

CHAPTER 7**SOLID WASTE****7-1 SCOPE**

This Chapter contains criteria to ensure that solid wastes are identified, classified, collected, transported, stored, treated and disposed of safely and in a manner protective of human health and the environment. These criteria apply to non-hazardous solid wastes generated at the installation level.

7-2 DEFINITIONS

7-2.1 **Bulky Waste.** Large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes whose large size precludes or complicates their handling by normal solid waste collection, processing or disposal methods.

7-2.2 **Carry-Out Collection.** Collection of solid waste from a storage area proximate to the dwelling unit(s) or establishment where generated.

7-2.3 **Collection.** The act of consolidating solid wastes (or materials which have been separated for the purpose of recycling) from various locations.

7-2.4 **Collection Frequency.** The number of times collection is provided in a given period of time.

7-2.5 **Commercial Solid Waste.** All types of solid wastes generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential and industrial wastes.

7-2.6 **Compactor Collection Vehicle.** A vehicle with an enclosed body containing mechanical devices that conveys solid waste into the main compartment of the body and compresses it into a smaller volume of greater density.

7-2.7 **Construction and Demolition Waste.** Waste building materials, packaging and rubble from construction, remodeling, repair and demolition operations on pavements, houses, commercial buildings and other structures.

7-2.8 **Curb Collection.** Collection of solid waste placed adjacent to a street.

7-2.9 **Cover Material.** Material that is used to cover compacted solid wastes in a land disposal site.

7-2.10 **Daily Cover.** Soil that is spread and compacted or synthetic material that is placed on the top and side slopes of compacted solid waste at least at the end of each operating day in order to control vectors, fire, moisture, and erosion and to assure an aesthetic appearance.

7-2.11 **Final Cover.** Cover material that serves the same functions as daily cover but, in addition, may be permanently exposed on the surface.

7-2.12 **Food Waste.** The organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage.

7-2.13 **Generation.** The act or process of producing solid waste.

USFJ ENVIRONMENTAL GOVERNING STANDARDS

- 7-2.14 **Hazardous Waste.** A discarded material that may be solid, semi-solid, liquid, or gaseous and exhibits a characteristic of hazardous waste. It may exhibit one or more of the following characteristics: ignitability, corrosivity, reactivity, or toxicity. Further description can be found in Chapter 6: Hazardous Waste.
- 7-2.15 **Industrial Solid Waste.** The non-hazardous solid waste generated by industrial processes and/or manufacturing. These can include: cinder, sludge, used oil, used plastics, waste paper, wood residue, waste fibers, organic residue, waste rubber, waste metals, waste glass and china, slag, animal wastes, dead animals, soot and processed products of this listing.
- 7-2.16 **Institutional Solid Waste.** Solid waste generated by educational, health care, correctional, and other institutional facilities.
- 7-2.17 **Land Application Unit.** An area where wastes are applied onto or incorporated into the soil surface for agricultural purposes or for treatment or disposal.
- 7-2.18 **Municipal Solid Waste.** Residential and commercial waste generated within a community. It can include: paper, garbage, fibers, wood, plastics, rubber, metals, and glass.
- 7-2.19 **Municipal Solid Waste Landfill Unit (MSWLF).** A discrete area of land or an excavation, on a DOD installation, that receives residential waste, and that is not a land application unit, surface impoundment, injection well, or waste pile. A MSWLF unit also may receive other types of wastes, such as commercial solid waste and industrial solid waste.
- 7-2.20 **Open Burning.** Burning of solid wastes in the open, such as in an open dump.
- 7-2.21 **Open Dump.** A land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, is susceptible to open burning, and is exposed to the elements, vectors and scavengers.
- 7-2.22 **Residential Solid Waste.** The wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes.
- 7-2.23 **Rubbish.** A general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments and institutions.
- 7-2.24 **Sanitary Landfill.** A land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day.
- 7-2.25 **Satellite Vehicle.** A small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it.
- 7-2.26 **Scavenging.** The uncontrolled and unauthorized removal of materials at any point in the solid waste management system.
- 7-2.27 **Sludge.** The accumulated semi-liquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluent, dissolved materials in irrigation return flows, or other common water pollutants.
- 7-2.28 **Solid Wastes.** Garbage, refuse, sludge and other discarded materials, including solid, semi-solid, liquid, and contained gaseous materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved material in domestic sewage or other significant pollutants in

water resources, such as silt, dissolved or suspended solids in industrial wastewater effluent, dissolved materials in irrigation return flows or other common water pollutants.

