



ACQUISITION,
TECHNOLOGY
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FEB 01 2008

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY
(INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY
(INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE
(INSTALLATIONS, ENVIRONMENT AND LOGISTICS)
DIRECTOR, DEFENSE LOGISTICS AGENCY (DES-D)

SUBJECT: DoD Integrated (Non-Hazardous) Solid Waste Management Policy

This memorandum implements the solid waste and recycling requirements of Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management" January 24, 2007, by requiring all facilities to maintain waste prevention and recycling programs in the most cost-effective manner possible and setting solid waste diversion goals to be achieved by 2010 for the Department of Defense. Therefore DoD Component installations shall implement integrated solid waste management (ISWM) to achieve these goals. The diversion goal for non-hazardous solid waste without construction and demolition (C&D) waste is 40% by 2010. The goal for C&D waste is 50% diversion by 2010.

While pollution prevention and source reduction remain the first considerations, ISWM (see attached guidelines) allows managers to make systematic waste diversion or disposal decisions based on a more refined environmental management hierarchy. Installations must make every effort to maximize non-hazardous solid waste diversion to optimize reduction in both the volume of solid waste disposed and overall cost of non-hazardous solid waste management. This requires a thorough understanding of the composition of the waste stream, available options for waste diversion or disposal, and associated costs and cost avoidance. Solid waste managers must stay informed about reuse opportunities, composting technologies, recyclable commodities markets, and understand how to reduce solid waste management costs. This is accomplished by conducting periodic economic analyses based on industry and market research as described in Section B in the attached guidelines.



Implementation of ISWM and the 2010 diversion goals are effective immediately and will be monitored using DoD solid waste and recycling metrics. If there are questions, please contact Mr. Ed Miller at (703) 604-1765 or edmund.miller@osd.mil.



Alex A. Beehler

Acting Deputy Under Secretary of Defense
(Installations and Environment)

Attachment:
As stated

DOD INTEGRATED NON-HAZARDOUS SOLID WASTE MANAGEMENT GUIDELINES

A. INTEGRATED SOLID WASTE MANAGEMENT (ISWM) OVERVIEW

1. Applicability. While these guidelines are primarily addressed to the solid waste and recycling program managers, full and effective implementation requires the involvement of the installation commander along with staff and management of all installation organizations.

2. Definitions.

a. **Composting** – The controlled process for managing the degradation of organic materials which is biologically broken down into a useful product such as mulch or a soil amendment.

b. **Diversion (Solid Waste)** – An activity to divert solid waste from landfill disposal or incineration, including reuse, donation, recycling, and composting/mulching. Diversion activities must be in accordance with all applicable DoD, DoD Component, federal, state and local requirements. Waste to energy recovery is not considered diversion for the solid waste diversion goal although it is applicable to the energy reduction goals of EO 13423.

c. **Integrated Solid Waste Management (ISWM)** – A comprehensive approach to managing non-hazardous solid waste that encompasses waste prevention, recycling, composting, and disposal programs. Through ISWM, DoD Components seek to determine the most cost effective, energy-efficient, least-polluting ways to deal with the various segments of, and the items typically found in, an installation or facility solid waste stream.

d. **Qualified Recycling Program (QRP)** – A recycling program organized that requires diversion or recovery of recyclable materials from the non-hazardous solid waste stream. QRP proceeds are distributed in accordance with 10 U.S.C. 2577.

e. **Recycling** – Series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.

f. **Reuse** – The subsequent uses of a product after the initial/first use without any change in its identity.

g. **Source Reduction** – Effecting changes in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce the amount or toxicity before they are discarded.

3. The ISWM Hierarchy. Integrated Solid Waste Management employs a hierarchy of approaches and technologies for managing solid waste to maximize resource conservation and protect the environment. Generally, the higher in the hierarchy for the technology or process, the

more benefits gained in efficiency and retained economic value. The ISWM hierarchy is listed below from highest to lowest:

- Source Reduction
- Reuse
- Donation
- Recycling
- Composting/Mulching
- Incineration for Volume Reduction with Energy Recovery
- Other Forms of Volume Reduction
- Landfilling

4. The ISWM Approach. Effective (Non-Hazardous) ISWM programs seek ways to reduce waste generation and optimize the use of all non-hazardous solid waste diversion opportunities before considering disposal. Understanding the waste stream and knowing when reuse, donation, recycling, or composting/mulching are practical and cost effective (i.e., keeping material out of the waste stream reduces the overall cost of waste disposal) enables installations to make good business decisions that reduce waste volume and maximize diversion and potential cost savings. Effective recycling through Qualified Recycling Programs (QRPs) can recover value for material diverted from waste in addition to avoiding disposal costs. Success requires knowledge of opportunities to sell recyclable material and understanding the full impact on solid waste programs based on recycling costs, sales proceeds, and avoided costs.

