRRP is functioning, the RRRP Subcommittee should review and consider: (1) suggestions to improve and expand present operations; (2) audits and inspection reports; (3) the RRRP budget and execution; (4) proposed programs/projects for recycling revenue use; and (5) educational and promotional activities.

1.2.4 Economic Analysis. Another essential tool is an economic analysis of the waste stream, handling methods, and material markets. This analysis allows the RRRP manager to make intelligent choices in program start-up and employment of resources. The material markets section of the analysis should include not only how industry prefers the material packaged, but an examination of the total costs (manpower, equipment, transportation) necessary to meet this preference. The higher price obtained for material packaged in the preferred method may not be sufficient to justify the increased costs.

1.2.5 Funding. Knowledge and understanding of the funding process is necessary for program success. The funding process includes obtaining and managing start-up and recurring operating costs as well as distributing proceeds from recyclable material sales. These activities must be in accordance with AFI 32-7001, Environmental Budgeting, and AFI 32-7080, Pollution Prevention Program. Funding requirements must be budgeted and programmed through installation and MAJCOM Financial Plans and during the Program Objective Memorandum (POM) development process.

1.2.6 Manpower. Acquiring the manpower to operate the RRRP is increasingly becoming the single most important factor affecting decisions concerning the start-up and operation of recycling and composting programs. However, potential labor pools do exist and include such resources as military, civilian, contract, federal and state prisoners, and volunteers. The advantages and disadvantages of each pool are discussed in both **Chapter 2, Recycling Operations**, and **Chapter 3, Composting Programs**.

1.2.7 Equipment. The RRRP manager needs to determine the best balance between costs and equipment efficiency. For example, if a large, inexpensive labor pool is available, cheaper, more labor intensive equipment can be used. Conversely, in a tight manpower situation, the purchase of more expensive, but labor saving equipment may be a better option.

1.2.8 Vehicles. Transportation is essential for the success of the RRRP. Vehicles may be obtained through appropriated fund resources, General Services Administration (GSA) lease, or closure base residue. Requirements must be submitted to MAJCOM for authorization and acquisition.

1.3 Program Measurement. Measuring program effectiveness is an important part of the overall process. The following three metrics, in combination, provide the best complete picture of program operations.

1.3.1 Solid Waste Disposal. This method measures solid wastes disposed of in landfills and through incineration (not waste-to-energy) in tons. The annual numbers are compared to previous years and the baseline year (currently calendar year 1992 for the Air Force) to measure performance. The desired trend is reduction in annual tonnage disposed. Increases in disposal quantities should be examined to determine whether they were due to ineffective programs, inaccurate baseline data, or other factors, such as mission changes.

1.3.2 Solid Waste Generation. This metric measures the total waste generated on the installation in tons. The total waste is the sum of the disposed amount and the recycled/reused amount (sum of recycled, composted, and waste-to-energy amounts). The desired trend is reduction in annual tonnage generated. This metric allows an installation to determine the effect of their source reduction efforts, the first level in the pollution prevention hierarchy.

1.3.3 Recycling Percentage. This performance indicator measures recycled/reused amounts as a percentage of total waste generation. The recycled/reused amount is divided by the total waste generated. The desired trend is an increase in the annual

recycling percentage. This indicator judges the effectiveness of the recycling efforts, the second level of the pollution prevention hierarchy.

While source reduction is the primary focus for pollution prevention efforts, few source reduction initiatives are available to installations. This is because most source reduction opportunities are present before the installation is affected. For example, product packaging is determined by the manufacturer. The installation must determine how to handle the waste from the product, not how to eliminate the waste. Therefore, recycling percentage is an important measure of the RRRP's effectiveness.

CHAPTER 2 - RECYCLING OPERATIONS

2.1 Planning the Program. A comprehensive recycling program impacts all base organizations as they all generate solid waste. Therefore, it is imperative the recycling program receive support and commitment from all organizations on the installation.

Many areas have local or regional recycling programs. Joining existing or planned regional recycling programs is encouraged. When regional recycling programs are unavailable or unreasonably costly, the installation will need to develop its own recycling program.

Listed below are some of the planning tasks associated with implementing or improving a recycling program. The maturity of your recycling program will determine which task you begin with.

- Determine responsible/managing organization;
- Identify resources;
- Perform a waste stream profile;
- Identify potential markets;
- Determine method of operation (in-house or contract);
- Identify facilities, equipment, and vehicles;
- Determine collection and separation strategies;
- Educate base population; and
- Identify opportunities for expansion.

2.2 Program Responsibility. The installation commander has overall responsibility for implementing a recycling program. The program must comply with public law, Executive Orders, Department of Defense and Air Force policies and regulations, as well as applicable state or local requirements (**See 5.1 Legal Requirements**).

2.3 Resources.

2.3.1 Program Funding. Funds to support the start-up and operation of a recycling program will be obtained in accordance with AFI 32-7001, Environmental Budgeting, and AFI 32-7080, Pollution Prevention Program. Several of the available funding sources are:

- Pollution Prevention (PP) Funding can be used to cover start-up costs (e.g., purchase equipment, bins), recurring service costs and recycling contracts.

- Operations & Maintenance (O&M) Funding for refuse collection can be used when recycling requirements are integrated into the base solid waste management contract.
- Military Family Housing (MFH) Funds must be used for recycling program requirements that encompass MFH. Examples are the purchase of recycling containers for MFH units and contract costs for curbside pick-up.

2.3.2 Manpower. Another major resource needed to successfully operate a recycling program is manpower. The Air Force Manpower Standard (AFMS) only identifies one man-year for solid waste management and recycling in the core manpower requirements. This shortage has challenged program managers to become innovative in sourcing manpower.

There are a number of ways to obtain manning for recycling operations. Potential personnel sources are military, civilian, contract, federal and state prisoners, and volunteers. The manager must weigh various factors when deciding which labor source to employ. Military and permanent civilian personnel are applied against the Unit Manning Document (UMD), but military manpower does not have to be reimbursed by program revenues. Contract labor does not count toward the UMD, but is generally more expensive. Prison labor is inexpensive, but not always available and may require escorts. Volunteers, while usually enthusiastic, are not always consistent.

2.4 Waste Stream Profile. To establish an effective recycling program, an installation must first determine the types and volumes of recyclable materials generated on the installation. As a start, review your baseline study and the profile percentages provided in the Performance Work Statement software handbook from AFCESA (For more information, contact Mr. Gary Jacks, AFCESA/CESM, DSN 523-6190). Concentrate on the materials requiring recycling IAW AFI 32-7080. These items are paper, plastics, metals, glass, used oil, lead acid batteries, and tires. Some of these categories can be subcategorized further, for example:

- Paper (computer, office, newspaper, colored)
- Metals
  - Ferrous (steel and iron)
  - Nonferrous (brass, aluminum, copper)
  - Used beverage containers

This list is neither all inclusive nor meant to limit materials considered for recycling. A creative and enthusiastic program manager may identify additional materials available for recycling based upon local conditions or markets. Examples of other materials being recycled are wood, food waste, Christmas trees, toner cartridges, etc.

Where a baseline survey has been completed, information from this survey can be used to estimate the volume of material potentially available for recycling. If a detailed baseline survey is not available, other avenues will have to be used to estimate material types and volumes. These avenues may include visiting various facilities and visually inspecting trash receptacles, interviewing personnel, or using some standard estimates available from a variety of sources including the EPA. Universities and colleges can be an excellent source of baseline information, or may assist in performing a baseline survey.

2.5 Market Survey & Identification. The servicing DRMO is responsible for performing market research for all appropriated resourced material defined as recyclable. Program managers should contact DRMO to obtain current market value and market stability information. If no local markets can be determined, the DRMO's are required to seek assistance from the respective Defense Property Disposal Region in identifying other potential markets.

If an installation believes it can obtain better market prices than those provided by current DRMO contracts, they may wish to proceed with their own market identification. If the installation's survey indicates better prices can be obtained, provide this information to DRMO and request they upgrade contracts or, if all else fails, to terminate contracts for "convenience to the government." Another option is to obtain a waiver to direct sale appropriated material (**See 2.9 Direct Sale of Recyclable Materials**).

When market analyses are unavailable from DRMO, an installation must use its own resources to identify available markets for recyclable materials. Information on potential markets can be obtained from:

- The EPA;
- State Environmental Agency;
- Recycling organizations;
- Yellow pages under recycling or waste paper;
- Local newspapers;
- Municipal solid waste managers;
- Other base recycling managers;
- Local paper, aluminum, or cardboard manufacturers;
- Periodicals; and
- Other recyclers/generators in the area.

Potential buyers of recycled material should be queried regarding quantity requirements, acceptable levels of contamination, average price, delivery requirements, pickup availability, and equipment availability (e.g., will they provide a storage bin or trailer for hauling the material). This information is necessary to establish equipment, facility, vehicle, and material processing requirements. Examples of how these factors can effect the recycling program are:

- If a contractor wants glass delivered in original state, a crusher or condenser may not be needed.
- When a larger quantity of material is needed before sale (i.e., glass), you may opt for a crusher to minimize storage requirements.
- Will the contractor pick-up the materials or will you need to transport as part of the sale? Do you or the contractor pay the freight costs?
- Your equipment and storage requirements will in-turn drive your facility square footage requirements.

2.6 Facilities, Equipment, & Vehicles. The recycling program selected by the installation is impacted by available facilities, equipment, and vehicles. For example, if the Facility Utilization Board determines square footage is unavailable to support recycling requirements, the program manager should program for a new facility or consider contract options. Equipment needs and storage space are the primary drivers for facility size.

2.6.1 Facilities. Facilities for a recycling center need not be complex. Typically the area consists of a material recovery facility (MRF), otherwise known as a recycling center, with a small office area. The MRF should be large enough to house the material processing equipment (magnetic separator, metal can "condenser", paper balers, etc.) and allow for material handling equipment maneuverability. The MRF may also provide some storage capability for materials that are subject to weather damage. MRFs of 4000 to 6000 square feet are typically required for programs in the first stage. As the recycling program grows, more space and more efficient material processing equipment may be acquired.

Adjacent to the MRF should be a paved marshaling yard surrounded by a privacy fence. The marshaling yard provides an area for loading equipment and trucks to operate and should include a ramp where forklifts can load commercial transport trailers. Thirty cubic yard transport trailers are also being used by some installations to provide additional storage space and to minimize the movement of processed materials once they have been prepared for shipment. Buyers may be willing to preposition road ready licensed trailers at the recycling facility for high volume items. In addition to the MRF, additional covered storage space may be required to prevent weather damage to materials waiting for shipment.

2.6.2 Equipment. The types, models, capabilities, and purposes of available recycling equipment are numerous. Equipment is available to accomplish or assist in collecting, compacting, baling, shredding, sorting and other tasks associated with processing material for recycling. Ease of use, simplicity, cost, and effectiveness of the equipment are important traits. When searching the market for equipment items that best fit your requirements, contact the manufacturer to obtain, names of companies, municipalities or other agencies now using the equipment item. Contact these entities and get their candid evaluation of the equipment, to include operating costs. Also, contact other base program managers and ask for their input. Established GSA contracts should be your initial source for equipment, but don't limit yourself to these contracts.

After equipment requirements are established, authorizations must be obtained and added to the shop TA (Table of Allowance). Changes to TAs are coordinated through the base logistics transportation office and approved by the MAJCOM. After TAs for equipment are approved, leasing is an option to acquire short term use of equipment.

2.6.2.1 Collection Containers. Containers are chosen based on the material to be collected, expected volume, collection strategy, and cost.

- MFH curbside collection containers can be a simple plastic bin (normally provided by the contractor for contract operated programs).
- Desk-top paper collection containers are typically small cardboard bins, located on the desk, or the plastic desk-side containers. A container should be located at all desks, copiers, fax machines, and printers.
- Drop-off collection containers are generally some type of dumpster (e.g., Dempsy dumpster) or compartmentalized trailer. There are a variety of styles and sizes. Some types are self-dumping containers which may help minimize processing time.

2.6.2.2 Balers. Balers are normally required to package cardboard and paper into more manageable bundles. Compacted items are less bulky and often command higher prices. Consider versatility of the make and model of the unit purchased. Balers can be either horizontal (self-load) or vertical stroke. The horizontal baler will cost more (total cost approximately $60-90,000), but is less labor intensive. An option for this model is a "fluffer" that is used to improve the compaction of paper. The vertical downstroke unit will cost less (total cost approximately $20,000) but is labor intensive. This unit can be considered for bailing of plastics and as a back-up in the event the horizontal baler is down for maintenance.

2.6.2.3 Crushers/Condensers. Crushers and condensers are typically used for aluminum and steel cans. Condensers, often referred to as a "cuber", compresses cans into a high density, low volume cube. Crushers simply crush individual cans. The

model selected should be based upon the market preference and transportation costs. Crushers are also used for glass.

2.6.2.4 Shredders/Sorters. Shredders reduce the bulk of many materials (e.g., cans, paper, and plastic). A paper shredder may be warranted if your installation processes large quantities of "Privacy Act" or "For Official Use Only" paper (Check with your installation Information Management section to determine the appropriate level of protection and methods of destruction IAW AFIs 37-131 and 37-132). Before purchasing a paper shredder, check with Information Management for possible resources already on base. Sorters are used to separate metals. A simple magnetic sorter separates metal, such as steel and aluminum cans. When obtaining these pieces of equipment, self-loading or conveyer type units should be considered since they are less labor intensive.

2.6.2.5 Conveyors. Conveyors come in an assortment of sizes and can be used in conjunction with other equipment items, such as a horizontal baler, or they can be used individually for material sorting. These items can range in price from a couple of thousand dollars for a simple conveyor to upwards of $65,000 for a material sorting conveyor.

2.6.2.6 Material Handling Equipment. Equipment to load and handle the recyclables is required. Types of equipment may include: front-end loaders (e.g. Bobcat loader with forklift, grapple hook, and bucket attachment), fork lifts, pallet jacks, and trailers, etc.

2.6.2.7 Other Equipment. Based on waste stream analysis and market demand, other equipment items may be considered; for example, drum crushers, oil filter crushers, aerosol can puncturers, perforators, etc.

2.6.3 Vehicles. Vehicle needs will be determined by the level of the recycling operation. Small operations can usually be supported using existing base vehicles while most intermediate level operations require substantial vehicle support. When base assets are not available to support recycling activities, the recycling program may require dedicated vehicles and equipment. Vehicle needs, depending on the level of operation, can include a front-end loader, flatbed truck, etc.

After vehicle requirements are established, authorizations must be obtained and added to the shop TA (Table of Allowance). Changes to TAs are coordinated through the base logistics transportation office and approved by the MAJCOM. After TAs for vehicles are approved, leasing is an option to acquire short term use of vehicles.

2.7 Collection & Separation Strategies.

2.7.1 Collection Strategies. The choice of collection strategies has considerable impact on both level of participation and program costs. The easier it is for the customer to participate in the program, the greater the level of participation.

2.7.1.1 Drop-off. The drop-off collection method typically consists of placing multiple collection bins in a centralized location, often the recycling center, where participants bring their recyclables. Participation can be increased by placing additional bins in strategic locations throughout the base (e.g., a newspaper collection bin near the commissary). Participants should be required to sort their material and place it in appropriate bins. A less desirable and more labor intensive option is allow participants to bring their material to the recycling center for sorting.

- **Advantages:** This collection method is usually the least expensive collection option. Equipment and manpower costs are minimized. Persons that voluntarily drop off recyclables tend to properly sort items. Drop off collection can be used alone or in conjunction with other collection methods. This is an excellent startup method.
- **Disadvantages:** Participation levels are usually lower since participants bear the burden of collecting and delivering recyclables to the collection center. Recyclables may be commingled or mixed with trash if bins are unattended. If participation is mandatory, recyclables are unlikely to be properly sorted. The area may also become untidy if bin overflow is allowed.

2.7.1.2 Facility Pick-up. In-house or contract personnel, on a scheduled basis, will collect recyclable materials from base facilities. Typically, this pick-up encompasses the centrally located containers where individual facility occupants have transferred the materials. Materials often include paper, cardboard, toner cartridges, aluminum cans, and computer paper.

- **Advantages:** There will be greater participation and greater quantity and types of materials collected. This method is also more customer friendly.
- **Disadvantages:** Increased manpower and container requirements result in increased cost.

2.7.1.3 MFH Curbside Pick-up. Similar to trash collection, recyclables are picked up at MFH units. Participants set recyclables out on collection days. Recyclables can be collected together and sorted at the recycling center, or participants may be required to separate their materials prior to curbside pick-up. Bins should be provided to the participants to facilitate uniformity and ensure ease of pickup. Curbside pick-up can be used in conjunction with drop off collection to achieve maximum collection rates. Recyclables should be picked-up the same day as the refuse. This action provides greater customer convenience and participation. Also, same day pick-up of refuse and

recyclables may ease the surveillance requirements from the additional Quality Assurance Evaluation (QAE) tasking.

- **Advantages:** This collection method typically has the highest rate of participation since it requires only minimum effort on the participant's part. MFH resident's only set recyclables out as they would their trash.
- **Disadvantages:** Collection costs are increased.

2.7.1.4 Contractor. Using a contractor for collection of recyclables is similar to using a contractor for refuse collection. It may be possible to modify your existing refuse collection contract to include recycling requirements. You may also want to include in the contract the operation of the MRF if there is a shortage of in-house manpower. The contract can provide incentives, such as the contractor keeping the material sales proceeds, for the contractor to minimize costs and maximize collection.

- **Advantages:** Use of contract recycling can minimize start-up, manpower, and facility costs (less capital investment). The program can be tailored to meet the specific needs of the base. The base may continue to receive recycling proceeds.
- **Disadvantages:** There will be an additional contract management responsibility. This method is typically more expensive which results in less recycling proceeds to the installations.

2.7.1.5 Combination. It is common practice to use a combination of the above collection strategies to maximize participation and material collection with the most efficient operation.

2.7.2 Separation Methods. Material separation can occur at the generating source, at the drop-off containers, or at the material recovery facility. Choosing where to separate the materials will have an effect on the program strategy and costs. Separation is done manually or mechanically by ferrous/non-ferrous separators.

2.8 Procedures for DRMO Material Sales. Once the recyclable materials are sorted and prepared for market, it is time to process the necessary paperwork for a sale. DRMO is responsible for selling all appropriated resourced recyclable materials. It is their responsibility to process the material for sale and obtain current market prices.

2.8.1 Turn-in and Accountability Procedures. To ensure funds from sales managed by DRMO are received, the installation must provide DRMO with properly completed DD Form 1348-1, turn-in documents. If the DD Form 1348-1 is inaccurately completed or lacks information, proceeds generated by the sale will generally be deposited to the general account of the US Treasury. Reversals/recovery of funds deposited to the

general account are unlikely. The critical information needed on the DD Form 1348-1 with respect to the installation recycling fund cite consists of four parts:

- A two digit service identification code (SIC) -- 57 for AF;
- Recycling Budget Clearing Account Code (BCAN) -- obtained from Accounting and Finance;
- Appropriation Limitation identifier -- 8900 for AF; and
- Fiscal station number -- installation specific identifier, obtained from Accounting and Finance.

Also, the recycling manager, or his designated representative, must include on the DD Form 1348-1 the following statement of certification accompanied with his/her signature:

> **"I certify that this material meets all applicable qualifications of the DoD RRRP and that no munitions list/strategic items requiring demil are present. The following is a valid RRRP fund site: (installation RRRP account fund site)"**

To ensure the installation receives the correct amount of funds from the sale of recyclables, the recycling program manager must track the delivery and sale of recyclables. **NOTE:** Sale information is available from DRMS Form 1427 and DRMO's computerized tracking system. As a minimum, document the following for each transaction:

- Date of turn-in;
- Item description (including weight);
- DD Form 1348-1;
- Date and price of sale;
- Date and amount of distribution received by installation; and
- Total proceeds.

2.9 Direct Sale of Recyclable Materials. If requested by the appropriate organization, the recycling manager can direct sell all recyclable materials not acquired with appropriated funds. These materials include items collected from organizations such as the Commissary, Base Exchange, or the base Services Squadron. The recycling manager has unilateral authority to direct sell those recyclables collected from MFH. When direct selling any of these items, the recycling manager must keep accurate accountability of all materials, to include types, weights, proceeds received, and where the materials were generated (e.g., AAFES, DeCA). If appropriated funded resources

collected, processed, or handled these materials, these proceeds must be used to cover appropriated fund costs **(See 2.10 Distribution of Proceeds)**.

Direct sale of recyclable material should be handled similar to other installation sales, such as firewood and Christmas trees. Sales should be coordinated with, and supported by, the installation contracting office.

Other situations may arise where the recycling manager may direct sell appropriated resourced recyclable materials. However, to do so, a waiver must be obtained from DRMS.

2.9.1 Direct Sale Waiver. If an installation believes current DRMO contract prices are not competitive with current market prices or the proceed return time does not support program expenses, the installation may opt to request a waiver to direct sell appropriated resourced materials. This waiver could result in quicker return of proceeds and allow the RRRP manager to meet program expenses.

NOTE: If an installation chooses to execute its recycling program by using a contractor, and as part of the contract the contractor returns the proceeds from the sale of the recyclables to the installation (i.e., "funds change hands"), it is considered a direct sale of appropriated resource materials and a waiver from DRMS is needed. A waiver is not needed if the contractor keeps the proceeds to offset the total contract cost as negotiated at contract award.

The established DRMS procedures (sent to MAJCOM/CEVs 16 Mar 95) for submitting a waiver request to direct sell appropriated resourced materials is as follows (clarifying remarks/suggestions are *italicized*):

(1) Submit the request to your MAJCOM who will in-turn endorse it with a recommendation for approval/disapproval. The MAJCOM will return the endorsed request to the installation for their submittal to the servicing DRMO. The request must contain the following information:

(A) The past year's quantities generated, by requested commodity, at DRMO obtained prices. *(Include the distance to the DRMO, the time between delivery and actual payment [**time is money**], and any other relevant costs.)*

(B) The past year's quantities generated, by requested commodity, at complete market value (net of overhead and transportation).

(C) Written acknowledgment of the requirements and provisions of the Deputy Under Secretary of Defense (Environmental Security) Memorandum of 28 Sep 93, subject: Policy for DoD Recycling. The installation must note in particular the following:

(1) The requirement that sales of recyclable materials be in accordance with Section 203 of the Federal Property and Administration Act of 1949;

(2) The requirement for installations selling directly to maintain operational records for fiscal year reporting requirements, review and program evaluation purposes. This is to include, but is not limited to, quantities generated and sold, prices obtained, copies of successful contracts, potential buyer mailing list; and

(3) The definition of eligible recyclable materials and applicable exclusions. (*From DUSD(ES) Memo, 28 Sep 93: **Recyclable materials.** Includes materials diverted from the solid waste stream and the beneficial use of such materials. Recycling is further defined as the result of a series of activities by which materials that would become or otherwise remain waste, are diverted from the solid waste stream by collection, separation and processing and are used as raw materials in the manufacture of goods sold or distributed in commerce or the reuse of such materials a substitutes for goods made of virgin materials. The term also includes, for purposes of this policy document, scrap, (including ferrous and nonferrous scrap) and, specifically, firing range expended brass and mixed metals gleaned from firing range cleanup which do not require demilitarization.*)

(D) Written acknowledgment that any approval granted is subject to change or termination if the Office of the Secretary of Defense's direct sale policy is changed or terminated.

(E) Failure to comply with the above requirements is justification to withhold the granting of requested direct sales waivers or the cancellation of existing waivers.

(2) DRMOs will confirm the validity of commodities, quantities generated, prices, or any relevant changes as reflected on DRMO records and forward request to the DRMS (Attn: DRMS-MD). DRMOs will also include a recommendation as to the granting of the requested direct sales waiver.

(3) DRMS will review the request and approve or disapprove as appropriate. DRMS will then notify the requesting installation, the MAJCOM, and the effected DRMO, with an information copy to HQ DLA (Attn: MMSC). When there subsequently is a dispute between the DRMS recommendation and the MAJCOM's position, the request will be forwarded to HQ DLA for assistance.

(4) Approvals will be granted for a maximum period of six months. As part of the consideration of any waiver renewal, the installation will submit to the DRMS (Attn: DRMS-MD) the following data:

(A) Commodities generated and successfully sold;

(B) Time period involved;

(C) Relevant proceeds obtained; and

(D) Types of sales contracts utilized.

(5) Direct sales waiver renewals will be granted only when it can be clearly demonstrated that the applicable DRMO and DRMS sales activities can not duplicate or exceed the same efficiency and cost effectiveness as that of the generating activity.

As noted above, accurate and complete accountability is a must.

2.10 Distribution of Proceeds. Recycling proceeds returned to the installation from the DRMS and from direct sales of appropriated funded material must first be used to recover appropriated fund costs incurred managing and operating the qualified recycling program to include but not limited to: manpower, equipment, utility, and real property costs. After appropriated costs are reimbursed and there remains revenues from that fiscal years sales, then the installation commander may use up to 50 percent of the remaining sale proceeds for pollution abatement, energy conservation, and occupational safety and health activities. These activities may be funded up to 50 percent of the cost of a minor construction project. Any remaining proceeds may be transferred to the Morale, Welfare, and Recreation Fund to be used for morale, welfare, and recreation activities.

2.11 Household Hazardous Materials. Hazardous materials such as pesticides, cleaners, and similar products are common in most households. Unfortunately, many of these materials end up in the household trash when they are no longer needed. Even though household hazardous waste is specifically exempt from federal regulations, the local landfill is not the best disposal method. Household hazardous waste is of particular concern on a military installation due to the constant movement of personnel and their families. As a result, large quantities of unused, potentially hazardous materials are tossed in with the household trash. A much better alternative is a "drop and swap" program for unused materials. A central location is established where departing personnel can drop off their unwanted materials, and incoming personnel can pick-up items they need. In essence, unwanted hazardous materials are recycled back to the consumer for use. It is up to the installation to determine where the "drop and swap" is located and the hours of operation. Accept only those materials in their original containers and having legible labels. The base should be prepared to deal with materials that cannot be redistributed and must be disposed of as waste. It is important that all state and local regulations be considered before initiating a program of this sort.

CHAPTER 3 - COMPOSTING PROGRAMS

Yard waste, by weight, may constitute up to 20% of the solid waste stream at an Air Force installation. Many states already ban landfilling of yard and other organic wastes. Composting is a well-known technology for processing organic materials that can help installations meet solid waste reduction goals, produce a beneficial end-product, and minimize environmental pollution from organic solid waste.

3.1 Elements of an Effective Composting Program. Many factors must be considered in deciding whether an on-site composting program is feasible at an installation. Some of these factors are waste stream composition, regulatory requirements, siting issues, funding availability, manpower and equipment requirements, and the availability of existing municipal composting programs in the area.

3.1.1 Waste Stream Investigation. Identifying and quantifying the components of the solid waste stream are an integral part of preliminary planning for a composting operation. Excellent sources for this information are the initial installation Solid Waste Baseline Survey and annual solid waste stream evaluations. Other sources include federal, state, and local environmental agencies.

3.1.2 Regulatory Requirements. Regulations governing the location and operation of composting facilities vary from state to state; some areas have strict guidelines, while others have minimal requirements. Generally, stricter regulations apply for the composting of sewage sludge, food waste, and municipal solid waste. State and local regulatory requirements can include permitting requirements, groundwater monitoring requirements, runoff control, operator certification, and other operating and record keeping requirements. Before establishing an on-site composting program, coordinate with your local and state environmental regulators.

3.1.3 Siting Issues. The location and size of a composting facility must comply with any existing regulatory requirements and the installation's Base Comprehensive Plan. Federal Aviation Administration (FAA) guidelines recommend against siting any type of solid waste facility, other than yard waste composting facilities, within 10,000 feet of a runway. This requirement is to prevent birds, which could be attracted to the site by potential food sources, from interfering with aircraft. Potentially suitable locations for these facilities are areas adjacent to buffer areas of existing or closed landfills or wastewater treatment plants. Other factors to consider in facility siting include convenient location to minimize hauling distances, suitable site topography and soil characteristics, sufficient land areas for the volume and type of materials to be processed, and adequate distance from public areas to minimize odor concerns.

3.1.4 Funding. Composting operations can vary from very low-end, low-cost programs to high-technology industrial operations. Sound financial planning is a crucial step in successfully developing a composting program. To determine funding requirements, complete an economic-benefit analysis. This analysis should consider organic waste volumes, availability of existing equipment, manpower requirements, most suitable technology, facility and equipment requirements, contract costs, and recurring costs. Funding to support start-up and recurring operation costs for composting programs shall be in accordance with AFI 32-7001, Environmental Budgeting. Funding requests must be budgeted through installation and MAJCOM Financial Plans and programmed in the POM development process.

A number of potential funding sources may be used. Choice of funding sources will vary depending on the policies of the installation's MAJCOM. Several of the available sources are:

- Pollution Prevention Funds can be used to cover composting program start-up and recurring operating costs. Funding needs are identified through the WIMS-ES A-106 and Pollution Prevention Modules. Pollution prevention funding requests should be coordinated through the base environmental engineering flight or office;
- Military Family Housing Funds can be used for costs associated with curbside collection in military family housing areas. MFH funding requests must also be included in Financial Plans and in the POM. Funding requests are coordinated through the civil engineering resources flight;
- Installation Operation and Maintenance Funds may be used for start-up and operation of composting programs, at the discretion of the Installation Commander; and
- Federal, state, local or private grants may be available to assist in set-up or operation of installation composting programs. For information on grant availability, contact the regional EPA or the state environmental department.

3.1.5 Manpower. Another major resource needed to successfully operate a composting program is manpower. The Air Force Manpower Standard (AFMS) only identifies one man-year for solid waste management and recycling in the core manpower requirements. This shortage has challenged program managers to become innovative in sourcing manpower.

There are a number of ways to obtain manning for composting operations. Potential personnel sources are military, civilian, contract, federal and state prisoners, and volunteers. The manager must weigh various factors when deciding which labor source to employ. Military and permanent civilian personnel are applied against the Unit Manning Document (UMD), but military manpower does not have to be

reimbursed by program revenues. Contract labor does not count toward the UMD, but is generally more expensive. Prison labor is inexpensive, but not always available and may require escorts. Volunteers, while usually enthusiastic, are not always consistent.

3.1.6 Facility Requirements. Most small to medium scale composting operations do not require building facilities; however, minimum facility requirements include a fenced site and a composting pad surface. To operate efficiently, a composting facility must have sufficient space for the preprocessing, processing, and post-processing stages of the composting cycle. The composting pad surface does not have to be paved, but it must be designed to prevent ponding and to control erosion and runoff. Soil permeability should also be considered. Regulatory and permitting requirements, if applicable, will provide the basis for facility design and must be thoroughly researched. In addition to facility requirements, the type and amount of traffic into and out of the facility should be considered in the design process.

Site access must be controlled at all times to avoid compromise of the composting process and ensure a safe operation.

3.1.7 Vehicles & Equipment. Vehicle and equipment needs will be determined by the level of composting operation to be implemented. Small, low-technology operations such as static pile composting can usually be operated using existing base vehicles and equipment while most intermediate-technology operations, including windrow operations, require substantial, dedicated, vehicle and equipment support. Vehicle and equipment needs, depending on the level of technology used, can include a front-end loader, windrow turner attachments, grinders or shredders, screening equipment, portable storage bins, aeration equipment, odor control equipment, in-vessel equipment, etc.

After vehicle and equipment requirements are established, authorizations must be obtained and added to the shop TA (Table of Allowance). Changes to TAs should be coordinated through the base logistics transportation office and approved by the MAJCOM. After TAs for vehicles and equipment are approved, leasing is an option to acquire short term use of vehicles and equipment.

3.1.8 Existing Municipal & Community Programs. Many cities and communities operate successful composting operations. When these programs are available, installations should consider participating in these existing composting programs in lieu of implementing in-house composting.

3.1.9 Air Force Installation Programs. Composting managers can network with installations that already have or plan to start yard waste composting operations. To obtain a copy of Air Force current and planned yard waste composting programs, contact Mr. Wayne Fordham, AFCESA/CESM, DSN 523-6465.

3.2 Composting Facilities & Operations. The composting process occurs in two major stages. In the first phase, microorganisms decompose the organic material through metabolic activity and the size of the composting pile is reduced. During the second stage, the compost is "cured" or finished and further microbial decomposition will occur very slowly. Because microorganisms are essential to composting, environmental conditions that maximize microbial activity will maximize the rate of composting. Microbial activity is influenced by oxygen levels, particle sizes of the feedstock material, nutrient levels (indicated by the carbon-to-nitrogen ratio), moisture content, temperature, and pH.

3.2.1 Composting Methods. The most commonly used processing methods are static piles, turned windrows, aerated static piles, and in-vessel composting systems. The level of technology selected will depend on the type of feedstock materials, requirements for odor and leachate control, quality requirements for the finished material, funding availability, and space availability. Brief discussions of each of these methods follow:

3.2.1.1 Static Pile Composting. Static Pile Composting is low technology composting. Static or passive piles are piles of composting material that are turned infrequently, as little as once per year. This method requires only minimal labor and cost and is especially suited for backyard composting in military family housing areas and for small volumes of ground maintenance wastes. Before promoting backyard composting programs on an installation, the support of the base Environmental Protection Committee (EPC) and Installation Commander are required. Composting under these conditions is very slow and odor problems can result if food waste materials are incorporated or when large quantities of green materials are added to the piles.

With all composting methods, regular monitoring of temperature and moisture conditions is recommended. For static piles, the moisture content of internal and external layers should be occasionally checked. When moisture conditions are too low, the piles can be watered with hoses or sprinklers. Temperature and oxygen levels can be controlled by forming piles of the appropriate size for the region. Larger piles have greater insulation and can sustain higher temperatures. However, passive piles should not be constructed so large as to overheat. At temperatures greater than 140°F, microorganisms may die off and anaerobic conditions can develop.

The disadvantages to static pile composting are long composting times (often longer than one year to produce finished compost) and the possibility of anaerobic conditions and accompanying odor problems. Despite these disadvantages, static pile composting can be a simple and effective method for some programs.

3.2.1.2 Turned Windrow Composting. This process is a more efficient method to static pile composting. Turned windrow is the most widely used intermediate-technology composting method. Windrows are long composting piles that are mechanically turned at regular intervals to enhance environmental conditions for microbial decomposition. As windrows are turned, cooler outer layers are moved to the center of the pile where there are higher temperatures and intensive microbial activity. The turned windrow method produces compost material in 2 to 6 months.