7-2.29 Solid Waste Storage Container. A receptacle used for the temporary storage of solid waste while awaiting collection.

7-2.30 Stationary Compactor. A powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation.

7-2.31 Storage. The interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal.

7-2.32 Street Wastes. Material picked up by manual or mechanical sweepings of alleys, streets, and sidewalks; wastes from public waste receptacles; and material removed from catch basins.

7-2.33 Transfer Station. A site at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile.

7-2.34 Vector Control. Method used to control vectors. Control methods can be covers, traps, chemical spraying, or any combination thereof which will reduce or eliminate vectors from an area.

7-2.35 Vectors. Any organism that carries pathogens from one organism to another. These are most commonly such organisms as mice, rats, insects, and small animals.

7-2.36 Yard Waste. Grass and shrubbery clippings, tree limbs, leaves, and similar organic materials commonly generated in residential yard maintenance (also known as green waste).

7-2.37 Standard Sanitary Landfill Techniques. Those techniques based upon the "Service Solid Waste Management Manual - Navy NAVFAC MO-213, Air Force AFR 91-8, and Army TM 5-634."

7-3 CRITERIA

7-3.1 DOD solid wastes will be collected, treated, stored, and disposed of in facilities that have been evaluated against criteria of this Section. These evaluated facilities will be used to the maximum extent practical.

7-3.2 DOD installations operating MSWLF units will:

- a. Use standard sanitary landfill techniques of spreading and compacting solid wastes and placing daily cover over disposed solid waste at the end of each operating day.
- b. Implement a program to detect and prevent the disposal of hazardous wastes, infectious wastes, polychlorinated biphenyl wastes, and wastes determined unsuitable for the specific MSWLF.
- c. Operate a MSWLF in accordance with the following criteria:
 - (1) The site shall be fenced or otherwise restricted to keep out unauthorized persons.
 - (2) A sign shall be posted at the entrance of the facility to signify the operating hours and any other information deemed necessary for the operation. Sign shall be in both English and Japanese.
 - (3) Cover material shall be graded and sloped in order to provide good drainage of surface water off the site.

USFJ ENVIRONMENTAL GOVERNING STANDARDS

- (4) Excess surface water shall be drained off the site through the use of pipes or dikes and shall be collected in a surface water drainage collection system, for those sites which do not have a leachate collection system.
 - (5) Scattering and spillage of wastes shall be minimized. Portable fencing shall be used, if necessary to prevent wind-blown papers from escaping the site area.
 - (6) Odor control shall be provided, as necessary.
 - (7) Fire fighting equipment shall be readily available on the MSWLF.
 - (8) The installation will prevent the on-site populations of disease vectors by using techniques appropriate for the protection of human health and the environment. Conditions will be maintained that prevent the harboring, feeding and breeding of disease vectors.
 - (9) Operate in a manner to protect aquifers.
 - (10) Any MSWLF which has a leachate collection system, shall ensure that the quality of the final effluent shall conform to the wastewater point source standards as found in Chapter 4 of the JEGS. Leachate collection equipment shall be checked periodically to ensure there are no operational problems.
 - (11) Methane gas generated by the MSWLF shall be properly vented and shall not exceed 25% of the lower explosive limit for methane in the facility.
 - (12) Operational data on the MSWLF will be kept for a minimum of 5 years. Operational data shall consist of:
 - Major operational problems, complaints, or difficulties
 - Results of leachate sampling and analyses
 - Results of gas sampling and analyses
 - Results of ground and surface water quality analyses
 - Vector control efforts
 - Dust and litter control efforts
 - Quantitative measurements of the solid waste handled
 - Description of solid waste materials received
 - (13) Investigate options for composting MSW as an alternative to landfilling or treatment prior to landfilling.
 - (14) Develop procedure for dealing with yard waste and construction debris that keeps it out of MSWLF units to the maximum extent possible (e.g., composting, recycling).
 - (15) Operate in a manner to protect the health and safety of personnel associated with the operation.
 - (16) Prohibit the disposal of bulk or non-containerized liquids.
- d. Grandfather clause. All MSWLF units in operation as of 3 March 1995 shall be permitted to continue operation without any engineering changes necessary, provided they are in full compliance with the respective service compliance assessments, i.e. ECAMP for the Air Force, ECAS for the Army and ECE for the Navy and the Marine Corps. If the facility is not in compliance with service standards, it shall be brought into compliance within two years of 3 March 1995.
- e. All new MSWLF units constructed after 3 March 1995 shall be designed as impervious sanitary landfills with bottom and side linings, leachate collection and treatment, and appropriate aquifer protection. Other