B. GUIDELINES FOR IMPLEMENTING ISWM.

1. Scope. Below are recommended procedures for implementing ISWM. This is not intended to be a comprehensive guidance manual. There are many other considerations and issues to be addressed in managing an ISWM program in addition to those below. These guidelines focus on reducing waste generation and maximizing diversion from disposal with emphasis on expanding and improving recycling programs.

2. Overall Program Evaluation.

a. Conduct an initial solid waste characterization study to define the basis for the reduction/diversion goal. Also evaluate the composition and seasonal variability of waste streams as well as the weight and waste types present.

b. Review regulations to determine applicable local, state, federal, DoD, and DoD Component, Final Governing Standard, international agreement, and applicable host nation recycling requirements and/or diversion requirements or goals.

c. Review the status of solid waste generation from all sources at least annually. Examples of sources to consider include office trash, non-hazardous industrial waste, non-hazardous process waste, residential trash, construction and demolition wastes, yard wastes, and logistics waste such as packaging.

d. Evaluate waste streams with emphasis on reduced generation. Use waste characterization or annual source inventory results to target and prioritize waste types and waste generation locations for implementing waste reduction. The following are actions that affect source reduction:

(1) Devising manufacturing processes that create fewer or less toxic waste by-products;

(2) Complying with Green Procurement Program (GPP) mandates for all acquisitions. Some GPP practices that target solid waste reduction include:

- Reducing or eliminating packaging
- Purchasing products with low or no toxic or hazardous waste constituents
- Purchasing products from manufacturers that close the procurement loop through use of take back programs that accept return of used products for recycling

3. Economic Analysis/Market Research.

a. Procedures.

(1) Perform an economic analysis of potential diversion opportunities to determine if the opportunity can create a positive economic benefit. The opportunity may be to add a commodity to the QRP or divert the material through other recycling, composting, or donation. The economic analysis should be based on current industry and market research as recommended below.

(2) Perform market research for current and potential items for diversion through the QRP, non-QRP recycling, donation, composting or other diversion opportunity. The following process is suggested:

(a) Estimate installation-wide generated weight/volume of each commodity, including activities that handle their own wastes, such as the Commissary or Post/Base Exchange.

(b) Search a commodity exchange index for regional /national market prices for current and potential commodities for diversion. Determine whether current local market prices for recycled commodities are comparable to the regional /national market prices.

(c) Determine the availability of buyers/brokers. Look locally for direct sales opportunities. Centralized or regional contracting authorities may also be available for direct sales. In addition, the servicing Defense Reutilization Marketing Offices may market certain commodities through regional or national contracts. If no accessible buyer/broker exists for a specific recyclable commodity, document research and do not conduct economic analysis for that commodity. Routinely revisit this commodity for availability of buyers/brokers. If brokers/buyers exist:

(i) Determine buyer/broker requirements for material quantity (e.g. buyer/broker accepts no less than 1 ton lots per transaction) and packaging requirements (e.g. baled, loose, cubed).

(ii) Conduct an economic analysis to determine economic benefit for each commodity to be added to the recycle collection process through an economic analysis.

b. Decision Criteria and Approval.

(1) Non-QRP recycling or donation cost must be less than avoided cost. However, when landfill disposal or incineration is the selected disposal option, these disposal costs must be less than any other diversion option.

(2) For recycling those commodities not required by law, the additional costs to the QRP must be less than the avoided costs plus revenue from the item sale. Avoided costs for on-site landfill disposal should reflect actual costs or the comparable off-site "tipping fee". Cost avoidance calculations should take into consideration the start-up, operations, maintenance, closure and monitoring of on-site landfill. Attention should be given to maximizing the life of an on-site landfill. QRP costs should include labor cost for collection, transportation, and management, as well as non-labor costs for contracts, materials, and program advertising. If the additional cost is less than the avoided costs plus revenue, then it is economically feasible to recycle that commodity: $\text{Additional Cost to QRP} < \text{Avoided Cost} + \text{Revenue}$.

(3) When implementation costs are involved (such as purchasing equipment, upfront labor, expanding facilities, and transportation/energy costs), determine the payback period on the initial investment. Calculate the payback period by dividing the implementation cost by the sum of the annual cost savings and annual revenue. The result will indicate the payback period in years. Decision makers must make a determination of what is an acceptable payback period.

(4) The QRP Manager should present the results of the program review and economic analysis to the installation QRP Committee for approval before beginning any collections or entering into any contracts with buyers/brokers. For installations where recycling is required by law, this decision process can be streamlined.