Optimum size for windrows are 8 to 12 feet at the base and 5 to 8 feet high. Windrow cross-sections should be rounded, concave or trapezoidal to allow proper insulation. Progressive decomposition of the composting material reduces the size of the windrows and two decomposing windrows can be combined to create space for new windrows or for stockpiling.

Turning frequency is generally once or twice per week. The turning equipment used will determine the size, shape, and space between the windrows. Front-end loaders are commonly used, however specialized windrow turning equipment is recommended to compost large volumes of material. Windrow turning attachments are available that hook up to most front-end loaders. Monitoring for moisture content, oxygen content, and temperature should be done frequently, generally daily, and operating logs should be maintained. This operating data is evaluated to optimize windrow turning frequency, windrow composition, and watering frequency.

3.2.1.3 Aerated Static Piles. These are a higher technology application than turned windrows. In this method, piles or windrows are placed on top of a grid of perforated pipes and air is forced through the piles or windrows using fans or blowers. This action maintains aeration in the composting process and minimizes, or eliminates the need for turning. Air can be supplied through a suction system or a positive pressure system. In a suction system, air is drawn into and through the pile and then vented through a pile of finished compost or a filter to control odor. With a positive pressure aeration system a blower pushes air into the compost pile and the air is vented over its entire surface. Because of the way air is vented, odor treatment does not occur in a positive pressure system.

To ensure proper decomposition, temperature and oxygen levels must be closely monitored. Aeration is controlled by running blowers continuously or intermittently. In general, aerated static piles are best suited for granular and relatively dry feedstock materials with a relatively uniform article size.

3.2.1.4 In-vessel Composting. These systems are high technology methods in which composting is conducted within a fully enclosed system. All critical environmental conditions are generally controlled through fully automated built-in systems. In-vessel

composting systems are generally expensive; however, they may be justified where space is limited and careful odor and leachate control is required.

There are two general types of in-vessel composting technologies: rotating drum systems and tank systems. Rotating drum systems use a tumbling action to continuously mix the materials. The rotating drums are long cylinders, typically 9 feet in diameter, that rotate slowly. Oxygen is forced in from exterior air pumping systems, while the tumbling action allows temperature to be maintained at high, uniform levels. In general, complete stabilization of the composting material is complete within 1 to 3 months. Tank in-vessel systems use long, rectangular vessels and external pumps which force air through a perforated bottom. Materials are mixed within the tank by a moving belt, paddle wheel or other device to break down clumps. The composting process can be completed within 30 days, but often the materials must be cured in windrows for an additional 30 to 60 days.

3.2.2 Curing Stage. After materials have been composted using one of the methods described above, curing should be allowed until the materials are stabilized. During the curing stage, compost is stabilized as the remaining nutrients are metabolized by any microorganisms that are still present. Since curing piles undergo slow decomposition, care should be taken to ensure anaerobic conditions do not develop. The curing process generally takes approximately one month and requires much less space than the actual composting process. Materials can be placed in small piles during the curing stage.

Once the curing process is complete, the finished compost should have an earthy odor. In addition to relying on odor to determine when the compost is sufficiently stabilized, temperature checks and oxygen and CO_2 testing can also provide evidence of compost maturity.

3.2.3 Odor Control. Odor production can lead to installations, or communities, wanting to close the composting site. Odors are often properly controlled by adjusting the composting process to provide ideal environments for aerobic bacteria. Serious odor problems may require covering the active composting area, incorporating biofilters, or adjusting facility operations to decrease odor production.

3.2.4 Composting Operations Plans. A clear, detailed composting operations plan should be developed prior to beginning a composting operation. These plans should be annually revised or verified. A composting operations plan may also be required by state and local environmental regulations. The operations plan should include operating procedures, safety and emergency procedures, operational checklists, and process troubleshooting. Along with the composting operations plan, facility monitoring logs should be developed to record operational parameters (turning frequency, temperature readings, watering frequency, windrow/pile composition, etc.).

3.2.5 Watering. Maintaining a moisture content of 40 to 60 percent can significantly enhance the composting process. Before composting begins, the moisture content of the feedstock materials should be determined. The "squeeze test" is a simple way to estimate moisture content. If just a few drops of water are released when a handful of feedstock material is squeezed, the moisture content is generally acceptable. For more definitive moisture content determinations, a sample of material can be weighed wet and weighed after oven drying. Moisture content is then established using the following formula:

moisture content = (wet weight - dry weight)/wet weight

Depending on climate conditions, composting technology used, and operational factors, a water supply may be required on-site to meet compost watering requirements. Water requirements should be incorporated into the facility design. Storm runoff retention ponds can provide a source for meeting watering needs.

3.2.6 Operator Training. Operator and compost facility worker training is an essential element of a successful and safe composting program. The level of training required will vary with the type and level of composting technology used, and with state and local requirements. Currently, there are no specific composting training programs offered through Air Force or DoD schools. Best sources for training include university-offered courses, community-sponsored training programs, and private firms that offer on-site training services.

3.2.7 Feedstock Materials. Virtually any organic material can potentially be composted and composting programs can be designed to handle yard trimmings (leaves, grass, tree prunings), food wastes, sawdust, wood, scrap paper products, sewage biosolids, and animal manure. More recently, composting has been used to bioremediate petroleum-contaminated soils. In deciding which organic wastes to incorporate into a composting operation, several factors (e.g., cost, site size, amount of waste, environmental regulations) must be considered. Generally, more stringent environmental regulations will apply when composting sewage sludge and animal manure. In addition to environmental requirements, the type of composting method employed (low tech or high tech) will also determine which materials should be composted.

Once an initial decision is made on the materials to be used for feedstock, each facility should experiment to establish proper feedstock blend ratios. For composting to proceed efficiently, microorganisms require specific nutrients in an available form, adequate concentration, and proper ratio. The essential macronutrients needed by microorganisms in relatively large amounts include carbon (C), nitrogen (N), phosphorus (P), and potassium (K). Microorganisms require carbon for an energy source and they need carbon and nitrogen to synthesize proteins and reproduce.

Potassium and phosphorus are essential to cell reproduction and metabolism. Composting organisms also need trace elements to foster proper assimilation of all nutrients. However, in a composting system, carbon and nitrogen are usually the limiting factors for efficient decomposition.

The carbon to nitrogen ratio, commonly known as the C:N ratio, is a common measure of the availability of nutrients for microbial use. For proper decomposition the nutrients in the compost pile or windrow should be in the right C:N proportions. The table below shows C:N ratios for common composting feedstock materials. High C:N ratios (high C to low N) inhibit the growth of microorganisms that degrade compost feedstock. Low C:N ratios (low C to high N) initially accelerate microbial growth and decomposition. However, with this acceleration, available oxygen is rapidly depleted and anaerobic conditions can develop if operating conditions are not carefully controlled. Excess nitrogen is released as ammonia gas and extreme amounts can form enough ammonia to kill microbes and inhibit the composting process. Excess nitrogen may also be released in the leachate.

Table 1
C:N Ratios of Common Composting Materials

Leaves and Weeds (dry)	90:1	Horse Manure	25:1
Sawdust	500:1	Grass	12-20:1
Paper	170:1	Food Scrap	15:1
Wood	700:1	Sludge	11:1

Optimum composting occurs when the C:N ratio of the composting material is from 25:1 to 35:1. At C:N ratios greater than 35:1, the composting process slows down while at C:N ratios lower than 25:1, anaerobic conditions often develop. Generally, the C:N ratio for yard trimmings can be approximated by examining the nature of the feedstock; green vegetation is high in nitrogen and brown vegetation is high in carbon. More precise C:N ratios are determined by laboratory analysis. Feedstock materials with different C:N ratios must be mixed in proper proportions to obtain optimal C:N levels.

Acidity and alkalinity (pH) should also be monitored. At a neutral pH of 7, the composting process is more efficient. Different materials have different pH values and care must again be exercised in mixing them. Because pH levels are largely self-regulating, actions are rarely necessary to bring pH to optimum levels; however in instances where pH levels are significantly low, buffering agents such as lime can be added.

The final aspect to consider in compost pile and windrow composition is mixing or blending of feedstock materials. For example, bulking agents such as wood chips are often added to grass piles to increase particle size. Bulking agents are dry materials with high carbon content. They should be incorporated to maintain adequate porosity and aerobic conditions in compost piles. Mixing should be conducted after feedstock sorting and size reduction and before processing begins.

3.3 Material Collection. Separating yard wastes from other waste is easiest when accomplished at the source. Materials must be brought to the composting site in an economically feasible manner and with minimum contamination. To increase military family housing participation, frequent and convenient collection is needed. Programs can be designed to collect just yard trimmings, or yard trimmings and recyclables. Collection can occur at curbside or through drop-off sites. For collection of base grounds maintenance wastes and other organic materials, it is generally best to set up delivery to the composting facility.

There are several alternatives that can be established to accomplish collection of yard wastes and other organic materials. Curbside collection for family housing areas can be integrated into existing refuse or recycling collection contracts and funded using MFH funds. Base grounds maintenance contracts can be modified to include delivery of landscaping wastes to the composting facility.

3.4 Quality Control. After the initial processing and curing of the compost material is complete, quality control procedures are needed to refine the compost product to meet end-use specifications. Certain end uses of compost require the production of a high-quality product that does not pose threats to plant growth or the food chain. Other uses, such as for berming or landfill cover, have less rigorous requirements. Compost derived from yard trimmings contains fewer nutrients than compost produced from sludge composting; however, it contains fewer hazardous constituents and other contaminants. During post-processing, compost can be screened and analyzed to ensure that stabilization is complete.

3.4.1 Testing. Compost should be tested for chemical and pathogen contamination and to determine nutrient levels. Compost stability can be assessed by seed germination tests or by analyzing factors that indicate compost maturity, such as oxygen consumption, carbon dioxide production, C:N ratios, and cation exchange capacity. Several state and local requirements specify compost quality requirements; therefore, laboratory analysis may be required to ensure these requirements are met. In particular, when composting biosolids (sewage sludge and manure), concerns about the presence of heavy metals (lead, cadmium, copper, mercury, chromium, and nickel) should be incorporated into compost testing requirements. Finally, sampling for pesticides and herbicides may also be warranted.

Testing for contaminant and nutrient levels is important if end uses require specific nutrient ranges. Nutrient and contaminant information can be used to establish suggested uses for the compost, appropriate application rates, and restrictions on compost use.

To ensure product quality, the compost product should be laboratory tested frequently. A composite sample, composed of many small samples from different locations in piles and windrows, and/or individual samples can be taken. Field tests can also be conducted to demonstrate product utility. Finally, testing data should be recorded in a computerized spreadsheet to provide a basis for comparing changes in compost quality or characteristics.

3.4.2 Compost Screening & Sorting. Sorting and screening is conducted to remove unwanted material and larger particles that lower compost quality. Screening can be performed to generate compost of uniform size for end uses where uniformity is important, such as in horticultural applications.

3.4.3 Quality Characteristics. Product quality depends upon the biological, chemical, and physical characteristics of the compost material. Following is a list of desirable characteristics in finished compost:

- Compost maturity after proper curing and stabilization;
- High organic matter content;
- Absence of weeds, seeds, pathogens, and contaminants;
- Neutral pH;
- Balanced nutrient levels (nitrogen, phosphorus, etc.);
- Low concentrations of soluble salts;
- Uniform particle size (less than 0.5 inch);
- Dark color with an earthy bouquet;
- Moisture content below 50%; and
- Absence of heavy metals (lead, chromium, copper, etc.);

The final compost product should meet applicable regulatory standards and exhibit quality characteristics suitable to the expected end use(s) of the product.

3.5 End Uses. Finished compost is a valuable soil amendment that can be used in a variety of applications, from agriculture to landscaping to reforestation projects to residential gardening. Compost can benefit the biological, chemical, and physical

properties of soil, including soil porosity, water retention, resistance to wind and water erosion, and crusting. Compost regulates the storage and release of nutrients, enhances the development of beneficial microorganisms, builds up plant resistance to parasites and diseases, and promotes faster root development. Plants grown using good quality compost can produce higher yields and show less weed growth.

3.5.1 Potential Uses at Air Force Installations. End uses for compost will depend on compost product quality, size, and local conditions. Proven applications include use of compost as a soil amendment, fertilizer supplement, top dressing, mulch, landscape planting material, potting mix component, peat substitute, landfill cover material, topsoil for road and construction work, soil erosion prevention, water quality applications, and bioremediation of contaminated soils. Compost can be provided to installation housing residents through housing self-help stores.

Although compost quality will largely determine potential end uses, both high- and low-quality compost can be used at installations. Generally, high-quality compost should be used in locations where people or animals come in direct contact with the compost or in the upgrade of public lands. Lower quality compost can be used for purposes such as land reclamation, landfill cover, berming, and to maintain road shoulders. Compost is valuable for land reclamation areas because of its high water retention capacity. A coarse compost with low water retention may be preferred for areas where weed control is necessary.

Compost used on Air Force installations must comply with both state and federal standards for land application. Beyond these standards, quality criteria for compost is discussed in the Quality Control section of this guide.

3.6 Other Alternatives. There are other alternatives available for yard waste instead of a centralized composting program or disposal. Grasscycling and backyard composting are two methods implemented at some Air Force installations.

3.6.1 Grasscycling. Grasscycling encourages leaving grass clippings on mowed lawns. A thin layer of grass clippings and leaves can improve soil moisture retention abilities and can act as a natural fertilizer, reducing the need for commercial fertilizers. Grasscycling ideas also include promoting the use of mulching mowers, advocating higher grass height standards, encouraging more frequent mowing, and instituting water-wise policies.

3.6.2 Backyard Composting. Backyard composting programs can be an integral part of a comprehensive solid waste management program. To encourage backyard composting programs, composting bins can be provided free of charge to military family housing residents, or provided on loan through MFH self-help stores. Brochures

or information papers on backyard composting techniques can be provided to residents through the housing self-help store and during awareness fairs and events. Technical assistance courses can be provided to residents who are interested in pursuing backyard composting. Programs to promote interest in backyard composting can be initiated in base schools.

3.7 Summary. Compost is the natural recycling of organic wastes into one of nature's best mulches and soil amendments. Composting programs can offer an efficient, cost-effective method of reducing operating costs while complying with Air Force and DoD pollution prevention policies and achieving solid waste reduction goals.

CHAPTER 4 - ADVOCACY

4.1 Education. Without education, the best designed, equipped recycling and composting programs will not succeed. By making the base populace aware of the programs and educating them on their part, program effectiveness will be greatly increased. The RRRP manager must stress the benefits of source reduction, recycling, and purchasing environmentally preferable products throughout the educational program.

The education program should focus on raising the awareness of how the RRRP benefits the environment. This awareness must show installation personnel how their participation makes a difference. Base newspapers and community cable channels are prime media avenues to the installation population. Many basic media messages have already been produced by recycling and composting trade associations **(See 5.3 Recycling & Composting Associations)**. These messages can be supplemented by installation specific messages listing the materials recycled, recycling center operating hours, composting program information, RRRP manager phone number, and similar information. Another important message for these media outlets is RRRP progress reports listing the amounts recycled/composted, the savings generated, and the amount of products containing recycled material purchased. By including this information, base personnel see the progress being made and feel that there efforts are going toward a tangible goal.

Another important element of education is community outreach. This includes increasing awareness by: speaking at Commander's Calls and "town meetings" to soliciting comments and suggestions for improvements; visiting local schools to educate the children; incorporating the RRRP into the installation's newcomer orientation program; and hosting Earth Day activities. Distribution of information, particularly materials and brochures furnished by recycling and composting associations, provides a reminder to these people at a later date. The education process should always have a positive focus.

4.2 Innovation. Each installation should establish an "**I Team**" ("I" stands for innovation) with the goal of pursuing new, innovative opportunities for waste reduction and pollution prevention. The team's charter is to examine all imaginative ideas, logistically feasible or not, with the thought that ***nothing is impossible.*** Team members should pursue opportunities using their own expertise as well as pulling in knowledge from "field experts" who deal directly with the issues. The **I Team** should meet regularly to present new ideas and provide updates to previous ideas. Publishing a newsletter highlighting team success will feed the imagination and innovation of other installation personnel.

Another great source of information on innovative processes and successful installation programs is **PRO-ACT**. **PRO-ACT** (DSN 240-4214, Commercial (210) 536-4214) is an information clearinghouse located at Brooks AFB, Texas.

4.3 Purchasing Environmentally Preferable Products. The purchase of products containing recycled material is a necessary part of closing the reuse/recycling loop. While the RRRP manager is the chief advocate, the Environmental Protection Committee and the RRRP Sub-committee are important supporters. The effectiveness and success of this program requires senior level interest to motivate users and procurers.

The Resource Conservation and Recovery Act (RCRA) requires that EPA Guideline Items be used. The only exceptions to their use are: (1) not meeting performance specifications, (2) only available at an unreasonable price, and (3) not available within a reasonable time frame.

The following is a list of actions that installations may take to establish an aggressive program. Each item is followed by the office(s) typically responsible for the action.

- Review and revise specifications to eliminate preferences for virgin material and encourage the use of EPA Guideline Items, as contained in Engineering Technical Letter 94-7, Dec 94, *EPA Guideline Items in Construction and Other Civil Engineering Contracts* (Civil Engineer);
- Replace items in the base supply store with environmentally preferable products whenever possible and ensure the General Services Administration's *Environmental Products Guide* is available for users (Supply);
- Examine current maintenance operations and replace materials with EPA Guideline Items whenever possible (building insulation, concrete and cement containing fly ash: Civil Engineer; re-refined lubricating oil: Civil Engineer, and Transportation; re-tread vehicle tires: Transportation);
- Require all writing, letterhead, and copier paper to meet Executive Order 12873 requirements (Contracting, Supply, Information Management);
- Require all contract submittals, specifications, and change orders meet recycled content requirements and be printed double-sided (Contracting);
- Require all base newspapers, news magazines, and base directories to contain recycled newsprint (Public Affairs);
- Require all newly acquired/leased copy machines to automatically default to two-sided copies (Contracting, Information Management); and
- Require the use of recycled toner cartridges in all copy machines and laser printers (Contracting, Information Management, Supply).

CHAPTER 5 - INFORMATION SOURCES

5.1 Legal Requirements.

Public Law 97-214, 10 U.S.C. Section 2577, *Disposal of Recyclable Materials.*

Executive Order 12873, *Federal Acquisition, Recycling, and Waste Prevention,* October 20, 1993.

DoD Instruction 7310.1, *Disposition of Proceeds from DoD Sales of Surplus Personal Property,* July 10, 1989.

Deputy Under Secretary of Defense (Environmental Security) Memorandum, *Policy for DoD Recycling,* September 28, 1993.

Air Force Instruction 32-7001, *Environmental Budgeting,* May 9, 1994.

Air Force Instruction 32-7080, *Pollution Prevention Program,* May 12, 1994.

5.2 References.

The following publications are available at no charge from the EPA RCRA/Superfund Hotline. Call 1-800-424-9346, Monday through Friday, 8:30 a.m. to 7:30 p.m., EST. In Washington, DC, call 703-412-9810.

Decision-Maker's Guide to Solid Waste Management. EPA/530-SW-89-072. 1989.

Markets for Compost. EPA/530-SW-90-073b. 1993

Promoting Source Reduction and Recyclability in the Marketplace. EPA/530-SW-89-066. 1989.

Recycling Grass Clippings. EPA/530-F-92-012.

Residential Leaf Burning: An Unhealthy Solution to Leaf Disposal. EPA/452-F-92-007.

Sites for Our Solid Waste: A Guidebook for Effective Public Involvement. EPA/530-SW-90-019. 1990.

Yard Waste Composting: A Study of Eight Programs. EPA/530-SW-89-038. 1989.

Yard Waste Composting. EPA/530-SW-91-009.

The following publication is available from the National Technical Information Service (NTIS). Call 1-800-553-6847, Monday through Friday, 8:30 a.m. to 5:30 p.m. In Washington, DC, call 703-487-4650.

Characterization of Municipal Solid Waste in the United States. PB92-207 166. 1992. **THERE IS A 1994 VERSION AVAILABLE..**

5.3 Recycling & Composting Associations.

5.4 Major Command Points of Contact.

Air Combat Command

ACC CES/ESC
129 Andrews Street, Suite 102
Langley AFB VA 23665-2769

Mr. Robert Hailey
DSN 574-4430; (804) 764
FAX: Ext. 8033

Air Education & Training Command

HQ AETC/CEVP
266 F Street West
Randolph AFB TX 78150-4321

Ms. Debra Snoha
DSN 487-3422; (210) 652
FAX: Ext. 2542

Air Force Materiel Command

HQ AFMC/CEVV
4225 Logistics Avenue, Suite 8
Wright-Patterson AFB OH 45433-5747

Mr. Gopal Annamraju
DSN 787-6312; (513) 257
FAX: Ext. 5875

Air Force Reserve

HQ AFRES/CEVV
155 Second Street
Robins AFB GA 31098-1635

Mr. Walter Volinsky
DSN 497-1069; (912) 327
FAX: Ext. 0108

Air Force Space Command

HQ AFSPC/CEVV
150 Vandenberg Street Suite 1105
Peterson AFB CO 80914-4150

Mr. Ralph Clark
DSN 692-5028; (719) 554
FAX: Ext. 2562

Air Force Special Operations Command

HQ AFSOC/CEV

Mr. Mike Applegate

100 Bartley Street, Suite 218E
Hurlburt Field, FL 32544-5273

DSN 579-4654; (904) 884
FAX: Ext. 5982

Air Mobility Command

HQ AMC/CEVC
507 A Street
Scott AFB IL 62225-5022

Mr. Mark Horstman
DSN 576-5763; (618) 256
FAX: Ext. 2693

Air National Guard

ANGRC/CEVC
3500 Fetchet Avenue
Andrews AFB MD 20331-6008

Ms. Kerri Wildgruber
DSN 278-8197; (301) 836
FAX: Ext. 8151

Pacific Air Forces

HQ PACAF/CEVV
25 E Street Suite D306
Hickam AFB HI 96853

Major George Herr
DSN 315-449-0704; (808) 449
FAX: Ext. 0427

United States Air Forces in Europe

HQ USAFE/CEVP
Unit 3050 Box 10
APO AE 09094 (Ramstein AFB)

LT Frank Titus, USN
DSN 314-480-6482, 011-49-63714
FAX: Ext. 3368

Air Force Center for Environmental Excellence

HQ AFCEE/EP
8106 Chenault Road
Brooks AFB TX 78235-5318

Ms. Nancy Carper
DSN 240-4964; (210) 536
FAX: Ext. 4254

Air Force Civil Engineer Support Agency

HQ AFCESA/CESM
139 Barnes Drive Suite 1
Tyndall AFB FL 32403-5319

Mr. Wayne Fordham
DSN 523-6465; ()
Mr. Gary Jacks
DSN 523-6190; ()
FAX: Ext.

HQ United States Air Force

HQ USAF/CEVV
1260 Air Force Pentagon
Washington DC 20330-1260

Captain Dave Maharrey
DSN 227-2797; (703) 69x
FAX: Ext. 58943

5.5 Abbreviations & Acronyms.

TN 420-47-02
1 September 1991

INSTALLATION RECYCLING GUIDE

US Army Engineering and Housing Support Center

1 September 1991

#846

FOREWORD

Today's Army finds itself in the same environmental dilemma as the rest of America, struggling to dispose of its solid wastes in an environmentally sound, yet economical, way. By the year 2000, total U.S. tonnage is expected to be two and a half times greater annually than that generated in 1960. At the same time, it is believed that the solid waste landfills will only be able to accept 50 percent of the waste.

Well before that time, eight states will have completely exhausted their landfills and will be forced to employ alternate methods of treatment and disposal. Since Army installations are an integral part of a civilian community, we have the same solid waste collection and disposal problems and must comply with the same environmental laws as they. Comprehensive waste recycling programs are mandatory in some civilian communities and at most military installations. Increasingly stringent legislation imposes further restrictions on local disposal options.

Recycling programs are a joint installation effort, crossing all organizational boundaries: Personnel and Community Affairs (DPCA), Engineering and Housing (DEH), Defense Reutilization and Marketing Office (DRMO), Resource Management (RMO), tenant organizations, troop units, and occupants in military housing.

This guide was prepared to assist installations in the development and management of their own recycling programs. Each installation can tailor a recycling program to fit its own specific situation. There are discussions on methods of collection, equipment and containers, handling and processing facilities, personnel requirements, use of contracting, regulatory compliance, publicity and public relations, marketing and economic analyses. Specifically excluded are hazardous and toxic wastes.

By devising innovative waste stream reduction methods, maximizing recycling, and aggressively marketing their recyclables, installations can and must significantly reduce their waste stream volumes.

Edward T. Watling
Director
US Army Engineering and Housing
Support Center

ACKNOWLEDGEMENTS

A special thanks to the Recycling Program Managers at the following Agencies/Military Installations for their cooperation and contributions to the U.S. Army Engineering and Housing Support Center's "Installation Recycling Guide."

Environmental Protection Agency - Washington, D.C.

Department of Defense (DASO) - Falls Church, Virginia

Headquarters, Air Force Engineering & Services Center - Tyndall AFB, Florida

Headquarters, Military Airlift Command - Scott AFB, Illinois

Headquarters, U.S. Forces Command - Fort McPherson, Georgia

Naval Air Station - Pensacola, Florida

Elgin Air Force Base, Florida

Fort Belvoir, Virginia

Fort Benning, Georgia

Fort Lewis, Washington

Fort Monmouth, New Jersey

City of St. Petersburg, Florida

City of Seattle, Washington

TN 420-47-02
1 September 1991

INSTALLATION RECYCLING GUIDE

Summary. The Installation Recycling Guide supports the Army's policy to prevent pollution, reduce waste, and conserve natural resources. It is intended for use by Army installation commander designated agencies/activities such as Directorates of Engineering and Housing (DEHs), Directorates of Logistics (DOLs), and Personnel and Community Affairs (DPCA). Providing guidance on efficiently developing and managing installation recycling programs, the guide covers a wide variety of topics to include establishing goals and objectives, methods of collection, necessary equipment and containers, handling and processing facilities, personnel and training requirements, use of contracting, regulatory compliance, public relations, marketing and economic analyses, program initiation, and procurement of recyclables.

Applicability. This guide applies to all Army installations regardless of size, location, or command. However, the mechanics by which its concepts are applied may vary from one installation to the next, depending on the size of the installation, the agency/activity selected to operate the program, programs already in place, and contractor availability and requirements.

Suggested Improvements. The proponent agency of this guide is the U.S. Army Engineering and Housing Support Center. Users are invited to send comments and suggested improvements on DA Form 2028, Recommended Changes to Publications and Blank Forms, directly to the U.S. Army Engineering and Housing Support Center (CEHSC-A), Ft. Belvoir, VA 22060-5516.

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

Chapter One
FRAMEWORK FOR RECYCLING

1.1 INTRODUCTION

In an effort to prevent pollution, reduce the waste stream and conserve natural resources, Congress enacted significant legislation governing the sale of recyclable materials with the Military Construction Codification Act (P.L. 97-214) (see Appendix A). The provisions of the Act expand the scope of recyclable materials and provide increased incentives for recycling programs at Army installations. AR 200-1, Environmental Protection and Enhancement (updated May 1991), which concerns the division of revenues and AR 420-47, Solid and Hazardous Waste Management, contain implementing guidance.

The Military Construction Codification Act (effective 1 October 1982) established the basis for policies and regulations. The legislation provides installations incentives to undertake recycling programs. For example, the rules stipulate that all proceeds generated by sales of recycled materials through the Defense Reutilization and Marketing Service (DRMS) will be returned to installations with established Qualifying Waste Recycling Programs (QWRPs). The Act also ends the requirement for the military to report to Congress annually on the operation of their recycling programs.

Prior to passage of the Act, an activity generating recyclable materials could spend only $50,000 per year from the sale of recyclable materials on environmental improvement and energy conservation projects. Now, a generating activity, by establishing a QWRP, is not subject to the same spending limitations.

1.2 RECYCLING PROGRAM GOALS

Installation Commanders with established QWRPs may not initially realize a profit from recycling and may, therefore, choose to integrate the cost of the recycling program into the solid waste disposal system. The Army's position on the recycling program is to prevent pollution, reduce waste and conserve natural resources. The program goal is to divert material destined for incineration or

landfill disposal by reducing, reusing and recycling. New or existing recycling programs are encouraged to expand or integrate with a regional recycling infrastructure encompassing other military branch installations, local, county or state recycling programs and a host nation.

Solid waste recycling approaches include a variety of options, such as family housing curbside collection, convenient drop-off/buy-back locations, office recycling and recovery of recyclable material at high volume areas. Composting is an additional avenue for reducing the solid waste stream.

Program awareness and community participation from soldiers, families and civilians is essential for the success of recycling. Opportunities and potential benefits in recycling are numerous. However, in order to stimulate the growth of the recycling industry, Army recycling programs should include all recyclable material in the waste stream.

1.3 PROGRAM OBJECTIVE

This manual provides guidance to the installation commander and his representatives for the establishment, improvement or expansion of a QWRP. Program objectives are defined. Detailed guidance is provided for all activities related to the successful implementation of a QWRP, including program planning, evaluation, organization, implementation, operation and administration. Recycling efforts related to hazardous waste minimization and used oil recycling are not included in the scope of this manual and are, therefore, not discussed. In addition, composting should be considered when establishing a QWRP. It offers a great deal of cost avoidance. Sources for composting information are included in Appendix B.

In a memorandum dated 10 October 1989, the Secretary of Defense mandated that the Department of Defense be the Federal leader in environmental compliance and protection. Military installations must meet environmental standards, and the priority in environmental policy must be to integrate and budget environmental consideration in our activities and operations.

An integrated approach is vital and necessary in the planning and development of a solid waste management program. Planners at the Federal, state, and local government and private sectors usually consider a hierarchy of methods for this integrated solid waste management (ISWM) program: reduction, recycling, incineration and landfilling. Waste reduction prevents the problems associated with disposal and is generally the most favorable waste management tool. Recycling diverts wastes from incinerators and landfills and provides for the reuse of resources. Incinerating waste is next in the hierarchy; it reduces volume and can recover energy. Landfilling is the least preferred waste management method, landfills being very costly to site and maintain. The installation ISWM program may include any combination of these four methods. This manual is intended to address only one of these, recycling.

Recycling can result in both economic and environmental benefits. The reduction of solid waste through recycling results in avoidance of costs associated with the collection, handling and disposal of the solid wastes. However, there are costs associated with the collection, segregation, handling, transporting and marketing of recyclables. After covering the cost of the recycling operation, net proceeds from these sales are available to the installation commander.

Recycling will divert large volumes of material from incinerators and landfills and recycling is vital to the achievement of local and national environmental goals. In addition, recycling is a means of meeting the national goal of 25 percent reduction in the amount of municipal solid waste disposed of by 1992. Recycling fulfills another national and Department of Defense objective, that of environmental enhancement. Table 1-1 shows the composition of solid waste as determined in a 1988 study. Almost 75 percent of these waste materials are potentially recyclable. Reduction of these materials in the waste stream will reduce the amount of waste disposal (i.e., incineration and landfill), and conserve natural resources and energy.

Table 1-1. Composition of Municipal Solid Waste

MUNICIPAL SOLID WASTE		1988
Products in MSW	Examples	% VOL
Durable Goods	Appliance, Furniture, Tires, Consumer Electronics	22.2
Nondurable Goods	Paper, Clothing, Plastic	34.0
Containers & Packaging	Paper, Plastic, Steel, Aluminum, Wood	29.6
Food Wastes	Any Food Waste	3.3
Yard Wastes	Grass Clippings, Leaves, Brush Trimmings	10.4
Other	Concrete, Stone, Construction Debris	0.6

Community-based recycling programs enjoy a high success rate. This does not mean that programs must start at the grass roots level, but that community involvement during the planning and development stages often results in greater participation. Family participation in community recycling increases dramatically when schools conduct a recycling awareness/education program.

1.4. POLICY AND REGULATIONS

The Military Construction Codification Act (PL 97-214), effective 1 October 1982, defines solid waste recycling in the Department of Defense. Recyclable materials are defined as "materials that normally have been or would have been discarded and that may be reused only after undergoing some kind of physical or chemical processing." The legislation also increased the incentives for participation in installation recycling programs by increasing the options for the use of sales proceeds.

Section 203 of the Federal Property and Administrative Service Act of 1949 (40 USC 484) governs the procedures for the sale of recyclable materials in the Army. The sale of recyclable material

that was purchased with appropriated funds is the responsibility of the DRMO.

Army Regulation 420-47, 1 January 1984, Solid and Hazardous Waste Management, describes the responsibilities, requirements and procedures for solid waste management at Army installations. The installation solid waste recycling program is a segment of the solid waste management program and should include, at a minimum, waste management, resource recovery, recycling, and waste disposal.

Army Regulation 200-1, Environmental Protection and Enhancement, 23 April 1990 (revised May 1991), covers the areas of source separation, resource recovery, and recycling. The objectives of this regulation are to promote the protection of public health and the environment and to conserve valuable material and energy resources.

Installations are encouraged to establish or expand recycling programs with emphasis on waste stream reduction and closed loop recycling before offering materials for sale. Installations with no recycling program of their own are encouraged to participate in programs conducted by other military organizations or the civilian community. Taking part in intraservice, regional or local recycling programs is also encouraged. Installations which do not have a QWRP may operate recycling programs if the end result furthers resource recovery by recycling and the annual cost to the Army is no greater than that of routine waste disposal. The operation of a QWRP is not limited by this cost restriction.

Army Regulation 215-1, Administration of Morale, Welfare and Recreation (MWR) Activities and Non-Appropriated Funds Instrumentalities (NAFIs), also contains guidance for the involvement of NAFI activities in the recycling program.

1.5 QUALIFYING WASTE RECYCLING PROGRAM (QWRP)

A QWRP is established when the installation commander designates an activity (i.e., DEH, DPCA, and Directorate of Logistics (DOL)) as

the QWRP manager which, in turn, establishes with the installation commander's approval, the following:

- Procedures for segregation and collection of specifically- named materials.
- A method for maintaining fiscal accountability of funds received and disbursed.
- A review process for all projects funded from the proceeds of the sale of recyclable materials. (All projects must be considered as if funded by normal appropriation.)

1.5.1 Accumulation of Proceeds

The Defense Logistics Agency (DLA) and the Deputy Chief of Staff, Logistics (DCS, Log) are responsible for market research and sales. They are becoming much more responsive, so if your service is poor, follow the chain up to the point where you are getting the service needed. They will return 100 percent of the proceeds to the installation. Funds are deposited into the F3875 budget clearing account and are to be segregated in the account to ensure accounting accuracy. These funds are often held at the MACOM, so if your installation budget office does not know about the funds, go to the MACOM resource management office. Using the proper fund citation on all papers is very important. Make sure everyone understands the process for generating the number (see Section 3.6).

1.5.2 Distribution of Proceeds from Recycling

Proceeds generated through a QWRP must first be used to reimburse the costs of the recycling program. The Army Auditing Agency will outline legitimate costs sometime after May 1991. However, at this time, recycling program costs include, at a minimum, the purchase of new or replacement equipment for recycling, overhead and salary costs for personnel used solely for the recycling program. Military personnel expenses may not be reimbursed from the proceeds.

After reimbursement of the recycling program, proceeds may be spent at a rate of not more than 50 percent for pollution abatement projects, energy conservation projects, occupational safety and

health projects and the remainder for morale and welfare activities. Refer to the May 1991 update of AR 200-1 for distribution details or to P. L. 97-124 (see Appendix A).

1.6 KEY PLAYERS AND THEIR ROLES

All of the key players have a role in the initiation and continual development of the QWRP. Figure 1-1 indicates steps that are helpful for developing a QWRP. As the laws and regulations governing solid waste disposal and the markets for recyclable resources evolve, a review of the recycling program is recommended.

a. Department of Defense (DOD)

(1) Commander, Defense Reutilization and Marketing Service, (Cdr, DRMS). For the solid waste management program, the Commander, DRMS, through field Defense Reutilization and Marketing Offices, has primary DOD responsibility for the sale, donation, reutilization and disposal of DOD material.

(2) Defense Reutilization and Marketing Service (DRMS). The DRMS established policy for the sale of materials from all DOD activities. The formal role and relationship of local DRMOs with host installations is established by DRMS. The DRMS generates a variety of reports on the status of recycling sales and recycling markets throughout the world.

(3) Defense Reutilization and Marketing Region (DRMR). The bulk of solicitations for the sale of recyclable materials is issued by one of the four DRMRs. Regional and national contracts for the sale of recyclable products are also managed at this level. A significant portion of the market studies for installation recyclable products is likely to be generated at this level.

(4) Defense Reutilization and Marketing Office (DRMO). The DRMO is the local representative of DLA. With the assistance of the DRMR and the DRMS, the DRMO supports recycling programs through the following services:

(a) Performs market research to provide estimates on the quantities and prices that can be obtained for recyclable materials.

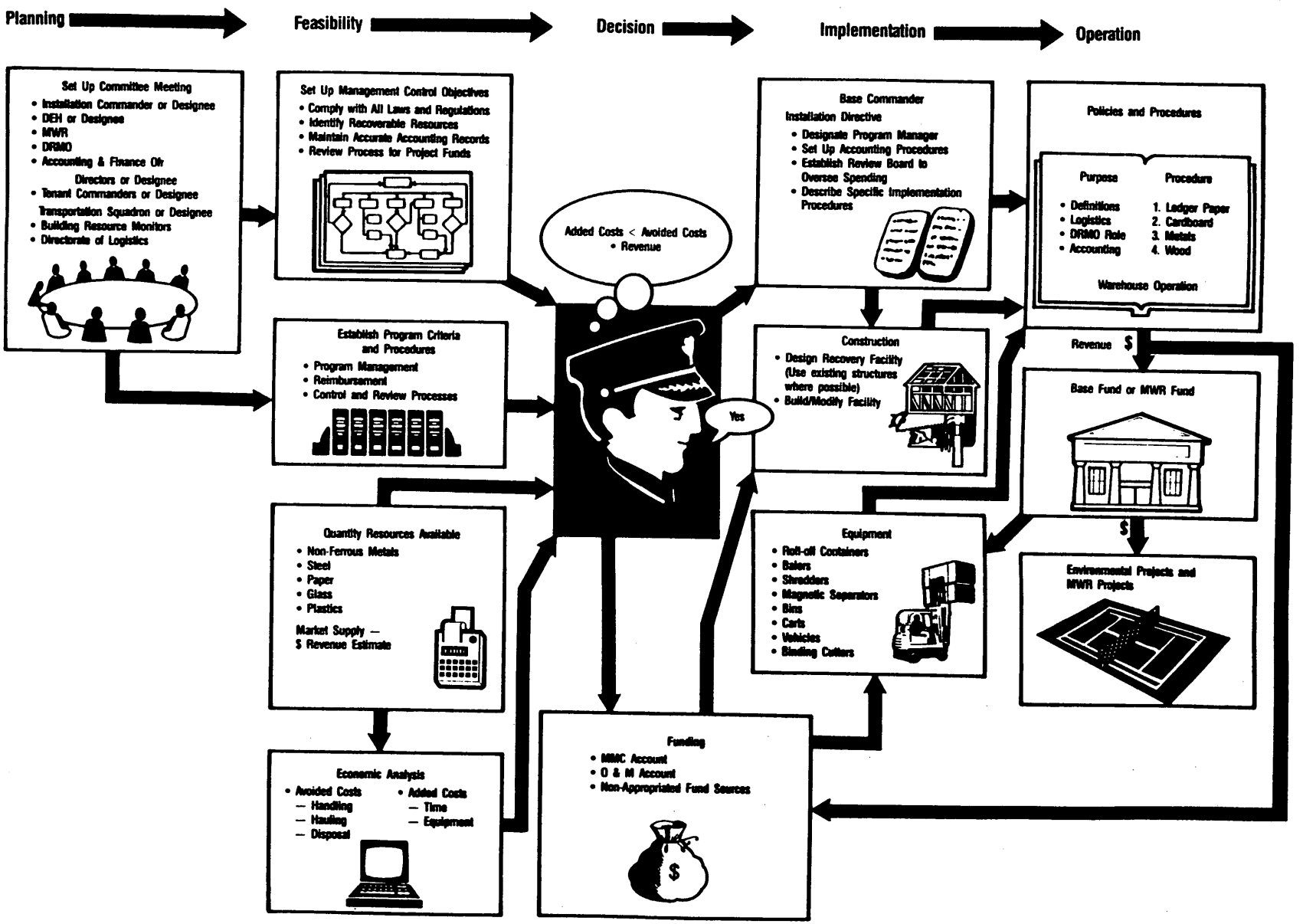


Figure 1-1
Developing a QWRP

(b) Provides advice on the procedures and techniques for collecting, packing, segregating, storing and transporting materials to maximize sales income.

(c) Assumes accountability for materials turned in for sale.

(d) Determines which materials are recyclable.

(e) Conducts sales and forwards proceeds for deposit to the program account.

b. Department of the Army (DA)

(1) The Chief of Engineers (COE). The COE exercises primary Army staff responsibility for administering, directing, planning, and monitoring the Army's solid waste management programs and has delegated the waste management program to the Assistant Chief of Engineers (ACE).

(2) Installation Commander. The installation commander establishes an organizational structure (DEH, DPCA, DOL, DRMO) to plan, execute and monitor solid waste management programs and program and budget for the necessary funds and personnel in order to execute the programs (including tenant organizations). The installation commander also determines the most cost-effective and efficient means of waste disposal, which may include a local/regional facility (military or civilian) for resource recovery, treatment or disposal services other than the DRMS.

(3) Finance and Accounting Office (FAO). The installation FAO may receive the sale proceeds and mail a copy of the cash collection voucher to the fiscal station. The FAO should also comply with other provisions of AR 200-1. (Since the money may go through your MACOM accounting office and not be forwarded, some coordination with the FAO of both the installation and MACOM may be necessary.)

(4) U. S. Army Engineering and Housing Support Center (USAEHSC). The Sanitary/Chemical Branch of the Facilities Directorate of UASEHSC will provide technical support in this subject area.

(5) U. S. Army Community and Family Support Center (CFSC). CFSC will have program proponency and oversight for MWR recycling programs.

c. Other Government Agencies.

(1) Environmental Protection Agency (EPA). The EPA provides up-to-date resources and assistance for conducting recycling activities and solid waste planning.

(2) State Solid Waste Agencies. These agencies provide guidance, brochures, markets, processor information and state recycling regulations (see Appendix C).

(3) Local, County or Regional Solid Waste Authority Recycling Coordinators. These coordinators provide information on solid waste plans, markets, processing and solid waste disposal options (resource recovery facilities, waste-to-energy facilities, landfills).

d. Industry Trade Associations, Coalitions and Institutes. These organizations provide free technical assistance on program development, infrastructure development, end market specifications and buyers of recyclable materials (see Appendix D).

e. Commercial Recyclers. These merchants provide technical assistance and act as processors/buyers/outlets for recyclable materials.

Chapter Two
PROGRAM PLANNING AND EVALUATION

2.1 ORGANIZING THE PLANNING EFFORT

Organizing the recycling planning effort will help ensure a comprehensive treatment of potential options. The same planning and evaluation techniques are equally applicable to new programs and for changes to existing programs. Figure 2-1 shows a typical planning process for a recycling program.

Recycling Planning Function

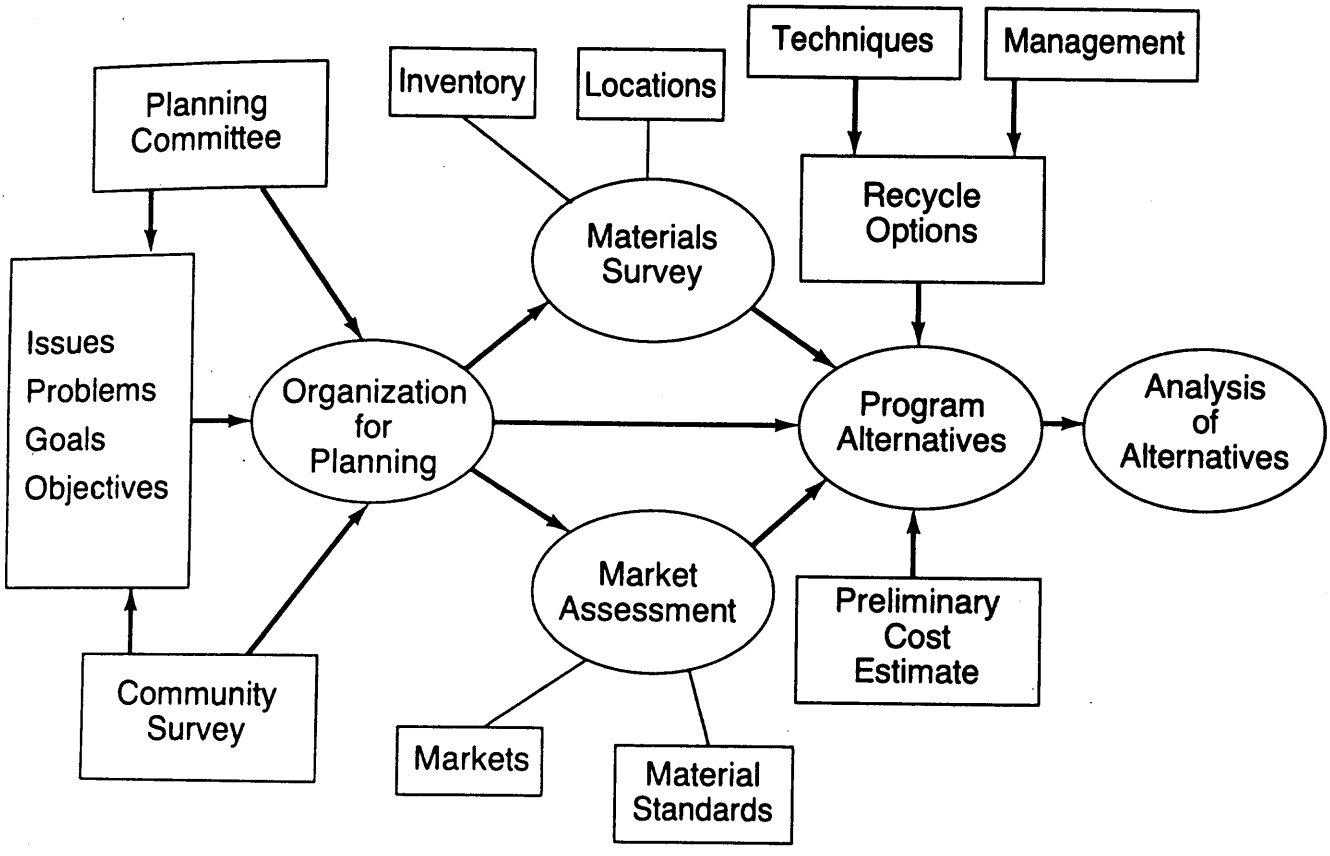


Figure 2-1. The Planning Process

2.1.1 Establishing the Planning Committee

Successful recycling planning activities will involve a variety of installation personnel. This situation lends itself to the formation of a recycling committee. Through the committee, tasks can be assigned to the appropriate staff and personnel who may be involved in the actual operation of the program. The committee will provide the forum for discussion of recycling issues and, if properly managed, will ensure an integrated, installation-wide approach to the program.

Suggested participants for the recycling committee include representatives from the Directorate of Engineering and Housing (DEH), Defense Reutilization and Marketing Office, (DRMO), Directorate, Personnel and Community Activities (DPCA), Directorate, Logistics (DOL), Directorate, Resource Management (DRM), Staff Judge Advocate (SJA), Safety Office, Public Affairs Office (PAO), contracting branch, family housing and office representatives, and major military units/tenants. The DEH, DPCA, and DOL may have ultimate management responsibilities for the Qualified Waste Recycling Program. The DRM assures fiscal accountability and SJA will provide the necessary legal interpretation of the use of funds and the applicability of public laws and regulations to program components. The DEH, Energy and Environmental, DPCA and the Safety Office have a vested interest in the revenue produced from projects. The success of the planning stage needs direct input from representatives of the military units and family housing areas.

2.2 SURVEYING THE ARMY COMMUNITY

The recycling committee should survey both residents and activities on the installation. The survey should determine current recycling awareness, ideas for the program, and the desire to participate in a recycling program. Committee representatives from the military and housing areas may conduct surveys on what items potential participants are willing to recycle (i.e., newsprint, glass, and cans) and the preferred methods of collection such as drop-off points versus curbside collection. This information can be used

later in both the planning process and the final decisions made by the commander.

2.2.1 Defining Local Issues and Problems

Significant local issues and problems should be identified by the recycling committee prior to initiating the survey of recyclable materials and a market assessment. Some of these items will be developed from the community survey and others will result from legal, economic, safety and environmental requirements.

The identification of local issues and problems is essential to the establishment of local goals and objectives. Committee members should be realistic about local situations. Some examples of local issues are:

- Commander is opposed to mandatory recycling in family housing
- DRMO is not supportive of expanding marketing
- Same type of recycling failed 5 years ago
- DEH refuse operations are contracted
- Local handicap/civic groups are already collecting the high return items on the installation
- County regulations
- Lack of labor available for collection
- Small/large housing area
- Near capacity landfill
- Shop supervisors think it is a waste of time/reduces their production
- Military commanders do not enforce "cleanup" of fired brass
- Lack of local markets for particular items such as plastic.
- Lack of storage facilities

The task of the recycling committee is to sort through these issues and to define the problems that will be addressed by the recycling program.

2.2.2 Market Assessment for Recyclables

Understanding post-consumer materials markets is one of the most important elements of developing a recycling program. An initial assessment must be done to determine what types of markets are

available for each of the identified recyclables. The market assessment should address the major, significant aspects of the demand for various materials, including price per quantity, quality standards for materials, processing requirements, packaging and contractual options. The first step is to identify local markets. If local markets are not satisfactory or are non-existent, move on to identify regional, national or even international markets. Remember, an increased price for a commodity allows for increased shipping and transportation, if necessary. Also remember to explore future markets that may develop for recyclable materials either locally or regionally.

Find out from potential buyers what standards they have for the materials they purchase. It is important to be able to meet these standards on a regular basis to ensure that loads of recyclables that have been collected and segregated will not be rejected by the purchaser.

The information developed on potential recyclable materials and generation rates must be taken to the local DRMO, which will determine the market value and market stability for the waste products. This marketing information can be used to force the DRMO to sell to the highest bidder. DRMOs are mandated through operating instructions to furnish generating activities data on materials having definite local markets. When no local markets can be determined, DRMOs are required to request assistance from their respective regional offices in identifying other potential markets.

2.2.3 Survey of Recyclable Materials

Start with a quick survey of the marketability of a material. Then the survey of those materials that are available to you on the installation. The survey of recyclable materials involves both identification of materials and estimating the amount of material that is generated and the proportion that can reasonably be recovered for recycling. Recycling industry representatives provide free technical and infrastructure development information (videos, literature, market specifications) that are essential in the survey of recyclable materials (see Appendix D). Recyclable materials are largely those items removed from the waste stream or

"materials" that normally have been or would have been discarded (i.e., scrap and waste) and that may be reused only after undergoing some kind of physical or chemical processing. Very lucrative recyclable materials are non-ferrous scrap metals. Materials which do not qualify for consideration in installation recycling programs include:

- Precious metal-bearing (platinum, gold and silver) scrap (e.g., used film, hypo solution, precious metal electroplating solutions, and solder with precious metal content).
- Ships, planes, weapons or any discarded materials which must undergo demilitarization or reutilization prior to sale
- Property disposed of under a higher priority program (e.g., foreign military sales, strategic materials stockpile)
- Items which may be used again for their original purposes or functions without any special processing (e.g., used vehicles, vehicle or machine parts, electrical components, unopened containers of unused oils or solvents).

The Planning Committee must coordinate with DRMO to ensure that all materials proposed for recycling are eligible for the program. When receiving scrap designated by an activity as recyclable, DRMO has the option of redesignating it as an item for the Reutilization, Transfer, and Donation (RTD) program if it appears to be a usable item. Items designated for the RTD program are screened at four possible stages:

1. An item is first screened to determine whether or not it can be reused by a DOD component.
2. If no use for an item is found in DOD, it is then available for transfer to another Federal agency if an interested party can be found.
3. If an item is not picked up by a Federal agency, it is then available for donation to states or other parties authorized by Congress (e.g., Boy Scouts of America).
4. If an item is not picked up during any of the previous stages, it is then sold either as scrap or as a usable item.

Once potentially recyclable materials have been identifie estimate the amounts of these materials that will be available f recycling purposes. One method of estimating the generating rat of recyclable material is to examine, if available, incoming a outgoing receipts of materials. Based on the type of material a its usage, estimates can be made of the quantity of materia reaching the waste stream and the generation rate. Ma installations have performed solid waste studies that ha characterized the wastes generated on the installation. The studies can be used to determine both the types and quantities recyclable materials that are available. DD Forms 1348- submitted to the DRMO, can be reviewed to estimate generation rat of scrap materials.

The U.S. Army Construction Engineering Research Laboratory (CER is developing a materials tracking program, which could be usef in operating and managing an installation recycling progra Information on this program will be provided when it becon available. (POC is Ron Webster, 1-800-USA-CERL.)

After identifying the amounts of recyclable materials in the was stream, estimate the amounts of these materials that may recovered by reasonable means. A comparison of recovery rates established programs with the type of recovery options envisior for the installation program can be used for these estimates. is important to account for items currently being recovered throu existing programs.

A non-industrially funded (NIF) activity will receive no proce from the sales of materials that fall into the RTD program and a not picked up in stages 1, 2, or 3. Only industrially fund activities will receive proceeds from the sales of items within t RTD cycle. Table 2-1 lists some potentially recyclable materia and where they may be found on post. Make sure all contracto understand that they are not to remove any salvageable items f post. Contract inspectors should check on them, as necessary, ensure they are complying with this part of the contract.

Table 2-1. Location of Recyclables

MATERIALS	LOCATION ON POST
Tab Cards	Office Areas
Computer Paper/Office Paper	Office Areas
Mixed Paper	Office Areas, Schools, and Housing Areas
Cardboard	Officer, NCO and EM Clubs Mess Halls, Commissary & Post Exchanges, Class 6 Stores, Supply Issue Pts
Aluminum Cans	Housing Areas, Hospital Lounges & Office Areas
Glass	Housing Areas, Clubs, Bowling Alleys, Mess Halls, Hospital Cafeteria
Plastic	Housing Areas, Clubs, Mess Halls, Motor Pools, Service Stations, Bowling Alleys, Hospital Cafeteria and Cleaning Areas, Schools & Laundries,
Steel Cans	Hospital and School Cafeterias, Housing Areas
Newspapers	Housing and Office Areas
Rubber (tires, etc.) Copper Wire Metal Scrap	Automotive Shops, Contractors Doing Salvage from Renovation by DEH/Contractors; DOIM (telephone)
Scrap Wood (pallets, furniture, etc.)	DOL, Supply Areas in All Activities
Food Wastes	Cafeterias, Clubs, Mess Halls
Fired brass	Ranges/Training Areas/ Ammunition Supply Points

2.3 ESTABLISHING GOALS AND OBJECTIVES

Part of the planning process involves setting goals and objective
It is important to develop and recommend realistic goals a
objectives. Goals should be general statements of what the progr
is designed to accomplish. For example, after evaluating remaini
landfill capacity and performing a preliminary assessment of t
installation waste stream, the committee may find it helpful to s
a goal of recycling 30 percent of the waste stream within the ne
five years. Specific planning objectives in support of this go
will also be required. Planning objectives may include determini
which waste stream components should be part of the program (bas
on market analysis and makeup of the waste stream), investigati
feasibility of a comprehensive curbside collection progra
developing a pilot-scale curbside program, and investigating publ
outreach avenues. When a plan is decided upon and a program
being implemented, new, more specific objectives should be set.
example could be working toward 90 percent participation.

The committee will recommend the goals and objectives of recycli
to the installation commander as part of the planning proces
Recycling is not a "miracle solution," anymore than waste-to-ener
or landfilling is. The installation will benefit from careful
developed, achievable goals and objectives and an integrat
approach to waste management.

2.3.1 Developing Program Options

Recycling programs come in many shapes and sizes. The type
program that is developed should be designed to address the ful
range of local needs. In developing a preferred program, a ful
range of potential and feasible alternatives should be considere
This process will help prioritize and select the option that
most likely to address the majority of objectives that have bee
established and result in diversion of the most material at t
least cost from the waste stream. The first step in this proce
is to evaluate program options.

2.3.2 Evaluating Program Options

The evaluation and eventual selection of appropriate recyclin
options will be largely dependent upon the types and quantities

materials targeted for recovery and the relative locations of the generating sources. The generation of large quantities of high-value recyclables in a concentrated area will dictate different options than a set of family housing units. Each installation situation will be different and each requires careful analysis.

The first step in evaluating recycling options is to organize the data obtained from the materials survey into a meaningful format. Mapping the locations of similar sources of materials generated (color coding is a convenient technique) and indicating the type and quantity of materials generated will provide a general picture of the situation. Widely dispersed locations of low volume and low value materials generated should have low priority for initial recycling efforts. Available resources could be concentrated on those materials and locations that will have an immediate and positive payback. This could be extremely important for both economic and public relations purposes.

The types of material recovery systems that are selected for the recycling program must be cost effective and efficient. This means that the recovery systems must address the type, quantity and locations of generators. There are five basic options that may be combined in varying degrees to develop program alternatives. Each option will require tailoring to local situations. Remember, at this stage in the planning process, all generators of recyclable materials are planned to be served by an appropriate material recovery system. The options include:

a. Drop-Off Centers require residents or businesses to source separate recyclables and bring them to a specified location. Drop-off centers range from single-material collection points to multi-materials collection centers. Since individuals must separate materials and bring them to drop-off centers, low participation can be a problem with this option. To encourage participation, drop-off centers must be conveniently located. While mobile drop-off centers can increase both convenience and participation, locations at shopping centers, schools, and along high traffic areas are common.

b. Materials Recovery Centers are permanent drop-off centers that are staffed to accept (and often process) a wide variety of recyclables. Properly locating a materials recovery facility is crucial to its success. These operations normally purchase privately-owned recyclables from individuals or groups as an incentive to participate. An example of this is the purchase of aluminum cans from children. These operations often market the commodities and are normally used in conjunction with both drop-off and curb-side recovery operations. Some recovery centers will accept co-mingled recyclables; this is a major advantage in some areas.

c. Full Stream Processing Centers normally involve a high technology separation technique that is capable of processing all components of community solid wastes, not just recyclables. In some applications, the recyclables are removed from co-mingled waste and the remainder is separated into compostable and/or combustible materials with very little residue for the landfill. The low technology version of this option is the dump-and-sort method of recovery.

d. Desk-top Recovery Systems are employed in office environments. These arrangements involve separation of recyclables at individual work stations (usually high-grade paper and consumer items such as beverage cans) with intermediate collection areas. This technique, properly developed, can significantly reduce volumes of material in the waste stream.

e. Curb-side Recovery is primarily a technique for application in residential areas. In a curb-side system, source separated recyclables are collected separately from regular refuse in residential locations. This technique can also be used to service businesses and industries where recyclables are generated. There are many different variations of this technique. Some programs require separation of the recyclables into separate materials (e.g., paper, glass), while other programs accept co-mingled recyclables. This option normally has much better participation than that obtained with drop-off centers because individual time and effort in transporting the material is greatly reduced.

2.3.3 Assessing Management Options

The installation is ultimately responsible for the management of the recycling program. This does not mean that the installation must operate the recycling program. The program should be viewed as any other utility or service that is managed by the installation. In this regard, the program may be closely integrated into the refuse collection system, it may be operated separately, or the function may be contracted to a private firm.

Installation operation of the program should be evaluated in the context of a commercial activities function. The specific procedures for conducting this review are contained in AR 11-18, Cost and Economic Analysis Program. The key factor in the evaluation process is whether the cost and benefits of a contractual arrangement outweigh those for installation operation over a specified time period.

There has been considerable discussion of various opinions on which staff agency should operate the waste recycling program. There is no simple, clear cut answer to this issue. Each installation's situation must be carefully studied and evaluated before making a decision. In addition to the initial factors involved in any management action, the following elements should be considered in the final determination:

a. While there is no single, "best" organizational arrangement for operating this program, the Directorate of Engineering and Housing will continue to have overall responsibility for solid waste management. The scope of solid waste management goes well beyond recycling.

b. A recent Air Force audit identified the critical need to employ "sound business practices" to realize maximum potential returns from the recycling program. Additionally, there is considerable evidence that extensive use of NAF employees in this program provides greater flexibility.

c. The primary beneficiary of the proceeds from recycling should be evaluated when assigning responsibilities. In general, the

staff that can most benefit from proceeds of the recycling effo will have the greatest incentive to generate the most revenue the least cost.

d. Successful and profitable recycling programs have been operat by the Engineer, DOL, DPCA or other staff agencies. Each of the requires close coordination, cooperation, and the enthusiast support of the local commander. To help in assessing the "bes installation staff to operate the recycling program, Table 2 summarizes some of the major advantages of Engineer and DI operation.

Table 2-2. Organizational Advantages

Waste Recycling Program

Organizational Advantages

IMWRF/NAFI	DEH/DOL/Other
■ Business/Profit Orientation	■ Cover APF Costs
■ Buy/Sell Post-Consumer Waste	■ Integrate Waste Mgt
■ Better Use of Manpower Spaces	■ In for Long Term
■ Commercial Sponsorship	■ No Depreciation $$
■ Marketing Structure	
■ Sell/Trade NAF Equipment	
■ Brokering of Recycle Sales	
■ Great Economic Incentive	

2.3.4 Assessment of Program Opportunities and Risks

The preferred recycling plan must be flexible enough to allow all risks and opportunities associated with the availability funds, future outlook of recyclables markets, and the rising c of processing and collection.

2.3.5 Relating the Plan to Recycling Goals and Objectives

The single most important factor in developing a successful recycling plan is to ensure all factors have been addressed to accomplish the programs's objectives. In general, the plan should propose a program which maximizes waste diversion and minimizes cost.

2.3.6 Designing Program Alternatives

Several program alternatives should be developed for each installation situation. The alternatives should include different management options, different areas to be served by the program, and a mix of recovery options to be employed.

A typical program alternative could consist of several drop-off points, a central materials recovery facility and a curbside collection system or all of these. Special collections are often included for commissary, post exchange and other commercial and industrial operations. Program alternatives may also be developed for parts of the installation where a higher probability of obtaining recyclables exist -- the more difficult areas may be part of another alternative.

Each alternative that is developed must include an estimate of the resources required to implement the option. Every attempt should be made to make resource estimates as accurate as possible. At a minimum, the types of equipment, facilities, vehicles, materials and manpower are crucial to an objective economic analysis.

The probable recovery rates of recyclable materials for each alternative must be calculated. These factors are used in analyzing the potential revenue that will be generated by the sale of recyclables and in estimating the cost avoidance. Recovery rates should be specified by both weight and volume to ensure required calculations can be performed.

2.4 ECONOMIC ANALYSIS OF ALTERNATIVES

An economic analysis of recycling program alternatives is a crucial step in the planning process. This is the stage where cost and revenue estimates are made and evaluated leading to the economic

recommendation. The decision maker, with very limited resourc will rely heavily on the results of this analysis. When combi with the non-economic factors, this will provide the sum total the staff influence into the decision-making process.

2.4.1 Cost Estimates of Alternatives

One of the most difficult tasks in planning a recycling program developing reasonably accurate estimates of the costs associa with each recycling option for each program alternative that under consideration. These estimates are, however, crucial to decision-making process and must be carefully constructed. method of accomplishing this task is to obtain cost factors f the experience of other operating programs with similar optio This technique is also useful as a check on the basic cost d that is developed for your program.

The costs associated with initiating and operating a recycl program are termed "added costs." Added costs are the increa time, effort, and possibly equipment associated with removin recyclable material from the waste stream and subsequen preparing it for sale. The added costs of a qualifying recycl program consist of the initial cost of establishing the program the annual cost of operating the program.

a. Initial Investment Costs. Estimate the cost to build facilities, procure necessary equipment, and prepare and implem operational and administrative procedures. Some examples are co of constructing or renovating storage buildings or sheds, costs purchasing trucks, shredders, balers, drums, boxes, vacuums, pum and scales; costs of preparing instructions, financial records, procedures; and training cost. Depending on the type facilities/equipment needed, use appropriate amortization schedu to spread the cost over several years.

b. Annual Recurring Costs. For each recycling option, estim the annual maintenance and labor costs. If facilities/equipm used for waste disposal are also used for recyclable materi prorate maintenance costs to each recyclable material. Util costs for facilities should be included. Labor costs incl

estimates for collection, handling, storage, packing, segregation, and administration.

c. Avoided Costs. Cost avoidance estimates are required for each recycling alternative. Avoided costs are decreases in the off-site costs of waste handling, hauling, and disposal by removing a recyclable material from the waste stream. Estimate avoided costs by determining the weight or volume of each recyclable material diverted from the waste disposal stream by the QWRP. Calculate tipping fees, surcharges, labor, prorated maintenance, hauling fees, permit fees, landfill space and generator "taxes" that are saved by recycling that quantity of material, instead of disposing of it. This may not be a significant factor; it will depend on the material.

2.4.2 Computation of Potential Revenues of Alternatives
Information developed on estimates of potential quantities of recyclables generated by each alternative are multiplied by the expected price determined from the market assessment. Consideration in each alternative is given to the quantity and quality of materials since this will affect the market price and the projected revenues. A chart that consolidates this information may result in adjustments to the structure of the alternatives under consideration.

2.4.3 Comparison of Costs and Revenues of Alternatives
After developing program cost estimates and projected revenues of each alternative, the installation must conduct an economic analysis to determine if any alternative would be cost effective, and which alternative is the most cost effective. Economic and cost factor analyses should be undertaken whenever there are significant program changes such as the addition of materials to be recycled or a proposal for a significant capital investment that was not considered in the initial analysis. An economic analysis will help decide the feasibility of establishing a qualifying recycling program. Figure 2-2 is a worksheet for documenting an economic analysis. For more information on approved methods for performing economic analyses, see AR 11-28, Economic Analysis and Program Evaluation for Resource Management, and Technical Report

P-151, Economic Analysis, Description and Methods Handbook, prepared by the U.S. Army Construction Engineering Research Laboratory, Champaign, Illinois. CERL has also developed a software program called "ECONPACK" for performing this economic analysis. It is available in a PC version and can be run on a PAX or computer system. "ECONPACK" is taught in a PROSPECT training class in Huntsville, Alabama. (POC is Bob Morgan, Huntsville Division, DSN 645-5266 or Commercial (205) 955-5266.)

The economic analysis must generate meaningful measures of economic performance. The generally accepted measures of these analyses that are comparable among the various alternatives are uniform annual cost, discounted present values, internal rate of return and payback period. Each parameter will provide insight into probable economic results of investing and implementing each alternative. In virtually every type of analysis that uses estimates (cost estimates, material quantity estimates, etc.) there are varying degrees of risk involved. This risk is compounded by the fact that recyclable materials are commodities that are subject to wide variations in market values. In developing the economic analysis, a careful list must be made and maintained of all assumptions employed in making estimates, and factors should be developed for each cost element that indicates its degree of reliability. Several "what if" scenarios should be developed to indicate the economic status of the alternatives if cost estimates or revenue estimates are in error. This will provide additional information to the decision maker.

2.5 NON-ECONOMIC CONSIDERATIONS

There are many non-economic factors that will be involved in the decision to establish and operate a recycling program. The most compelling would be a local, state or Federal law that would require the program. Particular waste commodities may be mandated to be recycled or specific percentage reduction in waste stream volume may be required.

Another major non-economic consideration is the conservation of landfill space and conservation of natural resources. The Army's policy of no new landfills in areas where municipal or regional

TN 420-47-02
1 September 1991

ECONOMIC FEASIBILITY WORKSHEET

Army Installation:	Fort Apache	Preparer:	John Doe
Location:	Badlands, IA	Date:	14 August 1990
Recyclable Material:	TAB CARDS	Quantity:	200 net tons/yr.

ESTIMATED ADDED COSTS

1. Source separation and material preparation
   - a. Equipment-none necessary
   - b. Labor
     - (1) Operations (.2 manyear/yr.) ($25,000/manyr.) (1.12-overhead) — $5,600/yr.
   - c. Other (Misc. packaging materials) — $1,000/yr.
   - SUBTOTAL — $6,600/yr.

2. Collection and Storage
   - a. Equipment
     - (1) Flatbed Truck ($25,000) (1 day/week)/20 yrs. — $ 250/yr.
     - (2) Front-end loader ($30,000) (1 day/week)/20 yrs. — $ 300/yr.
     - (3) Warehouse (1300 sq. ft.) ($25.10/sq. ft.)/20 yrs. — $1,631/yr.
   - b. Labor
     - (1) Procurement (.2 manyr) ($25,000/manyr) (1.12-overhead)/20 yrs. — $ 280/yr.
     - (2) Operations (.2 manyr) ($25,000/manyr) (1.12-overhead) — $5,600/yr.
     - (3) Maintenance (.1 manyr) ($25,000/manyr) (1.12-overhead) — $2,800/yr.
   - c. Other (Pallets, shelves, fuel) — $2,000/yr.
   - SUBTOTAL — $12,861/yr.

3. Program Administration
   - a. Instructions and operating procedures (.1 man yr.) ($25,000/manyr) (1.12) — $2,800/yr.
   - b. Fiscal management (.05 man yr.) ($25,000/manyr) (1.12) — $1,400/yr.
   - c. Publicity (.05 man yr.) ($25,000/manyr) (1.12) — $1,400/yr.
   - SUBTOTAL — $5,600/yr.
   - TOTAL ADDED COSTS: — $25,061/yr.

ESTIMATED AVOIDED COSTS AND REVENUE

1. Tipping Fee Savings ($10/ton) (200 net tons/yr) = $2,000/yr.
2. Sales revenue (200 net tons/yr.) ($180/net ton) = $36,000/yr.
   - TOTAL AVOIDED COSTS AND REVENUE: — $38,000/yr.

ESTIMATED RETURN

ESTIMATED RETURN = 38,000/yr. - 25,061.5/yr. = $12,938.5/yr.

Figure 2-2. Sample Economic Feasibility Worksheet

landfills exist, unless they are economically and ecologically justified, demands the conservation of existing installation landfills. The siting of new landfills and their costs are difficult to measure against recycling economics but should be evaluated.

Other non-economic considerations include local and state special interest groups' involvement with recycling and siting of new landfills; availability of regional municipal waste combustion facilities; other local recycling management options available, such as civic type groups or contractors; command emphasis; special waste requiring revenue for handling rather than placing in landfill (such as tires and pallets if there is no market); and resource reduction methods such as composting.

2.6 PRIORITIZATION OF PROGRAM OPTIONS

To aid the prioritizing of your program alternatives, the following factors should be addressed:

- Tonnage diversion potential
- Reduction in environmental and health risks
- Ease of implementation
- Technical track record (e.g., equipment)
- Cost performance

The importance of each of these factors will be determined by the recycling committee's overall goals.

2.6.1 Development of the Recycling Plan

Upon completion of the economic analysis of program alternatives and the determination of other non-economic factors, the Recycling Committee should develop a Recycling Plan. This plan is set up to best satisfy the objectives and goals that were established by the Recycling Committee at the start of the planning process. The development of this plan should include the following steps:

- Prioritization of program alternatives
- Development of an implementation schedule
- Assessment of program opportunities and risks

- Relating the plan to the recycling committee's goals and objectives

2.6.2 Development of an Implementation Schedule

The development of a program implementation schedule is suggested to facilitate a phase-in strategy for each alternative. The schedule should include a list of all options to be implemented, a phase-in fiscal year schedule with associated costs, and the diversion rate associated with each option as shown in Table 2-3.

Table 2-3. Recycling Implementation Plan

Recycling Implementation Plan

Options	Phase I		Phase II		
	FY 90-91	Diversion Rate	FY 91-92	FY 92-93	Diversion Rate
Multi-Material Curbside Collection	Implement Service to 20,000 Households	0.3%	Expand Service to All One-to-Four Family Units		3.5%
Compost/ Mulch Production	Implement Pilot Leaf Collection and Composting	1.2%	Add Brush and Grass Clippings to Pilot	Expand Pilot to Full Scale	10.7%

Chapter Three
PROGRAM ORGANIZATION AND PROMOTION

3.1 ORGANIZING AND PROMOTING A QWRP

The decision to implement an installation recycling program rests with the installation commander, unless mandated by local/state law or required by Army policy. The installation commander will review the proposed recycling plan and select the management alternative (i.e., proponent). The proponent will determine how the program is to be organized, decide how it is to be operated, and identify the resources required to implement the program. Together with the decision to implement the program, the installation commander has specific responsibilities to ensure the program meets all the qualifications of a QWRP as outlined in Section 1.5. Finally, a comprehensive promotional campaign must be initiated from the outset to encourage maximum participation and support. The success of the program is directly proportional to the level of command emphasis and community involvement.

3.2 COMMANDER'S RESPONSIBILITIES

The installation commander has the ultimate responsibility and authority to operate the QWRP in accordance with Public Law 97-214, which means:

a. The installation commander designates the QWRP proponent. The QWRP proponent is the installation activity responsible for operating the program. The proponent has the responsibility to select the program manager.

b. The installation commander approves operating instructions and procedures. The QWRP program manager will develop, for commander approval, a mechanism to formally establish the QWRP. This mechanism usually takes the form of an installation regulation, directive, or instruction and will address minimum program requirements. Once adopted, the installation commander notifies the servicing DRMO of the establishment of a QWRP.

c. The installation commander directs and approves the use of proceeds from the sale of recyclable materials to fund proposed projects. (See Appendix A and AR 200-1 dated May 1991).

d. The installation commander selects a Recycling Advisory Committee.

3.3 ROLES OF THE RECYCLING ADVISORY COMMITTEE (RAC)

The purpose of the RAC is to provide advice on recycling policy matters, to provide periodic program review, and to exchange information concerning the recycling program. The installation commander or a designated representative will serve as commitee chairperson. The duties of the RAC could be assigned to the recycling planning commitee or to an existing commitee such as the Environmental Quality Control Committee (EQCC).

3.4 PROGRAM MANAGER'S RESPONSIBILITIES

Once the recycling program plan has been approved by the installation commander, the program manager implements the plan. To do this, the program manager must accomplish the following tasks before the program begins officially.

3.4.1 Developing Operating Procedures and Instructions

The program manager should prepare a Memorandum of Instruction (MOI) for the operation of the recycling program. The MOI should be signed by the installation commander. Distribution should include all activities that will participate in the QWRP. This MOI addresses, but is not limited to, the following major topics:

- References
- Purpose
- Scope
- General or Background
- Organization
- Responsibilities
- "How to" instructions for participants

In addition to the comprehensive MOI for the recycling program, other standard operating procedures (SOP) may be needed to address

specific functions within the program. Some examples are SOPs for the operation of equipment (i.e., balers, forklifts), an SOP for collection and transport of recyclables, and an SOP for recordkeeping/tracking of recyclables and the revenues they generate.

An installation may wish to incorporate QWRP guidance into an installation regulation. The installation regulation should be geared to participants rather than program administrators. It should answer the questions of who, why, what, where, when and how.

3.4.2 Confirming Initial Market Agreements

During the planning phase, the recycling planning committee will have assessed the overall market for targeted recyclables. This market evaluation should have included identification of potential buyers for materials to be sold. Sales contracts will be managed either by the installation DRMO or the NAF contracting office. The program manager should confirm that satisfactory market agreements are in place and scheduled in conjunction with the program "kick-off". Marketing of recyclable materials is addressed in Section 2.7 of this guide.

3.4.3 Acquiring Buildings and Equipment

During the planning phase of the recycling program, some consideration should have been given to the logistical needs for operation of the program. At most Army installations, funds will not be available to build a sophisticated recycling center. However, operation of an installation-wide recycling program will require a certain amount of building space and equipment.

a. Building Requirements. Due to funding limitations, the program manager will usually select an existing building for use as the new recycling center. The first priority will be a covered receiving area and permanent bins for storing the collected materials. Glass and metal can be stored outside, but paper storage bins should be in a covered area. Where processing of recyclables is performed, sufficient building space will be needed for equipment, and for movement of materials from collection bins to the processing area and to final storage. It is also important to have extra storage

space in the event of a downsurge in the market which slows sales. Space should also be allocated for employee facilities and an office. The program manager should consult the installation legal office to ensure that all necessary permits, variances or other legal approvals are obtained.

b. Equipment Needs. Some investigation of equipment needs will have been performed during planning. Equipment requirements will be determined based on the types of materials to be recycled, volumes the center will process, and specifications of the buyers.

Processing recyclables begins with sorting. Usually some degree of sorting is required at the processing center. Good source separation by participants in the program will reduce the amount of sorting required at the recycling center. Therefore, proper sorting of recyclables should be stressed in the promotional program. Sorting can be accomplished with various types of mechanical equipment, such as magnets, conveyors, and air classifiers. However, hand sorting may be all that is needed, particularly during the program's infancy.

One of the most common pieces of equipment used at recyling centers is the baler. Paper, plastic, aluminum, and other metals can be baled. There are several different types of balers. One should be selected based on volumes to be handled and ease of use.

Other equipment is needed at a recycling center for storage, movement and weighing of materials. Large storage boxes are needed for storage of materials before and after processing. The program manager will also need equipment to move materials, such as forklifts, dollies, or conveyors. Lastly, if sales are not accomplished by DRMO, some means to weigh materials being sold is needed. The recycling program manager should procure a scale(s) or arrange for weighing of materials off-post.

The recycling program manager must also consider providing collection containers to participants in the program. Well-labeled and/or conspicuous containers for use at the participant level will increase participation. The program manager should provide these

containers if the collection function is performed in-house. If the collection of recyclables is contracted, the program manager may include the provision of collection containers as a contractor responsibility.

Sources for the above equipment types can be found in current trade journals (e.g., Waste Age, Resource Recycling, Recycling Today), which publish equipment guides regularly. These journals also have information regarding collection vehicles which are addressed in the following section.

c. Collection Vehicles. The recycling center may be operated as a drop-off facility, which requires participants to transport their recyclables to the center. Although this option eliminates the need for collection vehicles and personnel, it has been proven that much greater participation results from a curbside pick-up service. To initiate curbside collection, the program manager must arrange for the necessary vehicles and crews (personnel requirements are addressed in the next section). There are a variety of vehicle designs on the market that are very effective for collecting recyclables. If economically feasible, the program manager may be able to procure or lease specialized collection vehicles. If costs make this prohibitive, collection of recyclables may be accomplished using standard refuse collection trucks or other truck types. The program manager may perform minor retrofitting of trucks to tailor them for use in recycling.

3.4.4 Hiring and Training Additional Staff

Once the program manager has a good handle on the efforts required for the collection and processing of recyclables, personnel must hire the people needed to accomplish each task. The number of people required to perform each task depends on the size and degree of sophistication of the program. The program manager is responsible for seeing that each new employee receives adequate training to optimize job performance.

Following are some of the positions that may be needed to run a recycling center:

- Foreman (plant manager)
- Laborer (for sorting or collection)
- Equipment Operator (to run baler)
- Forklift Operator
- Vehicle Operator (to drive collection trucks)

Please note that some of these positions may be combined. Sample job descriptions for these types of positions are provided in Appendix E.

3.4.5 Establishing a Recordkeeping System

Although the DRMS/DRMO maintain a computerized scrap sales tracking system, installations need to augment this report. Tracking the delivery and sales of installation recycled materials is the job of the QWRP manager. Accountability must be maintained from the date material is received until sales proceeds are credited to the installation, as discussed in Chapter Four.

Information to assist in this tracking system is available from the servicing DRMO on DRMS Form 1427 (Notice of Award, Statement and Release Document) (See Appendix F.). A tracking system (See Appendix G) should include, but is not limited to, the following:

- Date of turn-in
- Item description (to include total weight)
- DD Form 1348-1
- Sales date
- Sales price
- Date distribution received on installation
- Total proceeds

3.4.6 Implementation and Collection Schedules

The program manager should have a schedule of the sequence and time frames for each major implementation task. A logical sequence should be followed based on how long he/she predicts each task will take. Effective preparation will foster more efficient operation during the most difficult early stages. The program manager will select collection schedules for the recyclable materials as well as collection frequencies based on volumes generated, capacity of

collection vehicles, and availability of collection personnel. If collection is done by a contractor, the frequencies will be negotiated based on similar factors. The program manager is responsible for publishing and disseminating collection schedule information prior to program start-up.

3.4.7 Promoting the Recycling Program

The program manager is responsible for promotion of the QWRP. Due to the importance of this function, promotion is addressed in Section 3.5.

3.4.8 Getting Community Involvement

A successful recycling program must have the support of the entire installation community. This is especially true for programs that depend upon voluntary participation and individual involvement. The keys to gaining strong support from the beginning are education and training, publicity, support from the command level, and grass roots involvement. Making the program highly visible, well-organized and well-managed will help ensure that the program starts off well and stays strong. If the program does not appear credible, it will not be supported. Some general suggestions for promoting a good recycling program are:

a. Be creative -- do not overlook any opportunity to educate or publicize, and take advantage of unusual ways to solicit support from local recycling, environmental or other organizations. Recycling industry trade associations have representatives, videos, literature and educational material to assist in program development. See Appendix D for resource listings.

b. Incorporate mechanisms for feedback to evaluate the program's success.

c. Maintain credibility by practicing what you are preaching. Minimize the waste stream and use recycled products.

d. Plan early -- education, training and advertisement should begin prior to program start-up. Allow plenty of time for purchasing promotional items and printing publications.

e. Make a time line, setting deadlines to keep plans organized and on track. Make periodic reviews to ensure all materials have been ordered and all other arrangements are being addressed.

3.4.9 Enlisting Command Support

A strong, successful recycling program must have command support. Prior to implementing a recycling program, ensure that the installation commander has a good knowledge of program plans, the benefits of the program and operational strategies. Interest in the program must flow down the chain of command, and unit commanders and organization directors must emphasize and promote the program through their workforces.

3.5 PUBLIC RELATIONS AND PERSONNEL

The primary key to a successful recycling program is a strong educational program that gets information to everyone in the community and attempts to elicit everyone's participation. The program should educate each target group on the reasons and benefits of recycling, offer incentives for participation, and tell them how to participate. In most cases, it is best to identify target groups, determine how they are to participate, and plan methods especially tailored to those groups. A military installation community can usually be broken into the following groups:

- Military and civilian workforce
- Family housing residents
- Dependent school students

Address every member of the military and civilian workforce, including single soldiers and all APF and NAF employees. Information on the recycling program can be delivered at new employee briefings, at soldier orientation briefings and through post publications.

Starting a recycling program in family housing should involve community life offices and mayorial organizations to establish grassroots support. These groups can provide ideas on what may and

may not work in getting participation. These groups can also assist in disseminating information, setting up bins, establishing schedules and collecting feedback. Opportunities to inform newcomers about the program might include welcome wagons, newcomer briefings and self-help classes.

Dependent schools can be a great source of support. Children are naturally enthusiastic and take ideas home, influencing household participation. Schools generally appreciate new educational programs and are typically receptive and helpful. Recycling is an adaptable topic for all grade groups; no group should be overlooked.

Educational programs should address the reasons for recycling, including regulatory reasons. When applicable and appropriate, information can also be given on "green consumerism" such as buying recycled products, buying in bulk, and selecting products with less packaging or in recycled packaging. In providing information to any group, participation guidance should be simple and easy to follow. It should cover all specific requirements, such as how to prepare materials for pick-up or drop-off, and offer points of contact for questions. "A Guidebook for Effective Public Involvement" can be ordered from EPA (EPA/530-SW-90-019, March 1990).

3.5.1 Publicity and Advertising

Publicity and advertisement are critical in establishing interest and participation. Creativity and innovation will help ensure that the program gets attention at the beginning and maintains interest afterwards. The public affairs office is usually responsible for post media, which are good mechanisms for getting information to the community. Radio, newspaper and post TV news channels can be used to deliver messages. Other publications, such as pamphlets and newsletters, can also be utilized. Contests are another good way to involve individuals, neighborhoods, or units by offering prizes for greatest volumes or dollar values of recyclables collected. Puzzle, essay, project or slogan contests can also be used.

In addition, the program coordinator may offer to speak to wives' clubs or any management, engineering or other post organizations. Take advantage of meetings. Having a speaker at commander's meetings will demonstrate command emphasis. Interesting speakers from local organizations or industries can be solicited to give quality recycling-related presentations for meetings or bag-lunch lectures.

Promotional ideas for recycling can piggy-back other programs and benefit from their publicity. These might include Energy Awareness Week, Earth Day, July 4th activities or unit organizational days. Promotional programs may include incentives for participation such as community improvements (playground equipment, walking trails) monetary returns (proceeds can go to unit funds for parties), and individual awards or prizes.

Recycling program coordinators can enlist the aid of other organizations to help promote their programs. The Army and Air Force Exchange Service (AAFES) may offer special promotions such as printing check-out tape messages, hanging posters in stores or having employees wear recycling buttons. Club systems, youth activities groups and local scouts may also be able to give assistance or help promote the program. The recycling program kickoff could include a large, well-planned event, such as a picnic or parade, to get attention and establish awareness. New logos, slogans or mascots can be used to get interest and establish the program's visibility. However, promotional plans should not end with kick-off, but be a continuous process.

3.6 ACQUIRING FUNDING RESOURCES

The cost of equipment, personnel and other operational expenses must be recovered from the proceeds of materials sales. Consequently, most recycling programs will encounter cash flow problems during start-up. Start-up grants/loans from installation/MACOM operational accounts (Appropriated Fund) are allowable but must be repaid prior to distribution of any sales proceeds.

The funds that are borrowed from appropriated funds can come from the engineers accounts if the amount does not exceed the expense/investment threshold. M account (Base Operations System (BASOPS) Engineering Support) funds are recommended (9800 accounting classification). This threshold varies from year to year, but, at present, is $15,000. If the item's cost is in excess of the threshold, procurement funds (such as Other Procurement, Army (OPA)) must be used. The POC for help is Walter Seip (USAEHSC, Directorate of Facilities Engineering, DSN: 345-2347, Commercial: 703-355-2347).

All sales proceeds (100 percent) are returned to the installation once a sale is completed and the buyer has paid for material picked up. If DRMS/DRMO has managed the sale, the proceeds will be forwarded to the Army Finance and Accounting Center for electronic deposit in the installation budget clearing account or a check in the name of the installation budget clearing account will be mailed to the installation. The tracking system previously described should be cleared once actual funding is credited at the installation.

Reimbursement by DRMS/DRMO cannot be accomplished without an accurate recycling funding cite. Installation material generating activities must be diligent in assuring that the turn-in documentation (DD Form 1348-1, Appendix F) is completed accurately. The recycling fund cite and certification of recycling eligibility are important parts of this document. The recycling fund cite consists of four parts:

1. A two digit service identification code (SIC)
    a. 21-Army
    b. 17-Navy/Marines
    c. 57-Air Force
    d. 97-other DOD activities
2. Recycling Budget Clearing Account Code (BCAN)-F38753
3. Appropriation Limitation identifier
    a. 1111-Army
    b 25RM-Navy
    c. 27RM Marines

d. 8900-Air Force

e. xxxx - Differs with DOD activities

4. Fiscal station number - the installation specific identifier, such as S 91587

Thus, an example of a recycling fund cite would be

21F38753 1111S 91587

If the generating activity fails to provide the accurate recycling fund cite or to accurately complete the recycling program identifier, funds generated will be deposited to the general account of the U.S. Treasury. Reversals/recoveries from the general account of the Treasury are not authorized.

Supplemental funding sources provide a wide range of cost and labor-saving capital investment which could include equipment or facilities for recycling. These funds operate under DOD Instruction 5010.36 and AR 5-4, which provide uniform project documentation format and criteria for project selection. Projects that produce significant resource savings have the highest probability of competing for the limited funding. This program must have the submission 2 years or more prior to funds dispersal. The following fund sources are available through the DOD Productivity Capital Investment Program (PCIP):

a. The Quick Return on Investment Program (QRIP) focuses on short-term investments with a payback period of less than two years. Investments are limited to projects which cost less than $100,000. The MACOM is the approval authority of these projects.

b. In the Productivity Enhancing Capital Investment Program (PECIP), projects must have a payback of four years or less and cost over $100,000. There is a practical funding limitation of $200,000 for these projects. MACOMS review and approve proposals for funding under this program.

c. OSD Productivity Investment Funding (PIF) projects costing over $100,000 and with payback periods of less than four years that

cannot be funded under the PECIP are eligible for the PIF program. These projects are submitted to OSD for approval and funding.

3.7 CONTRACTING RECYCLING PROGRAM OPERATIONS

If the installation chooses to operate a QWRP through an agreement or contract with a non-installation entity, it may still receive sales proceeds. Examples of this type of entity include, but are not limited to, the contractor currently handling solid waste collection, city or county recycling programs and contractors specifically established to manage/operate recycling programs. The installation will receive sales proceed when the contractor turns in recyclable materials to DRMO per contract specifications (DD form 1348-1) as indicated previously or sells non government property. Contracts must be implemented using the APF or NAF contracting systems as appropriate (see Appendix H for sample of a performance work statement).

Chapter Four
PROGRAM INITIATION AND DEVELOPMENT

4.1 PROGRAM OPERATION AND ADMINISTRATION

Material recycling programs are most successful if they produce profits. However, profits are not a prerequisite. The development of a waste recycling program is a continuous effort involving marketing, promotion, and evaluation. This chapter provides guidance on initiation, development and operation of recycling programs.

4.2 PROCEEDS FROM RECYCLABLES

Public Law 97-214 permits the proceeds from the sale of recyclable material to be credited first to the cost of collecting and processing the materials; second, up to 50 percent of the remaining amount, to go to projects for environmental improvement and energy conservation and/or occupational health and safety; with the remainder to go to MWR. The new Section 2577 (Addendum a) retains these principles and expands them to provide incentives for installation commanders to have an aggressive material recycling program. The key incentive is that all proceeds are returned to the installation.

In addition, the legislation limits the accumulation of excessive balances in the recyclable materials account and requires the transfer of excesses over $2,000,000 at the end of fiscal years to the Treasury as miscellaneous receipts. The following are examples of the reimbursable expenses which must be compensated for before funds are allocated to other programs:

- Procurement of equipment to support the movement/transportation of recyclables from the site of the generator to the DRMO or to the buyer.
- Civilian labor for collection, segregation, and transportation waste materials to the DRMO or to the buyer.
- Administrative support.
- Cost of supplies to operate the program.
- Elements of expenses charged by the installation accounting system such as overhead costs.

- Cost of new facilities or for reconditioning facilities and utilities as measured or determined by the Directorate of Engineering and Housing.

The Finance and Accounting Division will:

- Ensure that checks received from the proceeds of the sale of recyclable materials are deposited into the budget clearing account until used.
- Prepare reports identifying quantities and dollar values of recyclable materials proceeds deposited in the budget clearing account.
- Ensure proceeds are applied to cover the costs of operating and maintaining the recycling program.
- Send reports through the Director of Resource Management to the Recycling Control Office, Accountable Property Officer, Engineer Resources Management Division, Solid Waste Manager (probably the DEH) and MWR program coordinator.

4.3 TRAINING

The sale of virtually all recyclable materials that were originally procured with appropriated funds is the responsibility of DRMO. Training is required to properly carry out these functions. This is an area where the community leader must become involved if the DRMO is not operating his function from a profit motive point of view. New legislation is being investigated now to help DRMO run more efficiently and effectively.

Training must be considered an essential element of recycling and marketing of solid waste materials. Therefore, the objective of the solid waste disposal training program should be to assure systematic development of essential skills. Installations must develop and maintain the essential technical and professional competence for all employees from the installation recycling program manager down to the solid waste materials processor. The following training requirements should be used when preparing an Individual Development Plan (IDP) for employees:

- Financial management
- Sales contracting procedures
- Sales writing
- Scrap management
- Metals identification and recovery
- Inventory management
- Basic skills in statistics
- Sales contracting officer (SCO)
- Material handling equipment operator
- Safety

Personnel training at the installation varies with the level of responsibility. The individual development plan for the recycling program manager should include financial management, identification of recyclable materials and inventory management, marketing operations, and survey techniques as applicable to recyclables and coordination techniques.

Other personnel in DOL and DEH need training on the segregation of metals and identification of recyclable material. Contract inspectors should have, as a minimum, a working knowledge in the identification of recyclable materials and turn-in procedures in order to enforce contract obligations. Depending on the scope of recycling activities, additional training may be needed for office and janitorial personnel and housing residents. Military personnel training should be incorporated in existing environmental training by the program manager.

4.4 PUBLIC AWARENESS

Programs should be designed with mechanisms to frequently monitor their success or failure. Equally important, programs should monitor participant behavior and attitudes toward the program itself. Surveys can be conducted before and after several educational campaigns take place to provide program organizers with a clear indication of which education campaigns have the most impact on attitudes and behavior of your particular community.

Feedback will enable installations to modify the program as appropriate to fit their audience. This transfer of information

helps to make the consumer's efforts personal, tangible, and "visible" and enhances the credibility and effectiveness of the program, as well as the value of individual action.

4.5 PROGRAM EVALUATION

Evaluation and monitoring of your recycling program means keeping accurate and up-to-date statistics, including records of tonnage figures, dollars received from recycling vendors and estimated cost avoidance figures for removing recyclables from the waste stream.

4.6 SALE OF RECYCLABLES

In order to receive best-price offers for all recyclables, it is advantageous to have them separated and contaminant-free. Listed below are some common contaminants in various recyclable categories:

Paper:

Colored envelopes	Asphalt impregnated paper
Coffee grounds	Other impregnated paper
Waxed paper	Plastic coated paper
Ashes	Metals and plastic binders
Plastics	Food residues
Cigarette butts	Sticky glue or adhesive materials

Glass:

Ceramics/pottery	Mirrors
Windshields	

Packaging and segregation of recyclable material can significantly affect sale price. For example, cardboard cannot be economically recycled unless it is baled. Colored glass must be separated into three categories: amber, green or clear. Any mixing of these colors will, in some cases, reduce the value. (For descriptions of recyclable materials, see Appendix I.)

4.7 PARTICIPATION STRATEGY

Mandatory requirements and restrictions, by definition, stipulate that certain decisions be made, such as purchasing goods that are considered to reduce waste. The major advantage to mandatory requirements is that participation rates may be higher than in most voluntary programs. The public, may, however, react negatively to required changes if they impact on freedom of choice.

Voluntary efforts, such as household consumer education and certain marketplace initiatives can be used to alter the consumer's purchasing behavior. Economic incentives and disincentives and mandatory requirements can also be used to change product and packaging availability and composition.

The following are ideas and suggestions on implementing mandatory recycling requirements:

- Installation commanders and activity directors at all levels should encourage the promotion of waste reduction and recycling.
- The installation recycling coordinator's responsibilities should include monitoring.
- Leadership positions could include recycling in their job requirements.
- On-the-spot inspections should include an analysis of waste streams with follow-up memos detailing results of inspection. However, this must not be done where individuals can be identified as it could be considered as invasion of privacy.

4.8 VOLUNTARY PROGRAM

Numerous options are available and program development will require strategic planning when properly implemented. Regardless of the size of your installation, there should be a diversity among staff and probably among the programs handled by the installation. Continuous educational efforts, while important in a mandatory program, are especially critical to voluntary programs. Good rapport with the customers will be invaluable for implementing this voluntary action. One of the most important steps is feedback, that is using questionnaires, memos, etc. Querying the program participants is also important. The results of questionnaires as

well as monthly and quarterly collection rates should be displayed on posters, graphs, charts, and video monitors. Other activities can involve staff and housing resident training. By conducting small seminars and appointing "monitors" to gently ease-in the program, recycling resisters may eventually become enlightened by peer pressure.

Chapter Five
PROCUREMENT OF RECYCLABLES

5.1 ROLE OF ARMY INSTALLATION

Recycled products are those which meet minimum standards for recycled content and establishment of standards for, and definitions of, recycled content. Because government purchased goods represent a large share of the market (approximately 20 percent of the Gross National Product), the combined purchasing power of all agencies purchasing recycled products can strengthen the industry and lead to a greater availability of recycled products.

Under the Resource Conservation and Recovery Act (RCRA) (42 USC 6901), the EPA has established guidelines for the purchase of five categories of products: paper, lubricating oils, tires, concrete and cement, and thermal insulation. These guidelines include establishing minimum content standards, recommended minimum content levels, and quality/performance levels. The EPA has identified Federal agencies using appropriated funds as procuring agencies(i.e. Army Installations), which are required under RCRA, Section 6002, to:

- Eliminate from specifications any discrimination against the reuse of recovered materials.
- Purchase products which contain recovered material of reasonable levels where technical performance, cost availability, and competition can be achieved.
- Obtain certification from suppliers that they have met minimum contractual requirements for including recovered materials in their products.

The RCRA further mandated Federal agencies and procuring agencies to:

- Review and revise, as necessary, specifications to allow for the purchase of recycled materials and identified performance requirements so that acceptance/rejection is based on verifiable tests.

- Design an affirmative procurement program.

5.2 PROCUREMENT PRACTICES

Suggestions for a promotional program include explicit statement in Requests for Proposal and mentioning products that includ recycled material at pre-bidder conferences.

The following are steps for implementing a procurement strategy:

a. Organize in-house resources, such as a procurement subcommitte in your recycling committee, to help design and implement th procurement plan. Work with your procurement staff, contrac administrators, and grant program administrators from the start Enlist the support of other in-house agency staff and suppor resources, such as General Services Administration (GSA), to defin your installation's procurement strategy.

b. Review existing procurement specifications for installatio supplies. Survey program units and other components of the installation to determine volumes and uses of the materials, i order to plan and consolidate your procurement program.

c. Develop a profile of standards for recycled products and a list of definitions for those products. (Consult RCRA guidelines.)

d. Develop a profile of the capability for a recycled material to meet the specifications of each item on your installation's list of purchased materials. Include information such as cost, availability, and potential vendors.

e. Test the recycled material to determine its replacement ability for certain products in your procurement program. Especially evaluate over-specified products and determine which recycled materials are to be purchased based on your analysis and other installation environmental factors, such as cost and management support.

f. Get the word out throughout the installation to BUY RECYCLED.

g. Advertise and promote the program with vendors early and often.

h. Negotiate agreements with the prospective vendor(s) for each type of material.

Appendix A
Public Law 97-214

2577. DISPOSAL OF RECYCLABLE MATERIALS

(a)(1) The Secretary of Defense shall prescribe regulations to provide for the sale of recyclable materials held by a military department or defense agency for the operation of recycling programs at military installations. Such regulations shall include procedures for the designation by the Secretary of a military department (or by the Secretary of Defense with respect to facilities of a defense agency) of military installations that have established a qualifying recycling program for the purposes of subsection (b)(2).

(2) Any sale of recyclable materials by the Secretary of Defense or Secretary of a military department shall be in accordance with the procedures in section 203 of the Federal Property and Administrative Act of 1949 (40 U.S.C. 484) for the sale of surplus property.

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

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

(3) The remaining balance available to a military installation may be transferred by the nonappropriated morale welfare account of the installation to be used for any morale or welfare activity.

(c) If the balance available to a military installation under this action at the end of any fiscal year is in excess of $2,000,000, the amount of that excess shall be covered into the Treasury as miscellaneous receipts.

Appendix B
State Composting Contacts

CALIFORNIA: Mitch Delmage, Resource Conservation & Local Planning Developments, Waste Management Board, 1020 Ninth Street, Suite 300, Sacramento, CA 95814, 916-322-7364

CONNECTICUT: K. C. Alexander, Senior Environmental Analyst, Department of Environmental Protection, 165 Capital Avenue, Hartford, CT 06106, 203-566-5847

FLORIDA: Francine Joyall, Environmental Specialist, Department of Environmental Regulation, 2600 Blairstone Road, Tallahassee, FL 32301, 904-488-0300

LOUISIANA: Bijan Sharafkhani, Civil Engineer, Solid Waste Division, Department of Environmental Quality, Baton Rouge, LA 70804

MASSACHUSETTS: Allen Dussault, Compost Director, Division of Solid Waste Management, Department of Environmental Protection, 1 Winter Street, 4th Floor, Boston, MA 02108, 617-292-5869

MICHIGAN: John McCabe, Environmental Quality Analyst, Recycling & Recovery Unit, Department of Natural Resources, P. O. Box 30241, Lansing, MI 48906, 517-373-0540

MINNESOTA: Sig Scheurle, Office of Waste Management, 1350 Energy Lane, St. Paul, MN 55108, 612-649-5769

NEW JERSEY: McShane, Recycling Specialist, Office of Recycling, Department of Environmental Protection, 401 E. State Street, CN 414, Trenton, NJ 08625, 609-292-0331

NEW YORK: Richard Hammond, Supervisor, Residuals Management Section, Bureau of Municipal Waste, Department of Environmental Conservation, 50 Wolf Road, Albany, NY 12233, 518-457-7337

OREGON: Bill Bree, Waste Reduction Section, Department of Environmental Quality, 811 S. W. 6th Avenue, Portland, OR 97204, 503-229-5913

RHODE ISLAND: Betsy Loring, Department of Environmental Management, B3 Park Street, Providence, RI 02903, 401-277-3434

TEXAS: T. A. Outlaw, Division of Solid Waste Management, Department of Health, 1100 W. 49th Street, Austin, TX 78756-3199, 512-458-7271

VERMONT: Will Gehr, Recycling & Resource Conservation Section, Department of Natural Resources, 103 S. Main Street, Waterbury, VT 05676, 802-244-7831

WASHINGTON: Cheryl Clemens, Environmental Planner, Office of Waste Reduction, Department of Ecology, PV-11, Olympia, WA 98504-8711, 206-438-7482

Composting Information Resources

The BioCycle Guide to Composting Municipal Wastes, BioCycle, Box 351, Emmaus, PA 18041.
215-967-4135

Master Composter Training Manual, Community Compost Education Program, 4649 Sunnyside Avenue North, Seattle, WA 89103.
206-633-0224

Leaf Composting - A Guide for Municipalities, Connecticut Department of Environmental Protection, Local Assistance and Program Coordination Unit, Recycling Program, 165 Capitol Avenue, Hartford, CT 06106.
203-566-5599

Leaf Composting Guidance Document, Massachusetts Department of Environmental Quality Engineering, 1 Winter Street, 9th Floor, Boston MA 02108.
617-292-5856

The Art of Composting, Solid Waste Department, Metropolitan Service District and the Bureau of Environmental Services, 2000 SW First Avenue, Portland, OR 97201-5398.
503-221-1646

A Guide for Municipal Leaf Composting Operations, Minnesota Pollution Control Agency, Resource Information Center, 520 Lafayette Rd., St Paul, MN 55155.
612-296-8439

Leaf Composting Manual for New Jersey Municipalities, New Jersey Department of Environmental Protection, Division of Solid Waste Management, Office of Recycling, CN 414, Trenton, NJ 08625.
609-292-0331

Study and Assessment of Eight Yard Waste Composting Programs Across the United States, USEPA, Office of Policy, Planning, and Evaluation, Washington, DC 20460.
1-800-424-9346

Institute for Local Self-Reliance, 2425 18th Street, NW, Washington, DC 20009.
202-232-4108

Appendix C
State Recycling Contacts

ALABAMA:
Department of Environmental Management
Solid Waste Division
1715 Congressman Dickinson Dr.
Montgomery, AL 36130
205-271-7700

ALASKA:
Department of Environmental Conservation
Solid Waste Program
P.O. Box O
Juneau, AK 99811-1800
907-465-2671

ARIZONA:
Department of Environmental Quality - O.W.P
Waste Planning Sect, 4th Floor
Phoenix, AZ 85004
602-257-2317

ARKANSAS:
Department of Pollution Control
Solid Waste Division
8001 National Drive
Little Rock, AK 72219
501-562-7444

CALIFORNIA:
Recycling Division
Department of Conservation
819 19th Street
Sacramento, CA 95814
916-323-3743

Environmental Affairs Agency
1102 Q Street
Sacramento, CA 95814
916-322-4203

COLORADO:
Department of Health
4210 E. 11th Avenue
Denver, CO 80220
303-320-4830

Department of Nature Resource
State Centennial Bldg, Rm 718
1313 Sherman Street
Denver, CO 80203
303-866-3311

CONNECTICUT:
Department of Environmental Protection
State Ofc Building, Rm 1134
165 Capitol Avenue
Hartford, CT 06106
203-566-2110

Recycling Program
203-566-8722

DELAWARE:
Department of Natural Resources and Environmental Control
P.O. Box 1401
Dover, DE 19903
302-736 4794

DISTRICT OF COLUMBIA:
Public Space and Maintenance Administration
4701 Shepard Parkway, SW
Washington, DC 20032
202-767-8512

Environmental Control Division
Housing and Environmental Regulation Administration
Consumer & Regulatory Affairs Department
5010 Overlook Drive, SW
202-783-3180

FLORIDA:
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, FL 32201
904-488-0300

GEORGIA:
Department of Community Affairs
40 Marietta St., NW, 8th Floor
Atlanta GA 30303
404-656-3898

Division of Environmental Protection
Department of Natural Resources
205 Butler Street, Suite 1152
Atlanta, GA 30334
404-656-4713

HAWAII:
Litter Control Office
Department of Health
205 Koula Street
Honolulu, HI 96813
808-548-3400

Office of Environmental Quality Control
Department of Health
465 S. King Street, Room 104
Honolulu, HI 96813
808-548-6915

IDAHO:
Department of Environmental Quality
Hazardous Materials Bureau
450 W. State Street
Boise, ID 83720
208-334-5879

Department of Health and Welfare
208-334-5840

ILLINOIS:
Environmental Protection Agency
Land Pollution Control Division
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62706
217-782-6761

INDIANA:
Office of Solid and Hazardou
Waste Management
Department of Environmental Management
105 S. Meridian Street
Indianapolis, IN 46225
317-232-8883

IOWA:
Department of Natural Resourc
Waste Management Division
Wallace State Office Buildin
Des Moines, IA 50319-0034
515-281-8176

Division of Environmental Protection
515-281-6284

KANSAS:
Department of Health and Environment
Bureau of Waste Management
Forbes Field, Bldg 740
Topeka, KS 66620
913-296-1594

KENTUCKY:
Resources Management Branch
Division of Waste Management
18 Reilly Road
Frankfort, KY 40601
502-564-6716

Department of Environmental Protection
Natural Resources and Environmental Protection Cabinet
502-564-2150

LOUISIANA:
Department of Environmental Quality
State Land and Natural Resources
P.O. Box 44307
Baton Rouge, LA 70804
504-342-1216

MAINE:
Office of Waste Reduction and Recycling
Department of Economic and Community Development
State House Station #130
Augusta, ME 04333
207-289-2111

Department of Environmental Protection
State House Station #17
207-289-2811

MARYLAND:
Department of Environment
Hazardous and Solid Waste Administration
2500 Broening Highway, Bldg 40
Baltimore, MD 21224
301-631-3343

Maryland Environmental Service
Department of Natural Resources
2020 Industrial Drive
Annapolis, MD 21401
301-974-7281

MASSACHUSETTS:
Division of Solid Waste Management
D.E.Q.E.
1 Winter Street, 4th Floor
Boston, MA 02108
617-292-5962

Executive Office of Environmental Affairs
1000 Cambridge Street, Rm 2000
Boston, MA 02202
617-727-9800

MICHIGAN:
Waste Management Division
Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909
517-373-0540

Division of Environmental Protection
517-373-7917

MINNESOTA:
Pollution Control Agency
520 Lafayette Road
St. Paul MN 55155
612-296-6300

Environmental Quality Board
658 Cedar Street, Room 300
St. Paul, MN 55155
612) 296-2603

Environmental Health Division
Department of Health
P.O. Box 9441
Minneapolis MN 55440
612-623-5320

MISSISSIPPI:
Non-Hazardous Waste Section
Bureau of Pollution Control
Department of Natural Resources
P.O. Box 10385
Jackson, MS 39209
601-961-5047

MISSOURI:
Division of Environmental Quality
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
314-751-3176

MONTANA:
Solid Waste Program
Environmental Sciences Division
Department of Health and Environmental Sciences
Cogswell Bldg, Rm B201
Helena, MT 59620
406-444-2821

NEBRASKA:
Litter Reduction and Recycling Programs
Department of Environmental Control
P.O. Box 98922
Lincoln, NE 68509-8922
402-471-4210

NEVADA:
Energy Extension Service
Office of Community Service
1100 S. Williams Street
Carson City, NV 89710
702-885-4420

Division of Environmental Protection
Dept of Conservation and Natural Resources
201 S. Fall Street, Rm 221
702-885-4670

NEW HAMPSHIRE:
Waste Management Division
Department of Environmental Services
6 Hazen Drive
Concord, NH 03301
603-271-2900

Environmental Protection Bureau
Office of the Attorney General
State House Annex
25 Capitol Street
603-271-3679

NEW JERSEY:
Department of Environmental Protection
CN 402
401 E. State Street
Trenton, NJ 08625
609-292-2885

Office of Recycling
CN 414
609-292-0331

NEW MEXICO:
Solid Waste Section
Environmental Improvement Division
1190 St. Francis Drive
Sante Fe, NM 87503
505-457-2780

Health and Environment Department
Room 54155
505-827-2773

NEW YORK:
Bureau of Waste Reduction and Recycling
Department of Environmental Conservation
50 Wolf Road, Room 208
Albany, NY 12233
518-457-7337

NORTH CAROLINA:
Solid Waste Management Branch
Department of Human Resources
P.O. Box 2091
Raleigh, NC 27611
919-733-0692

Department of Natural Resources and Community Development
P.O. Box 27687
Raleigh, NC 27687
919-733-7015

NORTH DAKOTA:
Division of Waste Management
Department of Health
Box 5520
Bismark, ND 58502-5520
701-224-2366

Environmental Health Section
701-224-2374

OHIO:
Environmental Protection Agency
P.O. Box 1049
Columbus, OH 43266-0149
614-644-2782

Division of Litter Prevention
and Recycling
Fountain Square Bldg, E-1
Columbus, OH 43224
614-265-7061

OKLAHOMA:
Solid Waste Division
Department of Health
1000 N.E. 10th Street
Oklahoma City, OK 73152
405-271-7159

Department of Pollution Control
P.O. Box 53504
405-271-4677

OREGON:
Department of Environmental
Quality
811 SW 6th Street
Portland, OR 97204-1390
503-229-5300

PENNSYLVANIA:
Waste Reduction and Recycling
Section
Dept of Environmental Resources
P.O. Box 2063
Harrisburg, PA 17120
717-787-7382

RHODE ISLAND:
Office of Environmental
Coordination
Department of Environmental
Management
83 Park Street
Providence, RI 02903
401-277-3434

SOUTH CAROLINA:
Department of Health and
Environmental Control
2600 Bull Street, Room 415
Columbia, SC 29201
803-734-5200

SOUTH DAKOTA:
Energy Office
217-1/2 West Missouri
Pierre, SD 57501
605-773-3603

Department of Water and Natural
Resources
523 E. Capitol Avenue, Room 209
Pierre, SD 57501
605-773-3151

TENNESSEE:
Department of Public Health
Division of Solid Waste
Management
701 Broadway, 4th Floor
Nashville, TN 37219-5403
615-741-3424

Department of Health and
Environment
436 6th Avenue North, Room 347
Nashville, TN 37219-5402
615-741-3111

TEXAS:
Division of Solid Waste
Management
Department of Health
1100 W. 49th Street
Austin, TX 78756
512-458-7271

Environmental Protection
Division
Office of the Attorney General
P.O. Box 12548, Capitol Station
Austin, TX 78711-2548
512-463-2012

UTAH:
Bureau of Solid and Hazardous
Waste
Department of Environmental
Health
P.O. Box 16690
Salt Lake City, UT 84116-0690
801-538-6170

VERMONT:
Natural Resource Agency
103 S. Main Street
Waterbury, VT 05676
802-244-8702

VIRGINIA:
Department of Waste Management
Division of Litter Control and
Recycling
101 N. 14th Street, 11th Floor
Richmond, VA 23219
1-800-KeepIt

Council on the Environment
202 N. 9th Street, Room 903
Richmond, VA 23219
804-786-4500

WASHINGTON STATE:
Department of Ecology
St. Martins College
Mail Stop PV-11
Olympia, WA 95804
1-800-RECYCLE /206-459-6168

WEST VIRGINIA:
Department of Natural Resources
Conservation, Education &
Litter Control
1800 Washington St. E., Rm 669
Charleston, WV 25305
304-348-3370

WISCONSIN:
Department of Natural Resources
P.O. Box 7921
Madison, WI 53707
608-266-5741

WYOMING:
Solid Waste Management Program
Department of Environmental
Quality
122 W. 25th Street, 4th Floor
Cheyenne, WY 82002
307-777-7752

Appendix D
Industry Trade Associations

SINGLE-STATE EXCHANGES

California Waste Exchange
(Mr. Robert McCormick)
Dept of Health Services
Toxic Substances Control Div.
714 P Street
Sacramento, CA
916-324-1807

Indiana Waste Exchange
(Dr. Lynn Corson)
Purdue University
School of Civil Engineering
West Lafayette, IN 47907
317-494-5036

Montana Industrial Waste
Exchange
(Mr. Don Ingles)
Montana Chamber of Commerce
P.O. Box 1730
Helena, MT 59624
406-442-2405

Industrial Waste Information
Exchange
(Mr. William E. Payne)
New Jersey Chamber of Commerce
5 Commerce Street
Newark, NJ 07102

Tennessee Waste Exchange
(Ms. Janet Goodman)
Tennessee Manufacturers &
Taxpayers Association
226 Capitol Blvd, Suite 800
Nashville, TN 37219
615-256-5141

RENEW
(Ms. Hope Castillo)
Texas Water Commission
P.O. Box 13087
Austin, TX 78711
512-463-7773

MULTI-STATE EXCHANGES

Great Lakes Regional Waste Exchange
(Mr. William Stough)
Waste Systems Institute of Michigan, Inc.
470 Market St. SW, Suite 100A
Grand Rapids, MI 49503
616-451-8992

Industrial Materials Exchange Service
(Ms. Diane Shockey)
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, VA 62794-9276
217-782-0450

Northeast Industrial Waste Exchange
(Mr. Lewis M. Cutler)
Central New York Regional Planning Board
90 Presidential Plz, Suite 122
Syracuse, NY 13202
315-422-6572

Southeast Waste Exchange
(Ms. Mary McDaniel)
University of North Carolina
Urban Institute, UNCC Station
Charlotte, NC 28223
704-547-2307

Southern Waste Information Exchange
(Dr. Roy C. Herdon)
Florida State University
P.O. Box 6487
Tallahassee, FL 32313
904-644-5516

Pacific Materials Exchange
(Mr. Bob Smee)
South 3703 Godfrey Blvd.
Spokane, WA 99204
509-623-4244

Resource Exchange & News
(Ms. Kay Ostrowski)
3250 Townsend NE
Grand Rapids, MI 49505
616-363-3262

Appendix E
Sample Position Descriptions

Appendix E contains job descriptions for:

TN 420-47-02
1 September 1991

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY
JOB DESCRIPTION
NONAPPROPRIATED FUNDS

1. INSTALLATION OR HEADQUARTERS OFFICE

2. JOB NUMBER

3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE

4. TITLE
Motor Vehicle Operator Foreman

5. PAY SCHEDULE: NS
6. OCC. CODE: 5703
7. GRADE: 08

8. EVALUATION APPROVAL
Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.

SIGNATURE

DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

SUPERVISORY CONTROLS

Works under the general supervision of the Chief, Services Division who provides guidance on new or changed regulations, policies and procedures. Performs duties independently in accordance with established guidelines, referring only unusual or precedent setting situations to the supervisor. Work is reviewed for compliance with instructions, policies and procedures, judgement used in resolving problems, soundness of recommendations and customer satisfaction.

MAJOR DUTIES

Manages the operation, maintenance, and marketing of the Recycling Center. Determines operating and maintenance requirements, forecasts materials and manpower needs, organizes and directs program resources, and evaluates program effectiveness through inspections, budget controls, and management improvement studies.

1. Plans and schedules overall work assignments on a long range basis for accomplishments by the Recycle Center. Plans for annual and long-range development and maintenance needs. Determines manpower, tooling, material requirements, and methods to be used. Provides information and advice to higher level management on such matters as ability to accomplish work, budget estimates, changes in recycling techniques or markets, requirement for new machinery or other changes in facilities. Prepares plans and specifications for changes in the facility. Directs rearrangement of space for more economical use. Prepares budget estimates for operating costs for continuing and new operations. Prepares financial requests and justification for increases in budget or new equipment requirements. Prepares reports relating to operating or maintenance problem. Develops and monitors inventory management procedures. Assures building structural, fire and electrical system integrity. Monitors operation of automatic baler, standard baler, glass crusher, decolater, and conveyer systems with variable speeds and air clutches, and fork lift and bobcat with front loaders. (60%)

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

. Serves as point of contact and the Fort _____ representative for development and oordination of the recycle program. Establishes procedures for and monitors appointment of nit recycling monitors. Provides training and assistance to monitors to ensure recycling rogram is fully utilized. Receives and reviews recycling publications and directives. repares supplements to higher headquarters directives. Markets recyclable products to rokers of paper fiber and metals. Tracks market, determines optimum market price and sells r holds to obtain the best price. Maintains records as to amount sold and prices received. repares monthly report to the supervisor and Central Accounting Division. (20%)

. Personally or through subordinate supervisors, supervises the activities of pproximately 30 personnel engaged in operations of the recycle center consisting primarily f motor vehicle operation and laboring functions. Plans and revises work schedules and ssignments to assure an even flow and distribution of work, the expeditious handling of riorities, assure schedules and deadlines are met and to meet changes in workload. oordinates with other units concerning matters of work accomplishment. Assures a ufficient amount of supplies and forms are available. Prepares workload and production eports. Assigns responsibilities to subordinates. Prepares performance standards and ppraisals. Reviews production reports and other data for trends and work backlog. Takes rrective action. Reviews and interprets regulatory criteria and changes thereto. epares local supplements and SOPs. Discusses implementation of changes and resolution of oblems with subordinates. Informs employees of management goals and objectives and higher vel supervisors of employee concerns. Prepares formal requests for filling vacancies and mporary employees. Interviews and selects new employees. Prepares formal requests and commendations for promotion, reassignment, outstanding performance, etc. Requests reaudit jobs when duties change; reviews and signs job descriptions. Participates in position nagement and classification surveys. Initiates or participates in review and improvement work methods, organization features and the structuring of positions. Approves and sapproves leave. Investigates and controls abnormal use of sick leave. Receive formal ievances. Holds corrective interviews with subordinates. Initiates or recommends sciplinary action. Orients new subordinates. Determines training needs. Implements rsonnel, EEO and other employee programs. (20%)

rforms other duties as assigned.

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY JOB DESCRIPTION NONAPPROPRIATED FUNDS	1. INSTALLATION OR HEADQUARTERS OFFICE	2. JOB NUMBER
3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE	4. TITLE: Motor Vehicle Operator Foreman	
	5. PAY SCHEDULE: NS / 6. OCC. CODE: 5703 / 7. GRADE: 06	
8. EVALUATION APPROVAL. Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.	SIGNATURE	DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

SUPERVISORY CONTROLS

Works under the direction of the Recycle Center Manager who prescribes methods, procedures, priorities, and time requirements and oversees incumbent's day-to-day direction of a well established routine operation. Supervisor is available for assistance when problems or unusual situations occur. Incumbent controls the work operations to accomplish an adequate quantity and quality of work. Work is checked upon completion for efficiency and compliance with procedures.

MAJOR DUTIES

Serves as Foreman over a shift of the recycling plant exercising limited supervisory responsibility over work operations involving approximately 15 subordinate workers. The occupation and nonsupervisory grade level that best reflect the nature of the overall work operation supervised are Motor Vehicle Operator NA-5703-07.

Plans and schedules work assignments on a daily or project to project basis within the instructions and time limits provided. Makes additional assignments as work nears completion. Reviews instructions received and insures that arrangements are made for adequate personnel, materials, and equipment at the work site. Where work progress indicates the need for major changes in procedure or sequence, consults with supervisor to obtain approval. Plans and prescribes deadlines and work sequence for individual workers based on guidance received. Selects workers and assigns tasks to be performed. Explains work requirements, methods, and procedures; instructs subordinates in new procedures and provides assistance when problems arise. Reviews work in progress and on completion. Discusses changes in standard or prescribed procedures with supervisor. Adjusts procedures and sequence of operations to accomplish work more effectively and economically. Assures equipment and supplies are maintained and properly used. Coordinates with supervisor to assure arrival of supplies and equipment at work site. (70%)

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

Recommends performance requirements, promotions, reassignments, or other status changes assigned personnel prior to initiation, and makes informal performance appraisals. nsels employees on problems; resolves informal complaints and minor grievances; refers se unresolved to supervisor. Conducts corrective interviews with employees and refers ciplinary problems to supervisor. Encourages employees' participation in suggestion gram, cost reduction program, etc. Provides on-the-job training for subordinates needed and recommends employees for formal or cross-training to improve skills. tatively schedules annual leave and approve leave of short duration. Informs supervisor anticipated vacancies, increase in workload or other circumstances to obtain replacements additional staff. Reviews subordinates' job descriptions for adequacy and accuracy and ggests changes to supervisor. Maintains production reports and records for the unit. plements personnel management programs where well established procedures exist in the ganization such as, equal employment opportunity, time, leave, and overtime policies and ctices, award and incentive systems, grievance procedures, and safety practices. (15%)

Operates equipment such as a 5-ton hi-lift, a 5-ton rear loader equipped with automatic nsmission, rear end forks or chains, hydraulic controls and tipping frame to pick up mpsters containing recyclable aluminum cans, newspaper and cardboard. Deposits materials compactors for later removal to the recycling center. May operate 1-4 ton truck to liver recyclable material to vendors and collect payment and a 2,000 and 4,000 pound rklift to unload and load and transport material to and from the loading dock. May erate a bobcat with a front loader. Performs operator maintenance. (15%)

rforms other duties as assigned.

SKILLS AND KNOWLEDGE

ill in handling controls of vehicles. Ability to judge clearances, turning radius, aking distance to maintain distance from preceding vehicle. Ability to load and unload fuse containers. Knowledge to maintain records and perform operator maintenance on hicle and attached equipment. Ability to obtain a valid government driver's license. quired to possess or be able to obtain a Washington State Commercial Driver's License with plicable endorsements. Skill in handling controls for starting, stopping, backing, and iving a fork lift through narrow aisles in buildings, up and down ramps, and in and out of acks, and for lifting, lowering, and tilting forks. Ability to provide the full scope of pervision to subordinates.

PHYSICAL EFFORT

ysical effort is required in reaching, bending, turning and moving hands, arms, feet and gs to operate hand and foot controls. Physical effort is required in securing refuse ntainers to vehicle. May have to work in awkward positions when servicing vehicles.

WORKING CONDITIONS

quired to work inside and outside in all weather conditions. Exposed to mud, dirt, dust, ors from the pick up and handling of recyclable materials. Drives in all types of traffic d weather and is exposed to the possibility of serious accidents. Is subject to cuts, uises and broken bones from handling heavy or sharp objects.

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY JOB DESCRIPTION NONAPPROPRIATED FUNDS	1. INSTALLATION OR HEADQUARTERS OFFICE	2. JOB NUMBER
3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE	4. TITLE Crane Operator	
	5. PAY SCHEDULE NA	6. OCC. CODE 5725
		7. GRADE 09
8. EVALUATION APPROVAL Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.	SIGNATURE	DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

MAJOR DUTIES

Operates a variety of transportation/mobile type equipment utilized in the collection, transport and disposal of refuse and recycle commodities.

1. Operates special purpose motor vehicles. Equipment operated includes Dumpster trucks ranging from 5-30 tons, capacity of 10-80 yards, 4 or 5 speed automatic or standard transmission, gasoline and diesel, one and two axle, 4 or 8 wheels with controls for driving and dumping refuse such as hydraulic tipping frame, bail platforms, front end fork, compaction equipment, canister centering boom, hydraulic carriage, etc. The motor vehicle is equipped with a power takeoff and levers, buttons, pedals, etc. Drives and operates the vehicle to pick up loose refuse, containers, and canisters by mechanical means attached to the dumpsters. Aligns equipment with containers. Lifts containers to either dump refuse or place containers on vehicle. Conveys refuse to the landfill. Empties containers at the landfill and returns to assigned locations. Operator determines the routes to be followed. (60%)

2. Operates a 25 ton boom crane with various attachments for loading, unloading and moving heavy, bulky material and equipment, i.e. lumber, baled or spooled wire, boxes, crates, scrap metal, cars, etc. Selects and attaches equipment (spreader, bar, slings, hooks, etc.) to complete the job. The fitting of the attachment is accomplished with the assistance of another employee. Segregates and moves scrap metal, etc. into trucks, bins, etc. within the salvage area. Moves crane in areas with close proximity of power lines and buildings where maneuverability and clearances are restricted. Works from hand signals of another workman when vision is obscured. Observes safety rules and remains constantly alert when operating equipment to avoid injury to other workers in the area. (30%)

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

Operates a diesel or gasoline powered 5 ton capacity heavy duty fork lift truck used for ing, stacking and unstacking, loading and unloading recycle commodities within the rage area, on and off vehicles, etc. Fork lift may be operated over rough terrain or faces. Sometimes drives in inside areas over level surfaces. (5%)

Performs operator maintenance and servicing of equipment or vehicles to include checking , gasoline, hydraulic fluids and water. Maintains proper pressure in tires and ricates moving parts of hoist equipment. Posts data to trip ticket log books and load ps. Checks off pickups made on area check lists. Consolidates data into special and iodic reports. Reports include cubic yards of refuse collected and disposed of, mileage, ber of cansisters picked up daily, etc. (5%)

On an as needed basis may perform the following: Works with and directs a crew in the ding and unloading of vehicles, equipment and scrap metal. Establishes work pace, sts workers in the more difficult and exacting tasks. On request, may furnish informal aisal of crew members. Checks all completed work. (10%)

orms other duties as assigned.

SKILL AND KNOWLEDGE

ator must be skilled in handling the controls for operation of the vehicle and attached se collection equipment; and in operating crane at all boom lengths, angles, and tions. Must be skilled in making rapid lifting capacity judgements; must have the ity to judge overhead and side clearances; turning radius and braking distance. Must be led in handling of controls for lifting, lowering, and tilting forks. Must exercise eme caution to avoid accidents while operating the vehicles and equipment. Knowledge of rd keeping regarding refuse and scrap metal collections. Must possess or be able to in a valid government driver's license. Required to possess or be able to obtain a ington State Commercial Drivers License with applicable endorsements.

RESPONSIBILITY

is performed under the general supervision of the foreman who gives general working uctions by means of oral instructions or working schedule. Daily work is performed endently and is evaluated by type and frequency of complaints. Care and use of ment is evaluated through review of maintenance orders and intermittent review of log . Must exercise safety precautions at all times to prevent injury to personnel or e to property.

PHYSICAL EFFORT

requires strength to hold controls when work requires operator to hold the load in a onary position. Work requires active physical effort in making continuous control es to maneuver vehicles and equipment. May have to work in awkward positions when ing or performing operator maintenance on vehicles or equipment such as lubrication of equipment, etc. Work demands intense concentration, unusual alertness, and an ional degree of visual and physical coordination. May be required to lift and carry weighing up to 80 pounds.

WORKING CONDITIONS

Required to work inside and outside in all weather conditions. Exposed to mud, dirt, dust, odors, unpleasant noises, heat, fumes and to continual vibration of the machinery during operation. Operator is freqently exposed to the possibility of accidents resulting in injuries such as cuts, bruises, and broken bones. May be exposed to contaminants such as asbestos, paints, solvents, etc. Required to wear protective clothing such as overalls, safety boots, ear plugs and gloves.

TAB	TAB	TAB	TAB

DEPARTMENT OF THE ARMY
JOB DESCRIPTION
NONAPPROPRIATED FUNDS

1. INSTALLATION OR HEADQUARTERS OFFICE

2. JOB NUMBER

3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE

4. TITLE: Motor Vehicle Operator

5. PAY SCHEDULE: NA

6. OCC. CODE: 5703

7. GRADE: 07

8. EVALUATION APPROVAL
Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.

SIGNATURE

DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

MAJOR DUTIES

)erates a variety of transportation/mobile type equipment utilized in the collection, :ansport and disposal of refuse and recycle commodities.

Operates special purpose motor vehicles. Equipment operated includes Dumpster trucks inging from 5-30 tons, capacity of 10-80 yards, 4 or 5 speed automatic or standard ansmission, gasoline and dieseal, one and two axle, 4 or 8 wheels with controls for iving and dumping refuse such as hydraulic tipping frame, bail platforms, front end fork, mpaction equipment, canister centering boom, hydraulic carriage, etc. The motor vehicle equipped with a power takeoff and levers, buttons, pedals, etc. Drives and operates the hicle to pick up loose refuse, containers, and canisters by mechanical means attached to e dumpsters. Aligns equipment with containers. Lifts containers to either dump refuse place containers on vehicle. Conveys refuse to the landfill. Empties containers at the ndfill and returns to assigned locations. Operator determines the routes to be followed. (70%)

Operates a diesel or gasoline powered 5 ton capacity heavy duty fork lift truck used for ing, stacking and unstacking, loading and unloading recycle commodities within the rage area, on and off vehicles, etc. Fork lift may be operated over rough terrain or faces. Sometimes drives in inside areas over level surfaces. (15%)

Performs operator maintenance and servicing of equipment or vehicles to include checking , gasoline, hydraulic fluids and water. Maintains proper pressure in tires and ricates moving parts of hoist equipment. Posts data to trip ticket log books and load ps. Checks off pickups made on area lists. Consolidates data into special and periodic orts. Reports include cubic yards of refuse collected and disposed of, mileage, number anisters picked up daily, etc. (15%)

Forms other duties as assigned.

JOB CONTENT APPROVAL

I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

SKILL AND KNOWLEDGE

)perator must be skilled in handling the controls for operation of the vehicle and attached refuse collection equipment. Must be skilled in making rapid lifting capacity judgements; must know the height, width, length and weight of the vehicle; must have the ability to judge overhead and side clearances; turning radius, braking distance. Must be skilled in performing operator maintenance on vehicles and attached equipment. Must exercise extreme caution to avoid accidents while operating the vehicles and equipment. Knowledge of record keeping regarding refuse and scrap metal collections. Must possess or be able to obtain a valid government driver's license. Required to possess or be able to obtain a Washington State Commercial Driver's License with applicable endorsements.

RESPONSIBILITY

ork is performed under the general supervision of the foreman who gives general working nstructions by means of oral instructions or working schedule. Daily work is performed ndependently and is evaluated by type and frequency of complaints. Care and use of quipment is evaluated through review of maintenance orders and intermittent review of log ooks. Must exercise precautions at all times to prevent injury to personnel or damage to roperty.

PHYSICAL EFFORT

ıysical effort is required in reaching, bending, turning or moving hands, arms, feet and egs to operate hand and foot controls. May have to work in awkward positions when ervicing or performing operator maintenance on vehicles or equipment such as lubrication of oist equipment, etc. May be required to lift and carry items weighing up to 80 pounds.

WORKING CONDITIONS

quired to work inside and outside in all weather conditions. Exposed to mud, dirt, dust, lors, unpleasent noises, heat, fumes and to continual vibration of the machinery during eration. Operator is frequently exposed to the possibility of accidents resulting in juries such as cuts, bruises, and broken bones. May be exposed to contaminants such as bestos, paints, solvents, etc. Required to wear protective clothing such as coveralls, fety boots, ear plugs and gloves.

TN 420-47-02
1 September 1991

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY
JOB DESCRIPTION
NONAPPROPRIATED FUNDS

1. INSTALLATION OR HEADQUARTERS OFFICE

2. JOB NUMBER

3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE

4. TITLE
Motor Vehicle Operator

5. PAY SCHEDULE	6. OCC. CODE	7. GRADE
NA	5703	06

8. EVALUATION APPROVAL
Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.

SIGNATURE

DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

MAJOR DUTIES

Operates a one ton capacity vehicle for the collection of recyclable materials such as per. Picks up materials from administrative office throughout the installation and livers to the Recycling Center. Establishes collection routes and schedules, or picks up request. Performs operator maintenance. Posts trip tickets, maintains log books and ad slips; consolidates record data for special and periodic reports. (70%)

Operates a diesel powered Garwood truck to pick up cardboard and large items. Vehicle s one gear range and five forward speeds, two driving wheels, and controls for packing and mping the load; and weighs approximately 32,000 pounds. (15%)

Loads and unloads recyclable materials as required or during peak workload periods, erates a baler, glass crusher, and other recycling equipment. Assists as required in gregating various commodities such as paper, newsprint, computer cards and paper, metals, ass, plastic, etc. (10%)

rforms other duties as assigned.

SKILLS AND KNOWLEDGE

ill in handling controls of vehicle. Ability to judge clearances, turning radius, braking stance; skill to load vehicle assuring proper balance is maintained. Ability to select st expeditious route; knowledge of installation layout. Knowledge of traffic rules and gulations. Ability to properly maintain records and perform operator maintenance. ility to use all controls in packing and dumping loads. Must possess or be able to obtain valid government drivers license.

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

PHYSICAL EFFORT

Work requires bending, reaching, turning and moving hands, arms, feet and legs to operate hand and foot controls. Lifts up to 100 pounds when sorting unusual objects from refuse. May work in awkward positions when servicing vehicles.

WORKING CONDITION

Work inside and outside in all weather conditions. Is exposed to mud, dirt, dust and odor from handling of recyclable materials. Drives in all types of weather and is exposed to the possibility of accidents. Is subject to cuts, bruises and broken bones from loading and unloading recyclable materials.

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY
JOB DESCRIPTION
NONAPPROPRIATED FUNDS

1. INSTALLATION OR HEADQUARTERS OFFICE | 2. JOB NUMBER

3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE

4. TITLE
Laborer

5. PAY SCHEDULE	6. OCC. CODE	7. GRADE
NA	3502	03

8. EVALUATION APPROVAL — SIGNATURE — DATE

Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

MAJOR DUTIES

Loads and unloads recycling material from trucks. Segregates various commodities termining if item is a contaminant or noncontaminant or, in some cases, removing ntaminants such as metal strapping or styrofoam padding. Items include, but are not mited to, paper, newsprint, computer cards, computer paper, cardboard, glass metals, and astic. Places recyclable items in appropriate bins. Logs each item loaded onto truck by mmodity. (40%)

Operates recycling equipment such as, but not limited to, paper baler and glass crusher. eps area clean, ensuring no safety hazards exist. (60%)

rforms other duties as assigned.

SKILL AND KNOWLEDGE

ill to safely operate recycling equipment and manipulate all controls. Ability to ensure chines are properly loaded. Knowledgeable of the various recyclable material handled and ility to segregate them according to type.

RESPONSIBILITY

rks under the general supervision of the center foreman who provides oral or written work signments. Completes regular and recurring duties without specific instructions.

PHYSICAL EFFORT

equent standing, bending and arm movement. Frequently lifts and carries objects weighing om 50 to 100 pounds.

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) — *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) — *(Date)*

DA FORM 3435-R, MAY 85 — For use of this form, see AR 215-3; the proponent agency is DCSPER. — EDITION OF 1 MAR 69 IS OBSOLETE.

WORKING CONDITIONS

Normally works inside in areas that may be damp and drafty. May work outside in all types of weather. Subject to dust, dirt, grease, and flying objects. Subject to serious injury lifting and carrying containers.

NOTICE TO EMPLOYEE: Title and grade are established in accordance with position classification standards and guides referred to in Item 3. These reference materials are available for your review in the Civilian Personnel Office. Assignment to duties not related to those above for a period exceeding 30 days may constitute a misassignment and consideration should be given to detailing or permanently assigning such duties. Questions regarding details or changes in duty assignments should be referred through your supervisor to the Civilian Personnel Office.

TAB TAB TAB TAB

DEPARTMENT OF THE ARMY JOB DESCRIPTION NONAPPROPRIATED FUNDS	1. INSTALLATION OR HEADQUARTERS OFFICE		2. JOB NUMBER
3. CITATION TO APPLICABLE STANDARD AND ITS DATE OF ISSUANCE	4. TITLE Laborer		
	5. PAY SCHEDULE NA	6. OCC. CODE 3502	7. GRADE 01
8. EVALUATION APPROVAL Title, pay schedule, code and grade of this job have been fixed in accordance with Department of the Army nonappropriated funds official policy and grade level standards.	SIGNATURE		DATE

9. SUPERVISORY CONTROLS, DUTIES, AND WORKING CONDITIONS *(Indicate percent of time for each major duty, where pertinent. Continue statement of duties, etc. on reverse, if necessary.)*

MAJOR DUTIES

Serves as a trainee, gradually learning the full scope of duties. Segregates recyclable ems such as paper, newsprint, computer card, computer paper, cardboard, glass, metals and astic. Places items in separate bins. Removes contaminants such as oil, paint, solvents, tal strapping, styrofoam padding or other unusable items. Keeps area clean. (100%)

rforms other duties as assigned.

SKILLS AND KNOWLEDGE

owledge of the various recyclable material handled to segregate them according to type.

RESPONSIBILITY

cks under the close supervision of the Recycle Center Foreman who provides oral and itten work assignments and directions. Independently completes regular and recurring ties after receiving specific instructions. Supervisor is available to answer questions garding. Work is reviewed in progress and upon completion for adherence to directions.

PHYSICAL EFFORT

ck requires frequent standing, bending and arm movement. Frequently lifts and carries jects weighing from 10 to 30 pounds and occasionally heavier. Duties require ability to intain balance while working over a moving conveyor belt.

JOB CONTENT APPROVAL

a. I CERTIFY THAT THIS IS AN ACCURATE STATEMENT OF THE MAJOR DUTIES AND RESPONSIBILITIES OF THIS POSITION AND ITS ORGANIZATIONAL RELATIONSHIPS AND THAT THE POSITION IS NECESSARY TO CARRY OUT GOVERNMENT FUNCTIONS FOR WHICH I AM RESPONSIBLE. THIS CERTIFICATION IS MADE WITH THE KNOWLEDGE THAT THIS INFORMATION IS TO BE USED FOR STATUTORY PURPOSES RELATING TO APPOINTMENT AND PAYMENT OF PUBLIC FUNDS AND THAT FALSE OR MISLEADING STATEMENTS MAY CONSTITUTE VIOLATIONS OF SUCH STATUTES OR THEIR IMPLEMENTING REGULATIONS.

(Signature of Approving Supervisor) *(Date)*

b. THIS JOB DESCRIPTION WITH SUPPLEMENTAL MATERIAL IS ADEQUATE FOR PURPOSE OF EVALUATION.

(Signature of Position Classification Specialist) *(Date)*

DA FORM 3435-R, MAY 85 For use of this form, see AR 215-3; the proponent agency is DCSPER. EDITION OF 1 MAR 69 IS OBSOLETE.

WORKING CONDITIONS

Normally works inside in areas that may be damp and drafty. May work outside in all types of weather. Subject to dust, dirt, grease and falling objects. Subject to injury from moving heavy and/or sharp objects.

Appendix F
Sample DRMS Form 1427

ALL COMMUNICATIONS SHOULD INCLUDE THE CONTRACT NUMBER SHOWN IN BLOCK 5 BELOW

NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT

1. PAGE 2 OF 2

2. FROM: (Name and address of Sales Office)
DEFENSE REUTILIZATION & MARKETING
COLUMBUS REGION
PO BOX 500
BLACKLICK, OH 43004-0500

3. DATE OF AWARD
15 JUL 88

4. INVITATION NO.
27-8484 TERM

5. CONTRACT NO.
27-8484-014 TERM

6. TO: (Name and address of Purchaser)
HERSHMAN RECYCLING, INC.
POB 16251 BAYBROOK STATION
WEST HAVEN, CT 06516-7979
TELEPHONE: 203-933-7979

7. BIDDER NO.
3000702991

8. (PAID STAMP)
SAMPLE
(For Release of Property Only)

9. PROPERTY MUST BE REMOVED BY (Final date of removal)
31 JUL 89

10. SURPLUS AND/OR EXCHANGE/SALE ITEMS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	QUANTITY RELEASED
	39-ALO-21 9450-A-7 DRMO CHAMBERSBURG REMOVAL FOR THE MONTH OF: LOCATION: CHAMBERSBURG, PA					
008	PAPER, SCRAP		NT	*		19.0200 N.T.
	Reimbursement					
	LEAD - 21F3575.1111 -	15 450 lb				
	Fedstrick - 21F3575.1111.74C	5190.4	- 1955 lb			
NOTE: ARTICLE BH: SCRAP WARRANTY (MAPS) APPLIES TO THIS ITEM.						
*UNIT PRICE TO BE DETERMINED BY CURRENT MARKET PRICE.						

11. RELEASE

An agent of the purchaser obtaining release of the material must present purchaser authorization.

A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.

TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT

B. RELEASED BY (Typed or printed)
H. Dean Jones

C. DATE
7 June 1989

D. VOUCHER NO.

E. SALES CONTRACTING OFFICER (Typed or stamped name and signature)
C. L. SMITH CSS

12. STATEMENT OF ACCOUNT

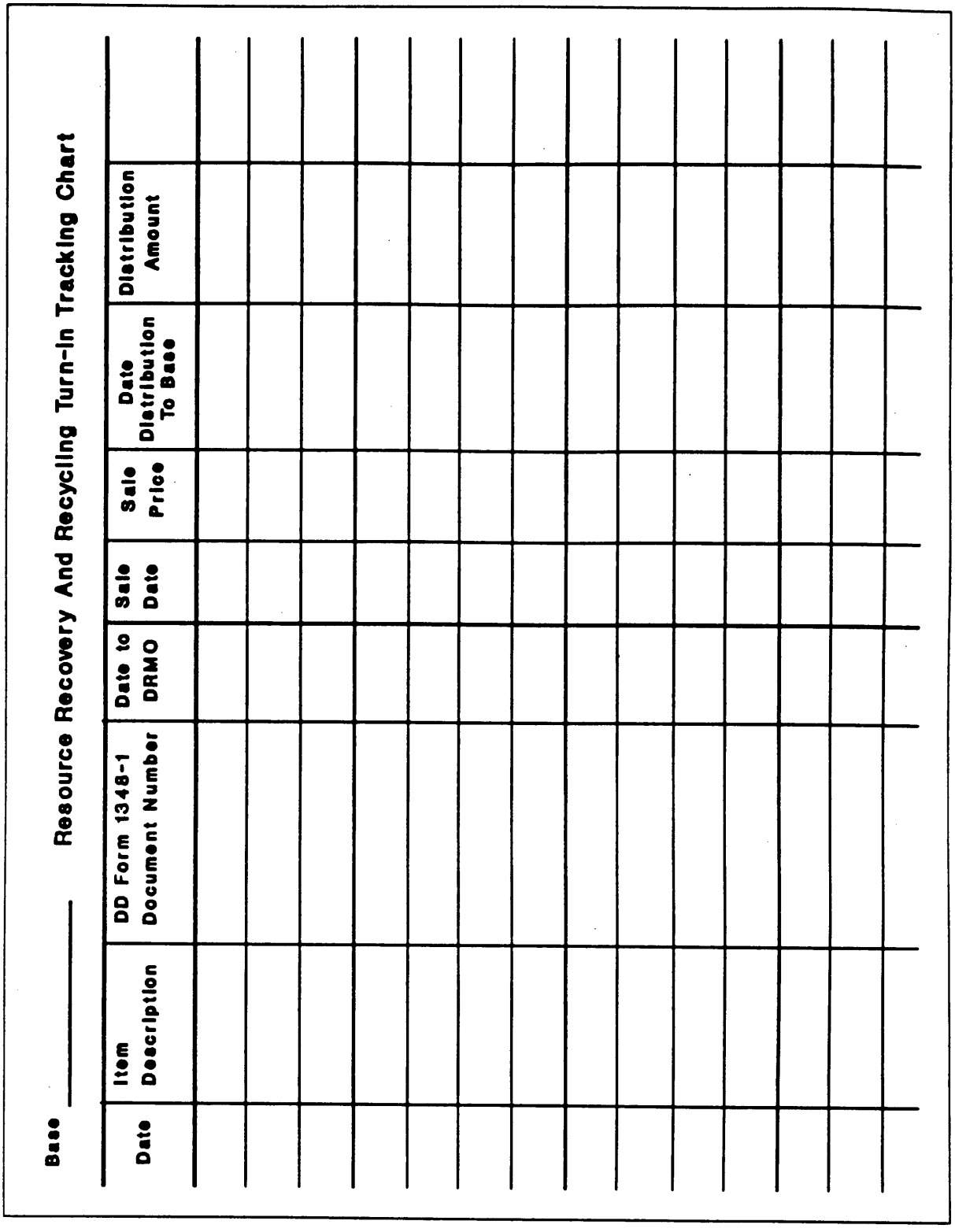
Payment of amount due the U.S. Government must be made prior to removal of any material. Make checks payable to U.S. TREASURY.

A. TOTAL CONTRACT PRICE	$
B. LESS DEPOSIT	$
C. BALANCE DUE	$
D. REFUND DUE	$
E. STORAGE CHARGES	$
F. PAID BY/SENT RECEIVER	$
G. REFUND MADE	$

DRMS Form Sep 88 1427

(Previous editions to be used until exhausted.)

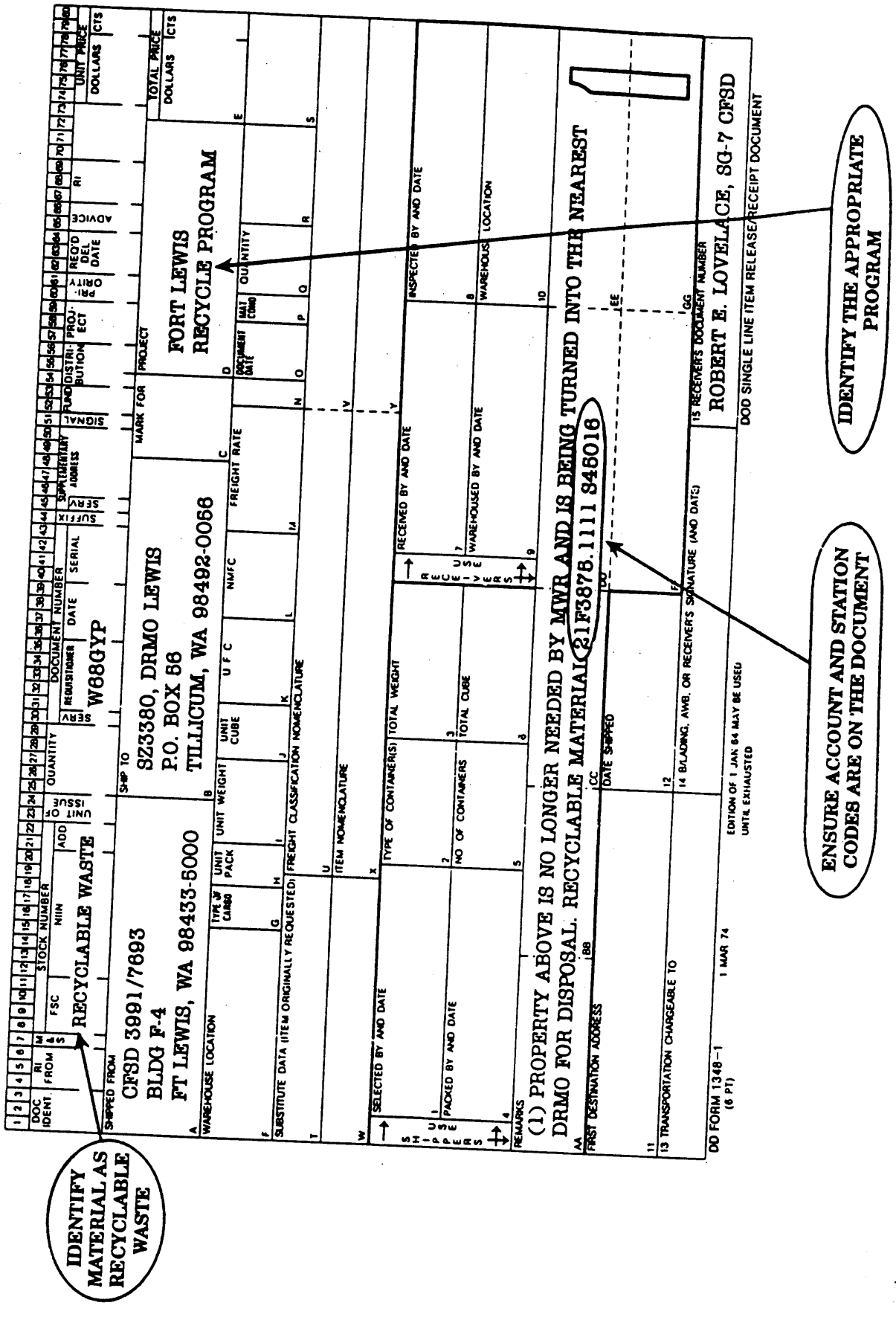
Appendix G
Sample Resource Recovery Tracking Chart and DD Form 1348-1



Base _____ Resource Recovery And Recycling Turn-In Tracking Chart

Date	Item Description	DD Form 1348-1 Document Number	Date to DRMO	Sale Date	Sale Price	Date Distribution To Base	Distribution Amount	

SAMPLE DD FORM 1348-1
DISPOSAL TURN-IN DOCUMENT



Appendix H
Sample Performance Work Statement

PWS: Recycling SOLICITATION NO.

PERFORMANCE WORK STATEMENT

RECYCLING

1.0 GENERAL

1.1 Scope of Work: The Contractor shall be responsible for:

1.1.1 Collection of recyclables consisting of office mix paper products, aluminum beverage cans, tin and bimetal food and beverage containers, plastic containers, corrugated cardboard, glass bottles, jars, and newspapers separately from Family Housing.

1.1.2 Pickup of recyclable material at collection throughout the installation and its subposts, to include Family Housing areas, as defined in Appendix 3 (Recycling Collection Sites and Schedules) to this Performance Work Statement (PWS).

1.1.3 Weighing, removing, and disposal operations based on workload provided at Appendix 2.

1.1.4 Fifty percent of the collection sites are located within buildings at central areas established by the building occupants.

1.2 The Contractor shall fully comply with all Federal, State and Local laws, ordinances, statutes and regulations pertaining to the collection, transportation and disposal of recyclables, including all permits, licenses, or other required authorizations. Recycling and disposal services shall be performed IAW AR 200-1 and AR 420-47.

1.3 Personnel Security Clearances: Clearances will be required for this function IAW Part 1, Section C, paragraph 4.3, and Section H, paragraph H.138.

1.4 Occupational Safety and Health (OSH): The Contractor shall comply with the requirements as specified in Part I, Section C, paragraph 5.0.

1.5 Policies and Procedures: The Contractor shall provide written policies and Standing Operating Procedures (SOPs) for all functional areas covered by this PWS. Policies and SOPs shall be submitted to the Contracting Officer's Representatives (COR) NLT 30 days after start of the contract.

2.0 ABBREVIATIONS AND DEFINITIONS

2.1 Abbreviations used in this PWS are contained in Part I, Section C, Description/Specifications/Performance Work Statements, paragraph 2.1.

2.2 Definitions:

PWS: Recycling

SOLICITATION NO.

2.2.1 Collection Sites: The designated points where recyclables will be assembled for collection by the Contractor.

2.2.2. Office Paper Mix: Office paper, envelopes, flyer ads, newspaper, brown wrapping paper, manila folders, colored paper, glossy paper, magazines, books, telephone books, dry copy paper, copy paper, copy paper wrapping, bulletins, technical manuals, and schredded paper.

2.2.3. Recyclable Material: Materials that have useful physical properties after serving their original purpose and can be reused or recycled for the same or other purposes to include office paper mix, aluminum beverage cans, tin and bimetal food and beverage containers, corrugated cardboard, plastic containers, and glass bottles and jars.

2.2.4. Recycling: Any process by which materials that would otherwise become solid waste are collected, separated or processed and returned to the economic mainstream in the form of raw materials or products.

3.0 GOVERNMENT FINISHED PROPERTY (GFP)

3.1 The Government will not furnish any GFP under this PWS with the exception of expendable recycling containers.

4.0 CONTRACTOR FURNISHED PROPERTY

4.1 The Contractor shall furnish all the equipment, tools, materials and supplies, except as specified herein as GFP, to perform the requirements under this PWS.

5.0 SPECIFIC TASKS

5.1 The Contractor shall:

5.1.1 Comply with all applicable Federal, State and local environmental laws and regulations, applicable directives and guidelines issued by agencies including, but not limited to, the U.S. Environmental Protection Agency and the New Jersey State Department of Environmental Protection.

5.1.2 Comply with all provisions of the Resource Recovery and Recycling Program at Fort _____, AR 200-1 and AR 420-47.

5.1.3 Pickup and remove from the installation all office mix paper products, newspapers, aluminum cans, corrugated cardboard, tin and bimetal food and beverage containers, plastic containers, glass bottles and jars from specified collection sites throughout the installation to include Family Housing areas. Total number of buildings shall not exceed 235 and the total number of collection sites shall not exceed 1450.

5.1.3.1 When a collection day coincides with an official holiday or a curtailment day, collection shall be made on the next workday.

PWS: Recycling SOLICITATION NO.

5.1.4 Ensure that recyclable products at the designated collection sites are picked up in accordance with the schedule provided by the Government at Appendix 3. Frequency of pickup shall be determined by the amount of material generated so as not to cause severe cluttering and/or safety and fire violations. Emergency pickups shall be made when directed by the COR/DEH.

5.1.5 Ensure that recyclable material being transported throughout the installation is properly secured to prevent littering. Contractor shall also be responsible for retrieving any litter caused by his employees during the performance of their duties.

5.1.6 Ensure that vehicles utilized in recycling collections are weighed prior to and immediately after collection at the scale house (Building 75). Incoming and outgoing vehicle weights shall be recorded on SELHI Form 1671 (Certified Weighmaster Weight Ticket) for each vehicle processed.

5.1.7 Ensure that recycling vehicle drivers turn in completed SELHI Forms 1671 to their supervisor on a daily basis.

5.1.8 Bundle the SELHI Forms 1671 prepared each day and submit them to the COR, DEH, or his designated representative by 0900 hours of the next workday. Weights recorded on SELHI Form 1671 will be used for actual payment for refuse collection dumping fees.

5.1.9 Upon discovery of any classified material in a recycling container, notify the COR/DEH immediately and dispose of this material as directed.

5.1.10 Upon discovery of contaminated material in recyclable containers, prior to removal from the installation, notify the COR/DEH and dispose of this material as directed. Once material is removed from the installation, the Contractor is responsible for disposal.

6.0 RESERVED

7.0 PERFORMANCE REQUIREMENTS SUMMARY

7.1 The Contractor shall perform the tasks specified in this PWS according to the performance standards and levels of quality shown in Appendix 1, and IAW applicable regulations.

8.0 APPLICABLE DOCUMENTS:

8.1 DA Documents	MANDATORY	ADVISORY
AR 200-1, Environmental Protection and Enhancement	X	
AR 420-47, Solid Waste Management	X	

PWS: Recycling

SOLICITATION NO.

TN 420-47-02
1 September 1991

PERFORMANCE REQUIREMENTS SUMMARY

REQUIRED SERVICE	PARA NUMBER	STANDARD	MAXIMUM ALLOWANCE DEGREE OF DEVIATION FROM REQUIREMENT AQL	NORMAL METHOD OF SURVEILLANCE
1. Recycling Collection and Disposal	5.1.3 and 5.1.4	Provide recycling pickup and disposal as delineated in master schedules.	AQL - 2.5% Lot size is number of container pickups.	Random Sampling
2. Weighing of Vehicles, Incoming/ Outcoming, and Delivery of Weight Tickets.	5.1.5 thru 5.1.7	Weighing of incoming and outgoing vehicles.	AQL - 0% Lot size is weight tickets furnished	100% inspection

PWS: Recycling

SOLICITATION NO.

WORKLOAD DATA

COLLECTABLE WORKLOAD DATA

Recyclable Item	ESTIMATED TONS COLLECTED ANNUALLY
Paper (office mix/cardboard/newspaper) (Family Housing newspapers bundled separately)	771
Aluminum beverage cans	6
Glass commingled	11
Plastics (Family Housing only)	.25
Bimetal cans	4.5
Corrugated cardboard (Family Housing only)	3
Emergency pickups	5 (EST)

PWS: Recycling

SOLICITATION NO.

RECYCLING COLLECTION SITES AND SCHEDULES

1. SCHEDULE A: Recyclable pickup sites (administrative type building) Inside or loading dock pickup sites

FIVE PICKUPS PER WEEK

Building Number

1200
1205
2000

THREE PICKUPS PER WEEK

Building Number

565
702
822 (BURGER KING)

TWO PICKUPS PER WEEK

Building Number

77
205
206
207
208
287
456
800
801
916
1075
1213/1214
2525

PWS: Recycling SOLICITATION NO.

ONE PICKUP PER WEEK

Building Number	Building Number	Building Number
114	455	788
116	457	789
117	475	810
166	492	812
167	500	814
209	502	886
210	545	901
277	550	906
282	551	909
283 (Loading Dock Basement	552	911
286	563	913
288	600	917
289/290/294	625	1000
(One Consolidated Pickup point in Bldg 289)	655	1001
291	657	1004
292	671	1005
295	675	1102
296	678	1103
417	689	1104
422	695	1105
429	699	1108
430	739	1109
443	750	1201
453	787	1202

PWS: Recycling SOLICIATION NO.

ONE PICKUP PER WEEK

Building Number	Building Number	Building Number
1203	2705	9037
1207/1208/1209/1210 (One pickup point, Loading Dock)	2707	9039
	9001	9041
2018	9010	9043
2531	9011	9044
2533	9012	9047
2539	9027	9307
2567	9031	
2700 (Cafe & Loading Dock)	9032	

PWS: Recycling SOLICITATION NO.

TWO PICKUPS PER MONTH

Building Number	Building Number	Building Number
64	611	1123
75	614	1150
80	620	1152
108	656	1212
164	744	1220
165	745	2067
173	746	2275
279	747	2504
280	748	2535
281	749	2536
410	811	2537
414	826	2561
418	864	2704
419	876	9015
421	910	9023
427	912	9040
428	914	9042
434	915	9055
439	977	9083
447	1076	9162
545	1106	9392
480	1107	9401
485	1110	
608	1122	

PWS: Recycling SOLICITATION NO.

ONE PICKUP PER MONTH

Building Number	Building Number	Building Number
275	615	899
276	616	2044
409	621	2503
420	668	2529
432	682	9013
451	686	9017
483	707	9079 (on Wednesday)
490	718	
501	828	

PWS: Recycling SOLICITATION NO.

2. SCHEDULE B: Family Housing (curbside pickup)

1. Recycling pickup shall be accomplished by the contractor as follows:

2. Main Post, Riverside Housing, Trailer Court, and Howard Commons shall be on the first and the third Friday of each month.

3. Olmstead Gardens, Megill, Hope/Hemphill and Evans will be on the second and fourth Friday of each month.

4. Unaccompanied personnel and transient quarters recycling pickup shall be accomplished on the first and third Friday of each month. Current buildings to be serviced are:

259	362
270	363
271	364
360 (POST GUEST HOUSE)	1077
361	

3. SCHEDULE C: Seasonal pickup for recyclables (glass/aluminum/plastic)

The glass/alumimum/plastic recycling pickup shall be conducted seasonally during the period from Memorial Day through the weekend following Labor Day as indicated below:

LOCATION	NO. OF RECYCLING CONTAINERS	COLLECTION DAYS						
		S	M	T	W	T	F	S
CHAS WOOD AREA SWIMMING POOL	4		X	X	X	X	X	
FORT MONMOUTH OFFICERS CLUB SWIMMING POOL	4		X	X	X	X	X	

4. SCHEDULE D: Seasonal recycling (glass/aluminum/plastic)

The glass/aluminum/plastic recycling pickup shall be conducted seasonally during the period from 1 April through 30 September as indicated below:

PWS: Recycling SOLICITATION NO.

LOCATION	NO. OF RECYCLING CONTAINERS	COLLECTION DAYS						
		S	M	T	W	T	F	S
CHAS WOOD LITTLE LEAGUE FIELDS, COLIN KELLY FIELD #1, 2, 3 (ONE CONTAINER EACH FIELD)	3		X		X		X	
CHAS WOOD SOFTBALL FIELD GUAM AND CORREGIDOR	1		X		X		X	
HEMPHILL PARADE FIELD	2		X		X		X	
MAIN POST C2 SPACE SYSTEMS BALLFIELD	1		X		X		X	
800 AREA BALLFIELD	1		X		X		X	
MAIN POST DEAL FIELD BALLFIELDS (ONE CONTAINER EACH FIELD)	2		X		X		X	
GAZEBO	1		X		X		X	
HUSKY BROOK POND AREA	4		X		X		X	
TENNIS COURTS, BLDG 272	1		X		X		X	
TENNIS COURTS, BLDG 1079	1		X		X		X	
TENNIS COURTS, BLDG 1230	1		X		X		X	
TENNIS COURTS, BLDG 2000	1		X		X		X	

5. SCHEDULE E: Seasonal Recycling (glass/aluminum/plastics)

The glass/aluminum/plastic recycling pickup shall be conducted seasonally during the period 1 October through 15 December as indicated below:

LOCATION	NO. OF RECYCLING CONTAINERS	COLLECTION DAYS						
		S	M	T	W	T	F	S
MAIN POST DEAN FIELD BALLFIELDS	2			X			X	

PWS: Recycling

SOLICITATION NO.

6. SCHEDULE F: Seasonal Recycling (glass/aluminum/plastic)

The glass/aluminum/plastic recycling pickup shall be conducted seasonally during the period 1 March through 31 March.

LOCATION	NO. OF RECYCLING CONTAINERS	COLLECTION DAYS						
		S	M	T	W	T	F	S
TENNIS COURTS, BLDG 272	1				X		X	
TENNIS COURTS, BLDG 1079	1				X		X	

7. SCHEDULE G: Corrugated Cardboard (Family Housing only)

The curb side pickup of corrugated cardboard relocation (moving) boxes in Family Housing areas shall be picked up on an "on call" basis as requested by the COR.

LOCATION	ANNUAL COLLECTIONS
FAMILY HOUSING	600 (EST)

Appendix I
Descriptions of Recyclable Materials

Paper: Nondurable paper products include newspaper, books and magazines, office papers, commercial printing, tissue paper and towels, paper plates and cups, and other nonpackaging paper such as that used in cards, games, posters and other pictures. Paper and paperboard are used in containers and packaging in the form of corrugated boxes, milk cartons, other folding cartons (e.g., cereal boxes) bags and sacks, wrapping papers, and other paper and paperboard packaging.

Glass: In the container category, glass is found in beer and soft drink bottles, wine and liquor bottles, and food bottles and jars, as well as cosmetics and other products bottles and jars.

Aluminum: The largest source of aluminum is aluminum cans.

Metals: Non-ferrous metals are found in durable products such as appliances, consumer electronics, etc. The largest quantities of ferrous metals are found in durable goods such as appliances, furniture, tires and other miscellaneous durables. Containers and packaging are other sources.

Plastics: Plastics are found in such nondurable products as disposable diapers, trash bags, cups, eating utensils, shower curtains, etc. Plastics are also used in a variety of containers and packaging products.

Other Materials: Rubber and leather: The predominant source of rubber is rubber tires. Other sources of rubber and leather include clothing and footwear. These sources are quite diverse, including such items as gaskets on appliances, furniture and hot water bottles, for example.

Appendix J
List of Acronyms

AAFES	Army and Air Force Exchange Service
ACE	Assistant Chief of Engineers
APR	Appropriated Fund
BCAN	Budget Clearing Account Code
CERL	US Army Construction Engineering Research Laboratory
COE	Chief of Engineers
DA	Depart of the Army
DCS, Log	Deputy Chief of Staff, Logistics
DEH	Directorate of Engineering and Housing
DLA	Defense Logistics Agency
DOD	Department of Defense
DOIM	Directorate, Information Management
DPCA	Directorate of Personnel and Community Affairs
DOL	Directorate of Logistics
DRM	Directorate, Resource Management
DRMO	Defense Reutilization and Marketing Office
DRMR	Defense Reutilization and Marketing Region
DRMS	Defense Reutilization and Marketing Service
EPA	Environmental Protection Agency
FAO	Finance and Accounting Office
GSA	General Services Administration
IDP	Individual Development Plan
ISWM	Integrated Solid Waste Management

MOI	Memorandum of Instruction
MWR	Morale, Welfare and Recreation
NAF	Non-Appropriated Fund
NAFI	Non-Appropriated Funds Instrumentalities
NIF	Non-Industrially Funded
OPA	Other Procurement, Army
PCIP	Productivity Capital Investment Program
PECIP	Productivity Enhancing Capital Investment Program
PIF	Productivity Investment Funding
QRIP	Quick Return on Investment Program
QWRP	Qualifying Waste Recycling Program
RAC	Recycling Advisory Committee
RCRA	Resource Conservation and Recovery Act
RMO	Resource Management Office
RTD	Reutilization, Transfer and Donation
SCO	Sales Contracting Officer
SIC	Service Identification Code
SJA	Staff Judge Advocate
USAEHSC	US Army Engineering and Housing Office

SECTION B
SUPPLIES OR SERVICES AND PRICES/COSTS
COLLECTION AND TRANSPORTATION OF RECYCLABLE MATERIAL.

NOTES:

FOR FAMILY HOUSING CURBSIDE COLLECTION, THE QUANTITIES IN THE LINE ITEM REPRESENT THE NUMBER OF INDIVIDUAL HOUSING UNITS TO RECEIVE RECYCLING COLLECTION ON A WEEKLY BASIS.

FOR THE OFFICE BUILDINGS, THE QUANTITIES IN EACH LINE ITEM REPRESENT THE NUMBER OF BUILDINGS TO RECEIVE RECYCLING COLLECTION ON A WEEKLY BASIS.

FOR THE RECREATIONAL FACILITIES, THE QUANTITIES IN EACH LINE ITEM REPRESENT THE NUMBER OF FACILITIES TO RECEIVE RECYCLING COLLECTION ON A WEEKLY BASIS.

FOR THE FOOD SERVICE FACILITIES, THE QUANTITIES IN EACH LINE ITEM REPRESENT THE NUMBER OF FACILITIES TO RECEIVE RECYCLING COLLECTION ON A WEEKLY BASIS.

PROVIDE A SEPARATE BID PRICE FOR COLLECTION OF RECYCLABLES FROM THE DEFENSE LOGISTICS AGENCY HEADQUARTERS BUILDING AT A UNIT CHARGE PER PICK-UP FOR THE ENTIRE BUILDING. THE QUANTITIES IN THIS LINE ITEM REPRESENT THE NUMBER OF COLLECTIONS ON A WEEKLY BASIS (I.E., 5 times per week/daily basis).

FOR THE PURPOSES OF THIS CONTRACT, A 'COLLECTION POINT' IS DEFINED AS A ROOM OR CENTRAL COLLECTION AREA CONTAINING ONE OR MORE COMMODITY STORAGE RECEPTACLES. COLLECTION POINT LOCATIONS WILL BE PROVIDED IN THE QUARTERLY COLLECTION SCHEDULE.

FOR THE PURPOSES OF THIS CONTRACT, A 'FAMILY HOUSING UNIT' IS DEFINED AS A SINGLE FAMILY DWELLING, DUPLEX, TOWNHOUSE, OR GARDEN APARTMENT.

FOR THE PURPOSES OF THIS CONTRACT, A 'PICK-UP' IS DEFINED AS FOLLOWS:

1) ARRIVING AT THE HOUSING UNIT, BUILDING, OR FACILITY AS PER THE COLLECTION SCHEDULE;
2) EMPTYING THE RECYCLABLE COMMODITIES FROM ALL OF THE BUILDING S CENTRAL STORAGE COLLECTION POINTS AS LISTED IN THE COLLECTION SCHEDULE;
3) CONVEYING THE COMMODITIES TO THE FORT BELVOIR RECYCLING CENTER, BUILDING 1089, AND TRANSFERRING THE COMMODITIES FROM THE CONTRACTORS COLLECTION VEHICLE TO THE GOVERNMENT PROVIDED BULK STORAGE CONTAINER AS DIRECTED. (SEE SECTION C).

THE GOVERNMENT RESERVES THE RIGHT TO ADD OR DELETE SCHEDULED COLLECTION POINTS (I.E., BUILDINGS, RECREATION FACILITIES, FOOD SERVICE FACILITIES) FROM THE QUARTERLY COLLECTION SCHEDULE AS NEEDED TO PROVIDE SATISFACTORY SERVICE TO THE INSTALLATION.

PRICE EACH SOLICITATION LINE ITEM AT A UNIT CHARGE PER PICK-UP.

DO NOT GIVE A TOTAL PRICE FOR THE ITEM, ONLY A UNIT PRICE PER PICK-UP.

ALL LINE ITEMS MUST BE COMPLETED IN ORDER FOR THE GOVERNMENT TO EVALUATE THE PROPOSAL. LINE ITEMS NOT COMPLETED FULLY MAY BE GROUNDS TO REJECT THE ENTIRE PROPOSAL FOR CONSIDERATION.

SECTION C
PERFORMANCE WORK STATEMENT
FOR
COLLECTION AND TRANSPORTATION OF RECYCLABLE MATERIALS
AT
FORT BELVOIR, VIRGINIA
20 SEP 96

SECTION C

C.1 GENERAL

C.1.1 SCOPE OF WORK: The Contractor shall provide collection of recyclable material from Family Housing Areas, Office Buildings, Recreational Facilities and Food Service Facilities on Fort Belvoir as listed in the Collection Schedule (See Attachment 1) accompanying each delivery order. The Collection Schedule will be updated by the Government on a Quarterly basis by the Contracting Officer or his duly authorized representative. Additionally, provided with the collection schedule are the locations of all central storage collection points within the specified building (See Attachment 2). Please note that minor additions or deletions to the collection schedule may take place prior to issuance of the first delivery order. The Contractor shall use the most recent Collection Schedule as directed by the Contracting Officer or duly authorized agent. All collected materials shall be transported to the Recycling Center located at Building 1089 on Fort Belvoir and placed in the proper commodity storage area/bin/container.

C.1.1.1 HOURS OF OPERATION: For the Family Housing areas, collection shall be made between the hours of 7:00 am and 5:00 pm. For the Office Buildings, Recreational Facilities and Food Service Facilities, collection shall be made between 7:00 am and 4:30 pm.

C.1.1.2 DAYS OF COLLECTION: For the Family Housing areas, curbside collection shall be made every Monday, excluding Government Holidays. When a Government Holiday falls on a Monday, collection will be made on the next business day.

C.1.1.2.1 For the Office Buildings, collection shall be made in accordance with the Collection Schedule, excluding Government Holidays. The Contractor will use best judgement on collection

of building recyclables around Government Holidays. If the Contractor decides to modify the Collection Schedule to provide improved service, the Contractor shall notify the Contracting Officer or his duly authorized representative. In no case shall the Contractor exceed one additional business day to collect recyclables from the scheduled facilities missed due to a Government Holiday.

C.1.1.2.2 For the Recreational Facilities and Food Service Facilities, collection shall be made as listed in the Collection Schedule, excluding Government Holidays. When the scheduled collection day falls on a Government Holiday, the contractor shall be required to make the collection the next business day. The Contractor shall use diligence to ensure the normal weekly collection service is provided during holiday weeks and as increased need for the collection service merits.

C.1.2 COLLECTION LOCATIONS: The Contractor shall collect recyclable material from the facilities in the most recent Collection Schedule. An example of the most recent collection schedule is provided at Attachment 2. A site visit will be scheduled by the Contracting Officer prior to submission of bid documents and subsequent award of the contract.

C.1.2.1 The Family Housing Areas to be served under this contract are listed in the most recent Collection Schedule.

C.1.2.2 Office Buildings to be serviced through this contract are listed in the most recent Collection Schedule. At the drafting of this contract, 226 office building were being serviced.

C.1.2.3 Defense Logistics Agency Headquarters (DLA-HQ) Building shall be serviced through this contract and shall be bid as a separate line item. Section C.7 provides specific information regarding collection of office generated recyclables from this building.

C.1.2.4 The contractor shall exclude the food service facility located in the DLA-HQ Building from this separate bid as described in Section C.1.2.3 above. DLA-HQ cafeteria shall be treated as a separate food service facility as defined in Section C.8. Therefore, the cost for service shall be provided under the

Food Service line item.

C.1.2.5 Collection for Recreational Facilities shall be in accordance with the most recent Collection Schedule.

C.1.2.6 Collection for Food Service Facilities shall be in accordance with the most recent Collection Schedule.

C.1.3 PERSONNEL: The Contractor shall provide a work force possessing the necessary capabilities of performing the services required by this contract. Personnel performing work under this contract shall remain employees of the Contractor and will not be considered employees of the Government.

C.1.3.1 CONDUCT OF PERSONNEL: The Contracting Officer may require the Contractor to remove from the job site any employee working under this contract for reasons of misconduct, security, or found to be or suspected to be under the influence of alcohol, drugs, or other incapacitating agent. Contractor employees shall be subject to dismissal from the premises upon determination by the Contracting Officer that such action is in the best interest of the Government. The Installation Commander has the authority to bar individuals from the installation. Such removal from the job site or dismissal from the premises shall not relieve the Contractor of the requirement to provide sufficient personnel to perform the services as required by this contract.

C.1.3.1.1 The worksite is located on a military reservation and all rules and regulations issued by the Commanding Officer regarding general safety, security, sanitary requirements, pollution control, traffic and parking shall be observed by the Contractor. Information regarding these regulations may be obtained from the Contracting Officer, who will provide the information or assist in obtaining it from the appropriate authorities.

C.1.3.1.2 The Contractor shall understand that worksite areas will be occupied during the performance of work under this contract. The Contractor shall not receive any additional compensation due to conditions brought about by such occupancy and usage. The Contractor shall be responsible to coordinate with the Contracting Officer and to schedule and perform his work in such a manner as to create the least possible interference

with the conduct of normal activities within worksite areas.

C.1.3.2 SECURITY REQUIREMENTS: Contractor personnel and any representative of the contractor entering Fort Belvoir shall abide by all security regulations and shall be subject to security checks. The following is applicable to Building 2444 (INSCOM), the Defense Logistics Agency Headquarters (DLA-HQ) Complex and office buildings designated as secure: non-U.S. citizens, parolees, work release inmates and individuals with felony convictions shall not perform any work under this contract. The respective facility Security Officer reserves the right to require the Contractor's employees to submit to a background investigation check. The Contractor shall not be responsible for the handling of any classified material in the performance of this contract.

C.1.3.3 CONTRACTOR REPRESENTATIVE: The Contractor shall provide to the Contracting Officer, prior to commencement of work, a point of contact responsible for work performance that can be contacted via Phone, FAX or beeper during normal duty hours (M-F, 0700 hours to 1630 hours).

C.1.3.3.1 ALTERNATE REPRESENTATIVE: The Contractor shall provide to the Contracting Officer, prior to commencement of work, a alternate point of contact for work performance that can be contacted via Phone, FAX or beeper during normal duty hours (M-F, 0700 hours to 1630 hours).

C.1.3.4 IDENTIFICATION BADGES: Employees shall wear Contractor-furnished identification badges at all times during Contract performance. Identification information shall include the employees full name, photograph, company name, address, telephone number, employees identification number and the signature and title of the employee s immediate supervisor.

C.1.3.5 UNIFORMS: The contractor shall provide uniforms for all contract personnel. The uniforms must clearly identify the company name, employee name and "Fort Belvoir Recycling Program".

C.1.3.6 CONTRACTOR PERSONNEL IDENTIFICATION: The Contractor shall be required to submit to the Contracting Officer or his duly authorized representative, a list containing the full name, addresses, social security numbers and dates of birth of his personnel within ten (10) calendar days prior to start of contract performance.

C.1.3.6.1 PRIVACY ACT: Prior to collecting required identification data, the Contractor shall ensure his personnel are notified of the Government's purpose for collecting such information as required by the Privacy Act, 5 USC 552a. The Privacy Act Statement is provided in Section I (Contract Clauses) of this solicitation .

C.1.3.6.2 The Contractor shall submit any changes to personnel not later than five (5) work days prior to implementation of the change. In emergency situations and cases of adverse action, e.g. such as removal of Contractor personnel from the military installation for improper behavior (see paragraph C.1.3.1), where a five (5) work day notice is not possible, the Contractor shall submit the change in writing to the Contracting Officer or his duly authorized representative not later than 24 hours after the change is implemented.

C.1.4 VEHICLE REGISTRATION: Prior to commencement of work, the Conractor shall register all vehicles at the Provost Marshal s Office located in Building 1131, 9650 King Road, Suite 4 , Fort Belvoir, Virginia 22060-5406. Evidence of current state vehicle registration and automobile liability insurance coverage must be presented upon application for vehicle registration.

C.1.4.1 VEHICLE OPERATION: Contractor personnel operating motor vehicles on the Installation shall have a valid state operator s license for the category of vehicle being operated and shall comply with Fort Belvoir s regulations regarding motor vehicle use on a Government Installation (AR 190-5).

C.1.4.1.1 PRIVATELY OWNED VEHICLE PARKING AREAS: All POVs shall be parked in parking areas designated by the Contracting Officer.

C.1.4.2 Contractor owned vehicle use in the performance of services under this contract on the installation shall be marked as a commercial Contractor vehicle.

C.1.5 Performance of work by Contractor personnel under the terms of this contract shall not interfere with regularly scheduled Government operational activities.

C.1.6 ACCIDENT REPORTING: Accident reporting and record keeping

shall be in accordance with Section 1D, EM 385-1-1. Telephonic reports of injuries or property damage will be made as soon as possible after the incident and will be followed by a copy of U.S. Army Investigation Accident Report (DA Form 285).

C.1.7 SAFETY

C.1.7.1 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

C.1.7.1.1 U.S. Army Corps of Engineers Publication:

EM 385-1-1..... Safety and Health Requirements Manual(Oct 92)

C.1.7.1.2 National Fire Protection Association (NFPA) Publication:

No. 70-1993.....National Electric Code

C.1.7.1.3 Society of Automotive Engineers (SAE) Standard:

J 994-85.....Alarm, Backup, Electric - Performance, Test, and Application, Recommended Practice (MAR 85)

C.1.7.2 GENERAL: The Contractor shall comply with EM 385-1-1 (revised October 1992) and all provisions of this section during the life of the contract.

C.1.7.3 The Contractor shall designate in writing a qualified employee responsible for the overall supervision of accident prevention activities. Duties shall include ensuring applicable safety requirements are incorporated into work methods and inspecting the jobsite to ensure that safety measures and instructions are actually being applied.

C.1.7.4 The Contractor shall safeguard and maintain all Government property as well as provide for the safety and well-being of personnel employed in the conduct of this contract.

C.1.7.5 The Contractor shall comply with the Occupational Safety

and Health Act (OSHA). All Contractor personnel shall wear the necessary safety items required by OSHA during performance of this contract which require protective equipment or clothing.

C.1.8 The Contractor shall be responsible for any damages to Government owned equipment, including Government owned equipment in the Contractor s possession or use, and shall replace the item or repair any damage due to the fault or negligence of the Contractor or his employees as determined by the Contracting Officer or duly authorized representative. All such replacement or repairs shall be at the Contractors expense.

C.1.9 Any travel incurred in the performance of this contract shall be at no additional cost to the Government.

C.2 DEFINITIONS

C.2.1 STANDARD DEFINITIONS:

C.2.1.1 CONTRACTING OFFICER - A person with the authority to enter into, administer, and/or terminate contracts and make related changes, determinations and findings as specified in FAR 2.101.

C.2.1.2 CONTRACTOR - The term Contractor as used herein refers to both the prime contractor and sub-contractor.

C.2.1.3 SUBCONTRACTOR: Any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime contractor or another subcontractor.

C.2.1.4 POC: Point of Contact

C.2.2 TECHNICAL DEFINITIONS:

C.2.2.1 COMMODITIES: The following recyclable materials are associated with this contract:

C.2.2.1.2 Office white paper, shredded paper;
C.2.2.1.3 Newspaper, magazines, glossy inserts;
C.2.2.1.4 Aluminum, Bi-metal and steel/tin cans;
C.2.2.1.5 Plastics (Type #1-PET & Type #2-HDPE);
C.2.2.1.5 Cardboard;
C.2.2.1.7 Clear glass;
C.2.2.1.8 Green glass;

C.2.2.1.9 Brown glass;
C.2.2.1.10 Phone Books.

C.2.2.2 COLLECTION POINT: Area or location where the commodity accumulates, or is stored, for Contractor pick-up. The location of the collection points will be provided to the Contractor in the attached Collection Schedule. The first collection schedule will be provided at a meeting set up by the Contracting Officer within 14 days prior to the first collection day. Collection schedules will be provided with each delivery order (Currently on a quarterly basis).

C.2.2.3 COLLECTION SCHEDULE: The compiled list of commodity storage points contracted for collection and transport. The collection schedule also provides the day of the week the scheduled collection is to take place.

C.2.2.4 CONTAMINANTS: Any material found in the recyclables that is not specifically designated for that recycling receptacle and does not fit the definition of the commodity designated for that receptacle.

C.2.2.4 FOOD SERVICE FACILITIES: Designated Food Service Facilities on Fort Belvoir as listed in the Collection Schedule.

C.2.2.6 HOUSING AREAS: Designated Family Housing Areas of Fort Belvoir as listed in the Collection Schedule.

C.2.2.7 HOUSING UNIT: Any family housing quarters located on Fort Belvoir which may include, but not be limited to single family dwellings, duplexes, townhouses, garden apartments.

C.2.2.8 OFFICE BUILDINGS: Designated Office Buildings on Fort Belvoir as listed in the Collection Schedule.

C.2.2.9 PLASTIC GARBAGE BAGS FOR BEVERAGE CANS and PLASTICS: 1.0 mil thick or greater, type #1 or #2, clear plastic.

C.2.2.10 PLASTIC GARBAGE BAGS FOR NEWSPAPER and GLASS: 1.5 mil thick or greater, type #1 or #2, clear plastic.

C.2.2.11 RECREATIONAL FACILITIES: Designated Recreational Facilities on Fort Belvoir as listed in the Collection Schedule.

C.3 GOVERNMENT-FURNISHED EQUIPMENT:

C.3.1 Recycling containers/receptacles for the collection points as listed in the attached Collection Schedule.

C.3.2 Rolloffs/trailers/bins/toters at the Recycling Center for the storage of collected materials from the Contractor's vehicle prior to transport to Fort Belvoir s recycling vendors.

C.3.3 Use of the Fort Belvoir Recycling Center as it directly relates to this statement of work, located at Building 1089, 6010 Pohick Road, Fort Belvoir, VA 22060-5436.

C.4 CONTRACTOR FURNISHED EQUIPMENT:

C.4.1 The Contractor shall furnish all necessary personnel, plastic garbage bags, intermediate storage containers and transportation (vehicle(s)) required for the pick-up, segregation of commodities, transport to the Government provided Recycling Center and transfer to the appropriate Government furnished rolloff, trailer, bin, toter or holding area.

C.4.1.1 The Contractor shall provide and maintain a vehicle(s) with the capability of conveying the recyclable commodities from Office Buildings, Recreation Facilities, Food Service Facilities and Residential Curbside Collection to the Recycling Center. The Contractor s vehicle shall have the capability to keep a minimum of six commodities separate from one another after curbside sorting and transportation so that commingling or contamination of the commodities does not occur. The Contractor shall also provide a truck(s), truck(s) with trailer(s), or equivalent vehicle(s) with a minimum hauling capacity of 160 cubic feet. The contractors collection vehicles shall also be required to have the capability of keeping the commodities dry during periods of inclement weather. The Contractor is responsible for the total maintenance and upkeep of the vehicles(s) to ensure uninterrupted service is provided. The Contractor shall maintain the vehicle(s) with current license and inspection as required by the state of Virginia.

C.4.1.2 The Contractor shall provide plastic garbage bags as required in Sections C.4.1, C.2.2.9 and C.2.2.10 to replace those taken when transporting cans and newspapers from the office buildings and cans, glass and plastics from food service facilities and recreation facilities. In addition, the Contractor shall be required to provide plastic bag liners for

collection containers at newly scheduled pick-up points.

C.5 SPECIFIC TASKS

C.5.1 FAMILY HOUSING AREAS

C.5.1.1 The Contractor shall collect, separate at curbside and transport all commingled recyclable materials placed at curbside by the residents. The materials to be collected and segregated consist of the following:

C.5.1.1.1 Newspaper, Magazines, Glossy Inserts;
C.5.1.1.2 Aluminum, bimetal and steel/tin cans;
C.5.1.1.3 Plastics (#1 PET and #2 HDPE);
C.5.1.1.4 Clear glass;
C.5.1.1.5 Green glass;
C.5.1.1.6 Brown glass;
C.5.1.1.7 Phone Books (collected for one month duration, two times per year).

C.5.1.2 The material sorted at curbside shall be placed in their respective segregated transportation storage bins on the Contractor s vehicle. There shall be at least six bins or separate holding containers on the Contractor's vehicle that correspond to the six materials enumerated above. During phone book collection an additional bin or holding receptacle shall be required. The contractor shall be responsible for keeping the commodities dry during transport to the Fort Belvoir Recycling Center during periods of inclement weather.

C.5.1.3 The Contractor shall distribute any Government-provided publicity/instructional materials to residential units on Fort Belvoir as required by the Contracting Officer or a duly authorized representative. An example of this instructional material is provided at Attachment 3. Advance notice of at least 7 days will be given to the Contractor for the distribution of the material. Distributions shall not exceed one per month.

C.5.1.4 The Contractor shall complete the government furnished Collection Report form found at Attachment 4, identifying the individual housings units that are participating in the recycling effort. An original report form shall be provided at the beginning of the delivery order period. The Contractor shall be responsible for making photocopies of the report form as necessary in order to provide all information requested throughout the delivery order period. The contractor shall be

responsible for completing this report form and forwarding it to the Contracting Officer or a duly authorized representative at the beginning of the next week (Monday).

C.5.1.5 If the Residents of the Housing Areas fail to comply with the instructions regarding acceptable recyclable materials and/or materials considered contaminants, the Contractor shall leave all materials not specified in the curbside collection program as found and annotate the type of noncompliance on the Collection Report.

C.5.2 OFFICE BUILDING COLLECTION

C.5.2.1 The materials to be collected at the Office Buildings consist of the following:

C.5.2.1.1 Office white paper (including shredded paper);
C.5.2.1.2 Newspaper, Magazines, Glossy Inserts;
C.5.2.1.3 Aluminum, bimetal and steel/tin cans;
C.5.2.1.4 Phone Books from office building participants (collected for (1) one month duration, (2) two times per year.

C.5.2.2 The Contractor shall complete a Government furnished Collection Report (See Attachment 2) identifying all Office Buildings that are participating and the volumes of recyclables collected in the recycling effort. An original report form shall be provided at the beginning of each delivery order period. The Contractor shall be responsible for making photocopies of the report form as necessary in order to report subsequent collection information throughout the delivery order period. The contractor shall be responsible for completing this report and forwarding it to the Contracting Officer or a duly authorized representative at the beginning of the next week (Monday).

C.5.2.3 OFFICE WHITE PAPER COLLECTION

C.5.2.3.1 Office white paper and shredded paper will be collected from the office buildings in toters, bins, boxes or receptacles approved by the Contracting Officer or a duly authorized representative. The transportation storage bin

utilized by the contractor shall be compatible with the Government s operational requirements at the Recycling Center. The preferred method of office white paper pick-up for the Government is for the Contractor to use Government-furnished toters.

C.5.2.3.2 If the Contractor uses Government-furnished toters, the collection point receptacles shall not be switched out with every pick-up. The Contractor shall take Government-furnished toters from the Recycling Center and take them to the Office Buildings listed in the Collection Schedule. The Contractor shall empty the contents of the collection point white office paper receptacle(s) into the toters. The Contractor shall bring the full toters back to the Recycling Center and place them as directed by the Contracting Officer or duly authorized representative. Contractor personnel shall ensure they do not impede normal operations and processing of commodities at the Recycling Center when unloading and storing full toters.

C.5.2.3.3 In certain instances, Fort Belvoir office employees may place recyclables in unapproved collection receptacles at the central storage collection points within a facility. In these cases, the contractor shall be responsible for consolidating these recyclables into the intermediate transportation receptacles (Government provided toters or equivalent) for transport to the Recycling Center. If the number of Government provided central storage collection boxes in a specified building are not sufficient to hold the amount of white paper being generated, the contractor shall place additional Government provided central storage collection boxes in the central storage collection areas as necessary.

C.5.2.3.4 The contractor shall be required to pick-up and transport to the Recycling Center any bags of shredded paper that are placed at central storage collection points. The contractor can anticipate approximately twenty (20) bags of shredded paper to be collected on a weekly basis.

C.5.2.4 ALUMINUM, BI-METAL, STEEL/TIN CAN COLLECTION

C.5.2.4.1 The Contractor shall collect Aluminum, Bi-metal, Steel/ Tin cans from the collection points listed in the Collection Schedule. Plastic garbage bags as specified in Section C.2.2.9 and provided by the Contractor, shall serve as the liner for the recycling receptacles. The Contractor shall

remove the full liner and replace it with a new one as necessary. The full plastic garbage bag will be tied at the top in a knot and taken to the Contractor s collection vehicle. The Contractor shall convey the commodities back to the Recycling Center. The cans shall be removed from the plastic bags and placed in the appropriate rolloff/location as directed by the Contracting Officer or duly authorized representative.

C.5.2.4.2 The Contractor shall replace the government provided cardboard central storage collection container with a new one if excessive wear, soiling or moisture make such action necessary or at the request of the Government. The Contractor shall take the old used boxes to the Recycling Center and place them with other cardboard waiting to be baled.

C.5.2.5 NEWSPAPER COLLECTION

C.5.2.5.1 The Contractor shall collect newspaper, magazines and glossy inserts from the collection points detailed in the Collection Schedule. Plastic garbage bags as specified in Section C.2.2.10 shall serve as the liner for the recycling receptacles. The Contractor shall remove the full liner and replace it with a new one as necessary. The full plastic garbage bag will be tied at the top in a knot and taken to the Contractor s collection vehicle. The Contractor shall convey the commodities back to the Recycling Center and place them in the appropriate rolloff/location as directed by the Contracting Officer or duly authorized representative.

C.5.2.5.2 The Contractor shall replace the government provided cardboard central storage collection container with a new one if excessive wear, soiling or moisture make such action necessary or at the request of the Government. The Contractor shall take old used boxes to the Recycling Center and place them with other cardboard waiting to be baled.

C.5.3 COLLECTION AT DEFENSE LOGISTICS AGENCY (DLA) HEADQUARTERS BUILDING

C.5.3.1 COLLECTION LOCATIONS: The Contractor shall collect recyclable materials from the facility's Recycling Rooms (approx. 14 rooms)located by the service elevators on each floor.

C.5.3.2 DAYS OF COLLECTION

C.5.3.2.1 For the DLA-HQ, collection shall be made daily (Monday thru Friday), excluding Government Holidays. If the Contractor modifies the Collection Schedule to improve service in conjunction with Government Holidays, the Contractor shall notify the Contracting Officer or his duly authorized representative.

C.5.3.3 PERSONNEL

C.5.3.3.1 Identification: The Contractor shall be required to submit to the Contracting Officer or his duly authorized representative, a list containing the full name, addresses, social security numbers and dates of birth of his personnel. Additionally, all contract employees shall be required to obtain from DLA-HQ a security badge. The contractor shall be required to have all associated paperwork (See Attachment 5)completed and submitted to DLA-HQ prior to the start of the contract. Employees will wear DLA-HQ-furnished I.D. badges at all times during contract performance within the DLA-HQ Compound.

C.5.3.3.2 SECURITY: The following is applicable to DLA-HQ: non-U.S. citizens, parolees, work release inmates and individuals with felony convictions shall not perform any work under this contract. The Security Officer reserves the right to require the Contractor s employees to submit to a background investigation check. The Contractor shall not be responsible for the handling of any classified material in the performance of this contract

C.5.3.4 COLLECTION MATERIALS

C.5.3.4.1 The materials for collection in the DLA-HQ building consist of the following:

C.5.3.4.1.1 Office white paper, shredded paper;
C.5.3.4.1.2 Newspaper, magazines and glossy inserts;
C.5.3.4.1.3 Aluminum, bi-metal and steel/tin cans;

C.5.3.4.2 OFFICE WHITE PAPER COLLECTION

C.5.3.4.2.1 Office white paper and shredded paper shall be collected from the recycling rooms located on each floor of the DLA-HQ building. The white paper shall transported in the government furnished toters.

C.5.3.4.2.2 The Contractor shall take Government-furnished toters from the Recycling Center to DLA-HQ. The Contractor shall switch-out the full toters with the empty toters. The contractor shall ensure that there are at least six toters designated for white paper in each recycling room. The Contractor transport the full toters to the Recycling Center and place them as directed by the Contracting Officer or duly authorized representative.

C.5.3.4.2.3 The Contractor shall be responsible for maintaining the toters in a clean manner as not to attract vectors or become a nuisance due to odors.

C.5.3.4.3 CAN COLLECTION

C.5.3.4.3.1 The Contractor shall collect Aluminum, Bi-metal, and Steel/Tin cans from all of the recycling rooms located on each floor of the DLA-HQ building. The cans shall transported in the government furnished toters. The Contractor shall convey the commodities back to the Recycling Center in the government furnished toters and place them as directed by the Contracting Officer or duly authorized representative.

C.5.3.4.3.2 The Contractor shall replace the aluminum can toters taken from the recycling rooms with empty toters provided at the Recycling Center. At no time shall there be less than three toters specifically designated for cans at each recycling room.

C.5.3.4.3.3 The contractor shall ensure the aluminum can toters are kept clean to ensure that vectors do not become a nuisance as well as preclude any objectionable odors. This may include pressure washing the toters at the Fort Belvoir Recycling Center.

C.5.3.4.4 NEWSPAPER COLLECTION

C.5.3.4.4.1 The Contractor shall collect newspapers, magazines and glossy inserts from all of the recycling rooms located on each floor of the DLA-HQ building. This material shall transported in the government furnished toters. The Contractor shall convey the commodities back to the Recycling Center in the government furnished toters and place them as directed by the Contracting Officer or duly authorized representative.

C.5.3.4.4.2 The Contractor shall replace the newspaper toters taken from the recycling rooms with empty toters provided at the Recycling Center. At no time shall there be less than two toters

area at the Center. The contractor shall take care to minimize excessive breakage of glass during the transfer from collection vehicles to bulk storage containers at the Center. The Contractor shall separate any of the commodities that have been mixed with one another during collection, sorting or transportation before placing them in the Government provided bulk storage containers or other designated areas. The contractor shall ensure no cross contamination of recyclable materials occur. The contractor shall be responsible for providing plastic bag liners for recyling bins at the Food Service and Recreational Facilities as specified in Sections C.2.2.9 and C.2.2.10. Used, empty plastic bags utilized in the collection of the aforementioned recyclables shall be disposed of in the appropriate Government-provided container.

C.7 CLEANUP The Contractor shall be responsible for the clean-up of any spills that occur during the sorting, collection or transportation of the commodities and transfer to Government-provided containers at the Recycling Center.

C.8 QUALITY ASSURANCE Quality assurance is the procedure to be used by the Government to monitor Contractor performance. The Contractor shall have deducted from their invoices the amount agreed to in Technical Exhibit 1, titled "Schedule of Deductions" if the Contractor fails to perform adequately in accordance with the Collection Schedule and this Statement of Work.

C.9 MISCELLANEOUS As mandated by the Fort Belvoir Recycle Paper Policy, all correspondence from the Contractor shall be on recycled paper. In the performance of this contract, the Contractor shall take reasonable care to ensure that Government-provided materials are not damaged. The cost of materials damaged by Contractor negligence shall be reimbursed to the Government.

PURCHASE REQUEST AND COMMITMENT

For use of this form, see AR 37-1; the proponent agency is OASA(FM)

1. PURCHASE INSTRUMENT NO.	2. REQUISITION NO.	3. DATE	PAGE 1 OF PAGES
W23UJ5-6100-7132	55-RD000-6J	09 April 1996	

4. TO: Directorate of Contracting
Supply and Services Division
ATTN: Ms. Doretha Kinslow

5. THRU: DPW, Engineer Resource Management Division, Budget Branch, Fort George G. Meade, MD 20755-5115

6. FROM: Various Locations Throughout Fort Meade

It is requested that the supplies and services enumerated below or on attached list be

7. PURCHASED FOR	8. DELIVERED TO	9. NOT LATER THAN (Date)
DPW, Engineering Plans and Services Division, Bldg T-219, Fort George G. Meade, MD 20755-5115	DPW, Contract Management Branch, Bldg 229, ANME-PWP-C, FGGM, MD 20755-5115	01 Oct 96

The supplies and services listed below cannot be secured through normal supply channels or other Army supply sources in the immediate vicinity, and their procurement will not violate existing regulations pertaining to local purchases for stock, therefore, local procurement is necessary for the following reason: *(Check appropriate box and complete item.)*

10. NAME OF PERSON TO CALL FOR ADDITIONAL INFORMATION	11. TELEPHONE NUMBER
MICHAEL W. GONCE	301-677-9020

	12. LOCAL PURCHASES AUTHORIZED AS THE NORMAL MEANS OF SUPPLY FOR THE FOREGOING BY		13. REQUISITIONING DISCLOSES NONAVAILABILITY OF ITEMS AND LOCAL PURCHASE IS AUTHORIZED BY
X	AR 420-17		

EMERGENCY SITUATION PRECLUDES USE OF REQUISITION CHANNELS FOR SECURING ITEM

14. ITEM	15. DESCRIPTION OF SUPPLY OR SERVICES	16. QUANTITY	17. UNIT	18. ESTIMATED UNIT PRICE a	18. ESTIMATED TOTAL COST b
	FSC: S205 SERVICE: Government shall collect and deliver solid waste to the Contractor's sanitary landfills in Anne Arundel County. The Contractor shall provide all labor, supervision, tools, materials, and equipment required for receipt and disposal of solid waste by the Government. All work is to be performed in accordance with the attached general and technical provisions, and the Solid Waste Disposal Specifications for the period	1	LT	$536,904.00	$536,904.00

25. THE FOREGOING ITEMS ARE REQUIRED NOT LATER THAN AS INDICATED ABOVE FOR THE FOLLOWING PURPOSE

01 October 1996 through 30 September 1997.

SEE ATTACHED VENDORS LIST.

FUND CERTIFICATION

The supplies and services listed on this request are properly chargeable to the following allotments, the available balances of which are sufficient to cover the cost thereof, and funds have been committed.

19. ACCOUNTING CLASSIFICATION AND AMOUNT

21 7 7025 0000 0 40 1008 P191221.00000 25CZ
000000 W23UJ5 6100 7132 EJIF00 S18043 - $198,000.00
21 7 2020 0000 0 40 1008 P117096.M2000 25CZ
000000 W23UJ5 6100 7132 EAM200 S18043 - $336,000.00
21 7 7025 0000 0 40 1008 P191211.00000 25CZ
000000 W23UJ5 6100 7132 EHID00 S18043 - $2,904.00

20. TYPED NAME AND TITLE OF CERTIFYING OFFICER	21. SIGNATURE	22. DATE
ALICE CLAYTOR EVA M. JONES		

23. DISCOUNT TERMS: THIS REQUIREMENT IS INCLUDED/PROVIDED FOR IN THE

24. PURCHASE ORDER NUMBER: FINANCIAL PLAN FOR FY97. THIS IS NOT A COMMITMENT OF FUNDS. SUBJECT TO THE

28. DELIVERY REQUIREMENTS: AVAILABILITY.

ARE MORE THAN 7 DAYS REQUIRED TO INSPECT AND ACCEPT THE REQUESTED GOODS OR SERVICES YES ☐ NO ☐

IF YES, NUMBER OF DAYS REQUIRED

27. TYPED NAME AND GRADE OF INITIATING OFFICER	28. SIGNATURE	29. DATE
KAREN M. DEAN	Karen M. Dean	09 April 1996
30. TELEPHONE NUMBER: 301-677-9562		
31. TYPED NAME AND GRADE OF SUPPLY OFFICER: MICHAEL W. GONCE	32. SIGNATURE: Michael W. Gonce	33. DATE: 10 APRIL 1996

34. TYPED NAME AND GRADE OF APPROVING OFFICER OR DESIGNEE	35. SIGNATURE	36. DATE
CARROLL P. HICKS Chief, Contract Management Branch Directorate of Public Works	Carroll P. Hicks	10 april 1996

DA FORM 3953, MAR 91 EDITION OF AUG 76 IS OBSOLETE USAPPC V1.00

SUGGESTED VENDORS

Anne Arundel County
Maryland Department of Utilities
Millersville Landfill
389 Burns Crossing Road
Severn, MD 21144
PHONE: 410-222-7512
FAX : 410-222-7507

CONTRACT AGREEMENT NO.

DEPARTMENT OF THE ARMY
MUNICIPAL SOLID WASTE DISPOSAL SERVICE CONTRACT

Fort George G. Meade
Fort Meade, Maryland 20755
(Premises to be Served)

Anne Arundel County Maryland
Annapolis, Maryland 21401-7374
(Contractor)

Estimated annual cost hereunder: $ 536,904.00

Bills will be rendered to: Directorate of Public Works
Attn: AFKA-ZI-PW-PC
Contract Management Branch
Building T-229
Fort George G. Meade, Maryland
20755-5115

Payments will be made by: Defense Accounting Service
Building P-4215, DFAS-IN/EM-JM
Attn: Accounts Payable
Fort George G. Meade, Maryland
20755-5130

Communications: All communications and modifications regarding this contract shall be addressed as follows:

Contractor: Anne Arundel County, Maryland
Department of Utilities
Millersville Landfill
389 Burns Crossing Road
Severn, MD 21144

Government: Department of the Army
Directorate of Contracting
Building P-2234, AFKA-ZI-DOC-CA
Fort George G. Meade, MD 20755-5081

CONTRACT AGREEMENT NO.

Appropriation Chargeable: Various appropriations chargeable, based on distribution to appropriation ultimately chargeable on invoices, public vouchers, or other instruments as may be directed by the Contracting Officer, when submitted to the various Disbursing Officers for payment.

This contract is negotiated pursuant to 10 U.S.C. 2304(c)(1)

THIS CONTRACT is entered into as of 01 October 1996 by and between the UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and Anne Arundel County Maryland, Department of Utilities, whose address is Millersville Landfill, 389 Burns Crossing Road, Severn, Maryland 21144, hereinafter called the Contractor.

I. SCOPE. Subject to the terms and conditions hereinafter set forth, the Contractor shall furnish, and the Government shall purchase and receive, solid waste disposal service (hereinafter called service) requested by the Government from the Contractor at the latter's disposal premises (hereinafter called the service location) in accordance with the general and technical provisions and the Solid Waste Disposal Service Specifications attached hereto and made a part hereof.

II. TERM. This contract shall continue in effect until terminated at the option of the Government or the Contractor by the giving of written notice not less than thirty days in advance of the effective date of termination.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

_____	UNITED STATES OF AMERICA
Contractor	
By_____	By_____
Signature	Signature of Contracting Ofc
	JEROME H. NEWELL Chief, Contract Administration Division
_____	
Typed Name and Title	

CONTRACT AGREEMENT NO.

GENERAL PROVISIONS FOR MUNICIPAL SOLID WASTE DISPOSAL

1. GENERAL PROVISIONS

1. PAYMENT

(a) The Contractor shall be paid by the designated disbursing officer for service furnished hereunder at the rates specified in this contract commencing with the billing period in which service is initially furnished and continuing until this contract is terminated.

(b) Payment hereunder shall be contingent upon availability of appropriations therefore, and shall not be made in advance of the service rendered.

(c) Invoices for service rendered hereunder shall contain statements of the quantities of solid waste delivered by the Government during the billing period; and such other pertinent data as shall be required by the government.

(d) The Contractor hereby declares that rates are not in excess of the lowest rates now available to any existing or prospective customer under like conditions of service, or of the same classifications, and agrees that during the life of this contract the Government shall continue to be billed at the lowest available rate for similar conditions of service.

2. RATES AND CHARGES

For all service furnished under this contract to the service location the Government shall pay the Contractor at the rates specified in the rate schedule, attached hereto and made part of this contract.

3. CHANGES OF RATES

The rates set forth herein may be revised by Anne Arundel County from time to time and the new rates shall become effective, provided that revised rates shall not be in excess of rates to any other customer of the Contractor under similar conditions of service.

No changes shall be requested in the contract rate unless the Contractor has placed into effect a general rate change to all his or her customers under similar conditions of service.

CONTRACT AGREEMENT NO.

4. CHANGE IN VOLUME OF SERVICE

The Contracting Officer shall give thirty days notice to the Contractor respecting any material changes anticipated in the volume of service.

5. CONTINUITY OF SERVICE

The Contractor shall not be liable to the Government for damages, breach of contract, or otherwise, for failure, suspension, diminution, or other variations of service occasioned by any cause.

6. CONTRACTOR'S FACILITIES

The Contractor, at his expense, shall furnish, install, operate, and maintain all facilities required to furnish service hereunder. Title to all of these facilities shall remain in the Contractor. All taxes and other charges in connection therewith, together with all liability arising out of negligence of the Contractor in the construction, operation, or maintenance of these facilities, shall be assumed by the Contractor.

7. CONFLICTS

To the extent of any inconsistency between the provisions of this contract and the provisions of Exhibits A and B incorporated in this contract by reference, the provisions of this contract shall control.

8. FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (JUNE 1988)

This clause incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

FAR	52.202-1	DEFINITIONS (APR 1984)
FAR	52.203-1	OFFICIALS NOT TO BENEFIT (APR 1984)
FAR	52.203-3	GRATUITIES (APR 1984)
FAR	52.203-5	COVENANT AGAINST CONTINGENT FEES (APR 1984)
FAR	52.203-6	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1985)
FAR	52.203-7	ANTI-KICKBACK PROCEDURES (OCT 1988)
FAR	52.203-10	REMEDIES FOR ILLEGAL OR IMPROPER ACTIVITY (SEP 1990)
FAR	52.203-11	CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

Attached to and made a part of
CONTRACT AGREEMENT NO.

MUNICIPAL SOLID WASTE DISPOSAL SERVICE SPECIFICATIONS

1. PREMISES TO BE SERVED: Fort George G. Meade
Fort Meade, Maryland 20755-5000

2. ESTIMATED SERVICE:

Estimated Annual Disposal Requirements: 20,570 Tons (Government is in no way obligated to deliver nor is it restricted to the above estimated requirements.)

3. ESTIMATED ANNUAL COST: $ 536,904.00

4. SERVICE DESCRIPTION:

(a) The Government shall collect and deliver solid waste to the Contractor's Sanitary Landfills in Anne Arundel County. The Contractor shall provide all labor, supervision, tools, materials and equipment required for receipt and disposal of solid waste by the Government.

(b) Solid waste delivered by the Government will include non-hazardous putrescible and nonputrescible municipal solid waste consisting of wet and dry materials, wood, paper, glass, metal and any other form of trash. Any non-hazardous industrial waste will require the Contractor's permission prior to delivery. The Government shall not deliver materials prohibited by law or the Contractor Refuse Disposal permit issued by the Maryland Department of the Environment.

(c) All solid waste will be delivered to the Contractor's Sanitary Landfills in covered vehicles.

(d) There shall be no constraints on the type and size of vehicle utilized by the Government for delivery of solid waste to the Contractor's Sanitary Landfills.

(e) The Government will deliver solid waste to the Contractor's Sanitary Landfills during the Contractor's normal working hours.

(f) The Government will comply with the Contractor's published "Regulations for Use of Landfills", a copy of which is attached hereto and made a part hereof.

CONTRACT AGREEMENT NO.

FAR 52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANACTIONS (JAN 1990)
FAR 52.204-4	CONTRACTOR ESTABLISHMENT CODE (AUG 1989)
FAR 52.208-3	CONFLICTS (APR 1984)
FAR 52.215-2	AUDIT-NEGOTIATION (DEC 1989)
FAR 52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS (FEB 1990)
FAR 52.219-13	UTILIZATION OF WOMEN-OWNED SMALL BUSINESS (AUG 1986)
FAR 52.222-3	CONVICT LABOR (APR 1984)
FAR 52.222-4	CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION (MAR 1986)
FAR 52.222-26	EQUAL OPPORTUNITY (APR 1984)
FAR 52.222-35	AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (JAN 1988)
FAR 52.222-36	AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS (APR 1984)
FAR 52.222-37	EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS AND VETERANS OF THE VIETNEM ERA (JAN 1988)
FAR 52.223-2	CLEAN AIR AND WATER (APR 1984)
FAR 52.223-6	DRUG-FREE WORKPLACE (JUL 1990)
FAR 52.232-23	ASSIGNMENT OF CLAIMS (JAN 1986)
FAR 52.233-1	DISPUTES (APR 1984)
FAR 52.233-3	PROTEST AFTER AWARD (AUG 1989)

Attached to and made a part of
CONTRACT AGREEMENT NO.

5. POINT OF DELIVERY: The Government's solid waste will be delivered to either of the Contractor's Sanitary Landfills located in Anne Arundel County. The Contractor reserves the right to limit, restrict or redirect the Government's solid waste based on operational requirements of the individual landfills.

6. MEASUREMENT OF SERVICE:

(a) All solid waste delivered by the Government shall be measured by scales of standard maufacture, maintained, calibrated and read by the Contractor at his expense.

(b) The weight of each delivery of solid waste by the Government shall be measured by the Contractor in accordance with the Anne Arundel County Landfill Operating Procedure attached as Exhibit B. The Contractor reserves the right to revise Exhibits from time to time.

(c) Records of deliveries and weight of each delivery will be maintained by the Contractor for billing purposes. The weight record shall include the date, time, gross delivery weight, tare weight, net weight of solid waste, truck identification and identify the Fort Meade activity. A copy of the weight record will be provided for each delivery.

7. PAYMENT OF SERVICE: For and in consideration of the solid waste disposal service furnished under this contract, the Government shall pay the Contractor in accordance with the Contractor's charges for use of Sanitary Landfill of the County, as modified from time to time. A copy of the Contractor's current charges, effective 1 July 1993, is attached hereto as Exhibit A and made part hereof. Payment shall be made within thirty days of receipt of invoice.

*U.S. GOVERNMENT PRINTING OFFICE: 1993-331-943

FACILITIES ENGINEERING WORK REQUEST – XFA, XFB, XFC

For use of this form, see AR 420–17 and DA Pam 420–8; the proponent agency is the Office of the Chief of Engineers.

TRANS CODE	CHANGE	DOCUMENT NUMBER: REQ ID	DOCUMENT NUMBER: SERIAL NUMBER	FY	TYPE	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	DATE: YR	DATE: MO	DATE: DA	OTHER FUND CITATION	SHORT JOB DESCRIPTION	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BLANK
1 2 3	4	5 6	7 8 9 10 11	12	13	14 15 16 17 18 19	20 21 22	23 24	25 26	27 28	29 30 31 32 33 34 35 36 37 38	39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65	66 67 68 69 70 71	72 73 74	75 76 77 78
XFA	A	5 5	RD0006	J				96	04	09		SOLID WASTE DISPOSAL			

TRANS CODE	CHANGE	DOCUMENT NUMBER: REQ ID	DOCUMENT NUMBER: SERIAL NUMBER	FY	TYPE	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BUILDING/FACILITY: NUMBER	BUILDING/FACILITY: SUFFIX	BLA
1 2 3	4	5 6	7 8 9 10 11	12	13	14 15 16 17 18 19	20 21 22	23 24 25 26 27 28	29 30 31	32 33 34 35 36 37	38 39 40	41 42 43 44 45 46	47 48 49	50 51 52 53 54 55	56 57 58	59 60 61 62 63 64	65 66 67	68 69 70 71 72 73 74 75 76 77 78
XFB	C																	

DESCRIPTION AND JUSTIFICATION OF WORK TO BE ACCOMPLISHED

Contracted receipt and disposal of solid waste by sanitary landfills in Anne Arundel County which is collected and delivered by the Government for the period 01 October 1996 through 30 September 1997.

DESCRIBE WHAT WILL HAPPEN IF WORK IS NOT ACCOMPLISHED

Fort Meade's landfill will be closed during the execution of work in accordance with the terms and conditions of contract number DAKF27-93-C-0006, Cell #2 Modification to the Fort Meade Sanitary Landfill. Execution of this agreement is essential as the alternate site for all refuse disposal while Fort Meade's landfill is closed.

REQUESTER INFORMATION

NAME	ORGANIZATION	TELEPHONE NO.	SIGNATURE
CARROLL P. HICKS	DPW, EPS, CMB	7-9020	Carroll P. Hicks 10 April 96

PERSON TO CALL FOR ADDITIONAL INFORMATION

NAME	ORGANIZATION	TELEPHONE
MICHAEL W. GONCE	DPW, EPS, CMB	7-9562

FORWARD FOR APPROVAL

TO: _____ APPROVING AUTHORITY

RECOMMENDED ACTION: ☐ APPROVAL ☐ DISAPPROVAL

ENVIRONMENTAL IMPACT: NO / YES
- ☐ ☐ ENVIRONMENTAL CONSIDERATIONS
- ☐ ☐ EIS/EIA INITIATED
- ☐ ☐ EIS/EIA COMPLETED

ESTIMATED COST: FUNDED $ 6.0; WC K $ ____; WC L $ ____; WC ____ $ ____; UNFUNDED $ ____; TOTAL $ ____

WORK TO BE PERFORMED: ☐ IN-HOUSE ☐ SELF-HELP ☒ CONTRACT ☐ TROOP

FROM: _____ FACILITIES ENGINEER _____ DATE

APPROVED FOR DESIGN

_____ SIGNATURE _____ DATE

SOURCE OF FUNDS

☐ DIRECT ☐ AUTOMATIC REIMB. ☐ FUNDED REIMB.

APPROVAL ACTION

TRANS CODE	CHANGE	DOCUMENT NUMBER: REQ ID	DOCUMENT NUMBER: SERIAL NUMBER	FY	TYPE	ACTION TAKEN	DATE: MO	DATE: DA	FORWARDED TO: DESIGN MO	FORWARDED TO: DESIGN DA	FORWARDED TO: ESTIMATOR MO	FORWARDED TO: ESTIMATOR DA
1 2 3	4	5 6	7 8 9 10 11	12	13	14	15 16	17 18	19 20	21 22	23 24	25 26
XFC	C					A – APPROVED D – DISAPPROVED						

_____ SIGNATURE OF APPROVAL AUTHORITY

REMARKS

W23UJ5-6100-7132

FY97 Recurring Contract

SUMMARY OF POUNDAGE
FOR REFUSED DELIVERED
TO MILLERSVILLE LANDFILL
(WEIGHT MEASURED BY TONS)

MONTH	FY95	FY96	FY97
OCTOBER	259.29	294.51	
NOVEMBER	269.72	233.64	
DECEMBER	262.90	266.45	
JANUARY	236.10	301.00	
FEBRUARY	280.41	576.42	
MARCH	321.51	769.60	
APRIL	313.90	859.49	
MAY	340.57	850.35	
JUNE	319.53	939.05	
JULY	254.88	937.03	
AUGUST	268.74		
SEPTEMBER	248.26		
== Sum	3375.81	6027.54	0.00

CONTRACT NUMBER: DAHC36-94-M-5117
ANNE ARUNDEL COUNTY DEPARTMENT OF UTILITIES

OCT 23

FILE COP

SUMMARY OF COSTS
REFUSE DELIVERED TO
MILLERSVILLE LANDFILL
(DOLLARS)

MONTH	FY95	FY96	FY97
OCTOBER	$15,555.60	$17,667.00	
NOVEMBER	$16,183.20	$14,018.48	
DECEMBER	$15,774.00	$15,987.00	
JANUARY	$14,166.00	$18,064.01	
FEBRUARY	$16,824.70	$34,585.20	
MARCH	$19,291.00	$46,176.00	
APRIL	$18,834.00	$51,569.40	
MAY	$20,433.90	$51,021.00	
JUNE	$19,171.80	$56,467.41	
JULY	$15,292.80	$56,221.80	
AUGUST	$16,436.78		
SEPTEMBER	$14,895.60		
== Sum	$202,859.38	$361,777.30	$0.00

CONTRACT NUMBER: DAHC36-94-M-5117
ANNE ARUNDEL COUNTY DEPARTMENT OF UTILITIES

ALL COMMUNICATIONS SHOULD INCLUDE THE CONTRACT NUMBER SHOWN IN BLOCK 5 BELOW

NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT

1. PAGE 2 OF 2

3. DATE OF AWARD: 05/17/94

4. INVITATION NO.: 31-4721 (TERM)

5. CONTRACT NO.: 31-4721-0001

7. BIDDER NO.: 3001002413

8. (PAID STAMP)

(For Release of Property Only)

2. FROM: (Name and address of Sales Office)

DEFENSE REUTILIZATION & MARKETING SERVICE
NATIONAL SALES OFFICE, ATTN: DRMS-NR
2163 AIRWAYS BLVD, BLDG 210, BAY 5
MEMPHIS, TENNESSEE 38114-5211

6. TO: (Name and address of Purchaser)

ENVIRONMENTAL RECYCLING INC
621 SOUTH PICKETT ST
ALEXANDRIA VA. 22304

Phone: 703-370-3325 FAX: 703-370-3999

This is to inform you that your firm has been awarded a contract of sale for the following materials as a result of the above numbered invitation to bid.

9. PROPERTY MUST BE REMOVED BY (Final date of removal)

10. SURPLUS AND/OR EXCHANGE/SALE ITEMS

ITEM NO. a	DESCRIPTION b	QUANTITY c	UNIT d	UNIT PRICE e	TOTAL PRICE f	QUANTITY RELEASED g
		(ANNUAL)				
		(ESTIMATED)				
		DURATION:	07/01/94	TO	06/30/97	(36 MONTHS)
02	CARDBOARD, CORRUGAT	48	NT	8.400000	$403.20	

Billings will be monthly.
Bid Deposit: 20% of the estimated three (3) months generation to be retained and applied to final billing. Billings will be monthly based on 21.00 % for item 0002
(CORRUGATED CONTAINERS (CHICAGO) Y/S (3A))
Pursuant to Article KL: Price Determination

ITEMS 001 AND 002 AWARDED ON AN ALL-OR-NONE BASIS.

(ATTACHED ARTICLE 22 MUST FILLED OUT AND RETURNED TO DRMS-NSR)

11. RELEASE

An agent of the purchaser obtaining release of the material must present purchaser authorization.

A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.

TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT

B. RELEASED BY (Signature)

C. DATE

D. VOUCHER NO.

13. SALES CONTRACTING OFFICER (Typed or stamped name and signature)

JQ BARBER KS

12. STATEMENT OF ACCOUNT

Payment of amounts due the U. S. Government must be made prior to removal of any material. Make checks payable to U. S. TREASURY.

A. TOTAL CONTRACT PRICE	$ (SEE PAGE 1)
B. LESS DEPOSIT	$
C. BALANCE DUE	$
D. REFUND DUE	$
E. STORAGE CHARGES	$
F. PAYMENT RECEIVED	$
G. REFUND MADE	$

(Purchaser entitled to no cost until instrument)

DRMS Form 1427

ALL CORRESPONDENCE SHOULD INCLUDE THE CONTRACT NUMBER SHOWN IN BLOCK 5 BELOW

NOTICE OF AWARD, STATEMENT, AND RELEASE DOCUMENT

1. PAGE 01 OF 2

2. FROM (Name and address of Sales Office)

DEFENSE REUTILIZATION & MARKETING SERVICE
NATIONAL SALES OFFICE, ATTN: DRMS-NR
2163 AIRWAYS BLVD, BLDG 210, BAY 5
MEMPHIS, TENNESSEE 38114-5211

3. DATE OF AWARD 05/17/94

4. INVITATION NO. 31-4721 (TERM)

5. CONTRACT NO. 31-4721-0001

6. TO: (Name and address of Purchaser)

ENVIRONMENTAL RECYCLING INC
621 SOUTH PICKETT ST
ALEXANDRIA VA 22304

Phone: 703-370-3325 FAX: 703-370-3999

7. BIDDER NO.

8. (PAID STAMP)

(For Release of Property Only)

This is to advise you that your offer has been accepted a contract of sale for the following materials as a result of the above numbered invitation to bid.

9. PROPERTY MUST BE REMOVED BY (Final date of removal)

10. SURPLUS AND/OR EXCHANGEABLE ITEMS

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE	QUANTITY RELEASED
		(ANNUAL) (ESTIMATED)				
LOC: FORT BELVOIR,, FORT BELVOIR, VA 22060		DURATION: 07/01/94 TO 06/30/97				(36 MONTHS)
01	PAPER, MIXED, SCRAP	282	MT	84.000000	$23,713.68	

Billings will be monthly.
Bid Deposit: 20% of the estimated three (3) months generation to be retained and applied to final billings. Billings will be monthly based on 53.00 x for item 0001
(SORTED WHITE LEDGER (CHICAGO 175 (3D))
Pursuant to Article 22. Price Determination

ITEMS 001 AND 002 AWARDED ON AN ALL-OR-NONE BASIS.

(ATTACHED ARTICLE 22 MUST BE FILLED OUT AND RETURNED TO DRMS-NRE)

11. RELEASE

The signer of the purchaser obtaining release of the material must present purchaser authorization.

A. I HAVE RECEIVED THE ABOVE LISTED MATERIALS IN THE QUANTITY INDICATED AND HAVE ACCEPTED SAME IN COMPLIANCE WITH THE TERMS OF ABOVE NUMBERED CONTRACT.

TYPED OR PRINTED NAME AND SIGNATURE OF PURCHASER OR AUTHORIZED AGENT

B. RELEASED BY (Signature)

C. DATE

D. VOUCHER NO.

E. SALES CONTRACTING OFFICER (Typed or stamped name and signature) JO BARBER KC

JO BARBER

12. STATEMENT OF ACCOUNT

Payment of amounts due the U. S. Government must be made prior to release of any materials. Make checks payable to U. S. TREASURY.

A. TOTAL CONTRACT PRICE	$ EST. 24,316.80
B. LESS DEPOSIT	$ 1,215.84
C. BALANCE DUE	$ [redacted]
D. REFUND DUE	$
E. STORAGE CHARGES	$
F. PAYMENT RECEIVED	$
G. REFUND MADE	$

DRMS Form 1427 (Previous editions are obsolete)

NATIONAL SALES OFFICE

SPANNING AMERICA
TO TARGET THE MARKET

DEPARTMENT OF DEFENSE

DEFENSE REUTILIZATION AND MARKETING SERVICE
NATIONAL SALES OFFICE

INVITATION FOR BID

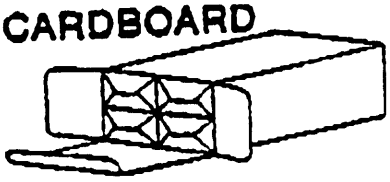
BID RECEIPT DEADLINE

BIDS WILL *NOT* BE ACCEPTED AFTER 3:00 P.M. CDST/CST THE DAY *PRIOR* TO THE BID OPENING DATE

******IMMEDIATE RESPONSE******

TERM PAPER SALE

CORRUGATED CARDBOARD



ALL-OR-NONE BIDS *ONLY*

MIXED PAPER

SALE NUMBER	*INSPECTION OPENING*	*BID OPENING*
31-4721	9 MAY 94	12 MAY 94 2:00 P.M.

BIDS BY TELEPHONE ARE AUTHORIZED FOR THIS SALE (SEE PARA. 32 PAGE 6)

FAX NO. A/C 901,775-6690

TELEPHONE NO. A/C 901,775-4421

VISA® ACCEPTED

MasterCard® ACCEPTED

IT HAS BEEN DETERMINED THAT THIS PROPERTY IS NO LONGER NEEDED BY THE FEDERAL GOVERNMENT

SEE THE PROPERTY LOCATIONS AND CONTACTS PAGE FOR PERSON TO CONTACT FOR ADDITIONAL INFORMATION AND/OR INSPECTION OF PROPERTY LISTED IN THIS INVITATION FOR BID.

THE CONTRACT PERIOD FOR ITEM(S): 1-2 ..... 01 Jul 94 - 30 Jun 97

DATES INCLUSIVE UNLESS SOONER COMPLETED PURSUANT TO PART 4, CONDITION D, ADJUSTMENT FOR VARIATION IN QUANTITY OR VALUE OR TERMINATED BY EITHER PARTY PURSUANT TO PART 4, CONDITION E, TERMINATION.

****
ITEMS 1 THRU 2 ARE LOCATED AT FORT BELVOIR, VA
****

1. PAPER, MIXED, SCRAP: Including white ledger, white paper, any color ink, office stationary, copier paper, white computer paper, green/white computer paper, white note/tablet paper manilla tab cards. With minimal amount of foreign material including staples, paper clips and rubber bands. Occasional impurities shall be acceptable up to 5% of each load and total outthrows shall not exceed 2% of each load.

   Outside - Pentagon Bldg, East Loading Dock & Federal Bldg No. 2

   ESTIMATED ANNUAL GENERATION
   282 NET TON

   THE FOLLOWING ARTICLES APPLY:
   PART 07-A: Scrap Warranty.
   PART 07-I: Paper Records or Documents.
   PART 07-J: Privacy Act Materials.
   B22: Scrap Warranty.
   B04: Bid and Deposit Evaluation.
   KL: Price Determination.

2. CARDBOARD, CORRUGATED, SCRAP: Consisting of cartons and boxes.

   Outside - Pentagon Bldg. East Loading Dock & Federal Bldg. 2

   ESTIMATED ANNUAL GENERATION
   48 NET TON

   THE FOLLOWING ARTICLES APPLY:
   B04: Bid and Deposit Evaluation.
   KL: Price Determination.

ADDITIONAL GENERAL INFORMATION AND INSTRUCTIONS - CONTINUED

- **INSPECTION DATE AND TIME (EXCLUDES SATURDAYS, SUNDAYS, AND FEDERAL/NATIONAL HOLIDAYS).**
  BEGINS: 09 MAY 94

ITEM(S):	HOURS:
1	8:00 AM – 4:30 PM CENTRAL DAYLIGHT SAVINGS TIME
2	7:00 AM – 3:30 PM CENTRAL DAYLIGHT SAVINGS TIME

- **PERSONAL CHECKS:** Personal checks will be accepted for payments of debts interest, liquidated damages, overages and storage charges, for amounts of $25.00 or less. Make checks payable to the U.S. Treasury.

- **FACSIMILE NOTIFICATION OF AWARD:** The bidder may request facsimile notification of award by checking the appropriate block on the Item Bid Page. When requested by the bidder, facsimile notification will be sent simultaneously with the mailing of the contract and will include the contract number and item(s) awarded.

- **TELEPHONIC BIDS:** TELEPHONIC BIDS WILL BE ACCEPTED ON THIS SALE. CONTACT THE SALES CONTRACTING OFFICER, A/C (901) 775-6114.

- **AWARD NOTIFICATION:** The apparent high bidder will be advised by phone and/or facsimile of his bid acceptance.

- **JOINT BIDS:**

  a. Joint bids are acceptable if:

     1. The joint bid and all principals of the joint venture are disclosed on the bid form;

     2. The joint bid does not circumvent the required Independent Price Certification Determination provision in Part 2 the Sale by Reference pamphlet; and

     3. The joint bid does not tend to restrict competition. (NOTE: COLLUSIVE BIDDING ARRANGEMENTS ARE ILLEGAL. THEY VIOLATE THE SHERMAN ANTITRUST ACT, 15 U.S.C. 1, A FELONY OFFENCE.)

  b. The person signing the bid is certifying that he:

     1. Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to the Certificate of Independent Price Determination provision; or

     2. Has been authorized, in writing, to act as agent for the principals of the bidder's organization in certifying that those principals have not participated, and will not participate in any action contrary to Certification o Independent Price Determination.

3. **ACCOUNTS DUE.** There shall be such accounting as may be necessary to comply with General Condition No. 6, entitled "Payment Normally accounting for property will be accomplished on or before the tenth day following the end of each month, provided however, that more frequent accounting may be necessary for property removed or to be removed. Immediately upon receipt of Statement of Account any amount due shall be remitted to the United States Treasury and mailed to the Sales Contracting Officer, DRMS National Sales Office, Bldg. 210, Bay 5, ATTN: DRMS-NSR, 2163 Airways Blvd., Memphis, Tennessee, 38114-5211.

6. **ELECTRONIC BULLETIN BOARD:** Effective 1 May 94, the National Sales Office will have an on-line electronic bulletin board service available to all customers. The NSOBBS is available 24 hours daily, 7 days a week, supporting communications up to 14,400 bps. Configurations required are: 8 Bit Word Length, No Parity, a 1 Stop Bit (8 N 1). The phone number to connect the NSOBBS is (901) 775-6621. There is no charge by the National Sales Office to use this service. For assistance regard problems, or difficulties in communications with the NSOBBS, please contact the BBS Customer Service Branch at (901) 775-4 Monday through Friday from 7:00 a.m. CST/CDST until 5:00 p.m. CST/CDST.

CONDITIONS OF SALE - SEALED BID

IS Form 83
/ 89
puter Generated

s General Information and Instructions and General and Special Conditions of Sale are hereby incorporated by reference and becom
art of this Invitation for Bids and any contract resulting from acceptance of bid submitted pursuant to this Invitation for Bid
fully as though such Instructions, Terms and Conditions had been specifically set forth herein. The Instructions, Terms and
nditions are contained in Defense Reutilization and Marketing Service pamphlet entitled "Sale by Reference - Instructions, Term
d Conditions Applicable to Department of Defense Personal Property Offered by Defense Reutilization and Marketing Service dated
gust 1989", and may be obtained upon request from DRMS National Sales Office, P.O. Box 5275 DDRC, 2163 Airways Blvd., Memphis,
nnessee 38114-5210. Copies are also available through any activity of the Defense Reutilization and Marketing Service. The
ecific Instructions, Terms and Conditions applicable to this sale are contained in contained in publications as follows:

DRMS pamphlet, "Sale by Reference, August 1989":

Part 1: General Information and Instructions (DRMS Form 81, Sep 88) Complete. Except ZZ.

Part 2: General Sale Terms and Conditions (Standard Form 114C, Jan 86 ed., and DRMS Form 84, Sep 88), All Conditions, except Condition 4 apply to all items.

Part 4: Special Sealed Bid-Term Conditions (Standard Form 114C-2, Jan 70 ed. All Conditions except Conditions A and H

I ADDITION TO THE ABOVE, THE FOLLOWING IS ALSO INCORPORATED AS PART OF THIS SALE:

RTICLE B01 AND B03 APPLY TO ALL ITEMS IN THIS SALE.

RTICLE B01:

(a) A BID DEPOSIT IS NOT REQUIRED AT THE TIME THE BID IS SUBMITTED; however, a bid deposit of 20% of the total price stimated for 3 (three) months generation of the property must be made within 48 hours of notification. The bid deposit submitte he purchaser will be retained by the Government and applied against the last delivery effected under the contract.

(b) All bid deposits and payments, including those for storage charges, liquidated damages, and interest, must be in U.S. urrency. Acceptable bid deposits may be made by cash, cashier's check, certified check, traveler's check, bank draft, money or r credit card (MasterCard or Visa only). When a credit card is used as bid deposit, the credit card number, the name as printe he credit card and expiration date must accompany the bid. Credit card bid deposits will not be held and replaced by acceptabl egotiable instruments after award. SUBMISSION OF MULTIPLE CREDIT CARDS ARE NOT ACCEPTABLE AND WILL RESULT IN THE BID BEING EJECTED AS NON RESPONSIVE. IF A CREDIT CARD IS USED AS BID DEPOSIT AND ACCEPTANCE IS DECLINED BY THE PROCESSING BANK, THE BIDD ILL BE CONSIDERED NON RESPONSIBLE AND THE BID REJECTED BASED ON LACK OF A BID DEPOSIT. Bidders whose bid or payment is accepte y a letter of credit or who have on file an approved bid bond (SF 150 or SF 151) may make their bid deposit and/or payments by ncertified personal company checks, but only up to an amount equal to the penal sum of their bond or the amount of their letter f credit.

(c) If, for any reason, a bidder's uncertified check is not honored for payment by the payer bank upon initial presentment ayment, the Government may, after notifying the bidder, require the bidder to make all future bid deposits and payments by cas ashier's check, certified check, traveler's check, bank draft or money order.

RTICLE B03: BID AND AWARD CONFIRMATION. All bids submitted by authorized methods will be accepted provided they are received rior to the specified bid opening date and time. If notified that the bid is high, the bidder must ensure that a completed, s id accompanied by 20% bid deposit is received within 48 hours of that notification. A signed bid and 20% bid deposit for the roperty must be received before the sale is consummated or the property released. Failure to provide the signed bid and payme pecified above will result in the bid being declared non-responsive.

RTICLE B04: BID AND DEPOSIT EVALUATION. As a basis for evaluating the bid and computing the 20% deposit on this sale, use th following market prices:

ITEM(S): 1 ..... SORTED WHITE LEDGER (CHICAGO) Y/$ .....
ITEM(S): 2 ..... CORRUGATED CONTAINERS (CHICAGO) Y/$ .....

The bid deposit will be computed by applying the percentage bid by the above stated market price, multiplied by a three month generation (25% of Annual), multiplied by 20% (EXAMPLE).....If the amount bid per (net ton/gross ton/lb) for an item is 50% of $100.00 or $50.00 per (net ton/gross ton/lb), multiply $50.00 times the quantity, 10 (net ton/gross ton/lb) which equals $500.0 and multiplied by 20% equals $100.00 which will be the bid deposit required.

CONDITIONS OF SALE - SEALED BID - CONTINUED

SAMPLE BID DEPOSIT COMPUTATION FOR ITEM WITH MARKET OF $100.00 PER (NET TON/GROSS TON/LB) AND WITH A THREE MONTH GENERATION OF 10 (NET TON/GROSS TON/LB.)

MARKET PRICE PER (NET TON/GROSS TON/LB).....$100.00
PERCENT OF MARKET PRICE BID.....50%

BID PRICE (NET TON/GROSS TON/LB.).....$50.00
MULTIPLIED BY ESTIMATED 3 MOS
GENERATION.....10 (NET TON/GROSS TON/LB)
.....$500.00 TOTAL CONTRACT PRICE
.....20%
MULTIPLIED BY 20%.....$100.00
REQUIRED BID DEPOSIT FOR SAMPLE ITEM.....$100.00

TICLE 822: SCRAP WARRANTY
e Purchaser represents, warrants and certifies to the U.S. Government that this property will be scrapped by pulping, shredding, other equally complete manner which precludes any recognition or reconstruction of the items. The Purchaser futher represents, rrants and certifies that he is purchasing the property as scrap and that he will only use it as scrap. Notwithstanding any oth vvisions of this contract to the contrary, title to the property shall not vest in the Purchaser until all required scrapping ha en accomplished. Should the Purchaser fail for any reason to complete the scrapping within 30 days after each removal of the operty, or such additional time as may be granted by the Contracting Officer, and furnish the Contracting Officer with a rtificate to the effect that such scrapping has been accomplished, the Government shall have the right to repossess the property arging the Purchaser with all costs incurred by the Government in repossessing and reselling the property including any direct ss on account of the resale. At the time of taking delivery the Purchaser must advise the Contracting Officer where scrapping wi accomplished.

TICLE 823: BID PRICE DETERMINATION: (TERM SALES TIED TO A MARKET)
a. The publication listed below will be used as a basis for determining the bid price for each item to be included in the nthly billing statement. Billing price will be based on the highest quotation published for each item as indicated.

e market(s) listed below as quoted in the "YELLOW SHEET" for the first Saturday of each month in which deliveries are made will plied as follows:

ITEM 1.....CHICAGO, ILLINOIS MARKET.....SORTED WHITE LEDGER (Chicago).....YELLOW SHEET
ITEM 2.....CHICAGO, ILLINOIS MARKET.....CORRUGATED CONTAINERS(Chicago).....YELLOW SHEET

b. In the event that a zero market price, a negative market price, or no market price is published as specified above, the st positive market price quoted in the publication will be used.

INVITATION FOR BID
TERM-SEALED BID
31-6721

LOADING TABLE

...e DRMS pamphlet, "Sale By Reference, August 1989", Part 2, Condition No. 8, Standard Form 114C)

...TTEN NOTICE OF AWARD WILL BE MADE BY: 19 MAY 94

...DING LEGEND

- Government will load

  (a) Rail

  (b) Truck or Trailer

- Government will load - Open top conveyance only

  (a) Rail

  (b) Truck or Trailer

III - Purchaser must load (no government assistance)

  (a) Rail facilities available adjacent to property

  (b) Rail facilities available on the installation but remote from property

  (c) No rail facilities available

IV - Other

...DING HOURS:	ITEM	HOURS
	1	7:00 AM TO 10:00 AM LOCAL TIME
	2	7:00 AM TO 3:30 PM LOCAL TIME

...EM	LOCATION	LOADING LEGEND
2	FORT BELVOIR, VA	III c, SEE LOADING NOTE BELOW.

...ADING NOTE:
...URCHASER WILL REMOVE ON MONDAY, WEDNESDAY AND FRIDAY FROM THE FEDERAL BUILDING #2, 1301 SOUTH GATE ROAD, AND COLUMBIA PIKE, ...RLINGTON, VIRGINIA. PURCHASR WILL REMOVE ON TUESDAY AND FRIDAY FROM THE PENTAGON BUILDING, ARLINGTON, VIRGINIA 20301-1155. ...URCHASER SHALL SCHEDULE THE REMOVAL OF THE CONTAINERS SO THAT THE FACILITY IS NOT WITHOUT A CONTAINER FOR MORE THAN 3 HOURS. ...URCHASER WILL FURNISH COMPACTORS. COMPACTORS MUST BE STENCILED: "RECYCLABLE MATERIAL ONLY!" ...E COMPACTOR SHALL BE FIRMLY SECURED TO THE PAVING SURFACE AND SUBSTRATE SO AS TO PREVENT MOVEMENT. A SUFFICIENT NUMBER ... COMPACTOR CONTAINERS MUST BE AVAILABLE FOR USE AT ALL TIMES. COMPACTORS MUST BE KEPT CLEAN AND IN GOOD REPAIR. ...URCHASER WILL BE REQUIRED TO PROVIDE AL LABOR AND EQUIPMENT FOR REMOVING AND LOADING CONTAINERS AND CONTENTS. PURCHASER IS REQU... ...O WEIGH IN & OUT ON CERTIFIED SCALES. PURCHASER WILL ABSORB COSTS. NO GOVERNMENT SCALES ARE AVAILABLE. TICKETS WILL FORWARDED ...OC LISTED, WITHIN 5 WORK DAYS. PROPERTY IS LOOSE -STORED IN COMPACTOR. FEDERAL BLDG. #2 SHALL BE EQUIPPED WITH A MARATHON MODEL ...MPACTOR OR EQUAL WITH A MOVABLE CONTAINER WITH A CAPACITY OF 35 CUBIC YARDS. THIS MODEL HAS AN INTERNAL MOVABLE BAFFLE THAT ...EPARATES THE TWO SIDES OF THE CONTAINER AND ADJUSTS TO ALLOW FOR DAILY FLUCTUATIONS IN THE AMOUNT OF THE WHITE LEDGER AND ...RRUGATED CARDBOARD DEPOSITED ON EACH SIDE. THE PENTAGON BUILDING (EAST LOADING DOCK) SHALL BE EQUIPPED WITH A TWO HIGH DENSITY ...D) STATIONARY COMPACTORS WITH TWO MOVABLE CONTAINERS OF 50 CUBIC YARD CAPACITY EACH. ONE UNIT SHALL BE DEDICATED TO WHITE LED ...D ONE UNIT SHALL BE DEDICATED TO CORRUGATED CARDBOARD.