aspects of new MSWLF facilities shall be designed and constructed in accordance with criteria for such as stipulated in each respective service design/construction manuals for sanitary landfills. Notification of the new MSWLF shall be submitted to the Executive Agent at least 6 months in advance of construction.

- f. Closure of all MSWLF units shall include the following:
- (1) A closure plan shall be prepared in accordance with the respective service criteria and submitted to the Executive Agent for notification, at least 6 months prior to the anticipated closure. As a minimum, however, the closure plan should include:
 - A description of the monitoring and maintenance activities required to preserve integrity of the final cover.
 - A description of planned uses during the post-closure period.
 - A survey plot showing the exact site location.
 - (2) A final cover will be installed to minimize infiltration and erosion. The final cover shall have an infiltration layer composed of a minimum of 46 cm (18 inches) of earthen material, geotextiles, or a combination thereof, that have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or to a permeability no greater than 0.00005 cm/sec, whichever is less. The erosion layer will be a minimum of 12 cm (8 inches) of earth material that can sustain native plant growth. The top cover shall be properly graded, sloped and seeded to promote plant growth. Post closure care period will be a minimum of five (5) years.
 - (3) The plan shall be kept on file at the installation indefinitely.

7-3.3 Installations utilizing off-base disposal facilities will ensure the operator has appropriate Japanese permits and licenses. Installations are not required to inspect these facilities. Installations utilizing Japanese contractors for transportation of solid wastes will ensure they are properly licensed by the appropriate Japanese authorities.

7-3.4 Installations will develop and implement a solid waste management strategy to reduce solid waste disposal. This strategy could include recycling, composting, incineration, and waste minimization efforts. Minimization and recycling shall be instituted, where cost effective.

7-3.5 All solid wastes or materials which have been separated for the purpose of recycling will be stored in such a manner that they do not constitute a fire, health or safety hazard or provide food or harborage for vectors, and will be contained or bundled so as to not result in spillage. Lead-acid batteries that are awaiting recycling need to be handled as hazardous materials.

7-3.6 All solid waste will be stored according to the following standards:

- a. Stored so as not to cause a fire, health or safety hazard.
- b. Solid waste containing food wastes is stored in covered or closed containers which are nonabsorbent, leak proof, durable, easily cleaned and designed for safe handling.
- c. Containers are of adequate size and number to contain all waste generated between collections.

7-3.7 Solid waste storage containers shall have the following standards:

- a. Leak proof, waterproof, and vermin-proof, including sides, seams, tops and bottoms.
- b. Durable enough to withstand anticipated usage.

USFJ ENVIRONMENTAL GOVERNING STANDARDS

- c. Are stored on a firm, level, well-drained surface which is large enough to accommodate all of the containers and which is maintained in a clean, spillage-free condition.

7-3.8 Installation personnel should be informed about materials that are prohibited from disposal in solid waste receptacles.

7-3.9 All installations are required to operate their collection systems in a manner which will protect the health and safety of personnel associated with the operation.

7-3.10 Solid waste collection equipment shall be maintained and operated according to the following standards: all vehicles used for collection and transportation of solid waste or materials separated for recycling or for disposal will have suitable cover or must be enclosed to prevent spillage, and are constructed, operated and maintained adequately.

7-3.11 Frequency of collection will be established by each service, in accordance with its own needs: all wastes will be collected with sufficient frequency to inhibit the propagation or attraction of vectors, and the creation of noise, odors, or other nuisances.

7-3.12 Storage of bulky wastes will include, but will not be limited to, removing all doors from large household appliances (unless they are stored in a secure area) and covering the items, if practical, to reduce both the problems of a nuisance, and the accumulation of solid waste and water in and around bulky items. Bulky wastes will be screened for the presence of hazardous constituents and ozone depleting substances, as outlined in Chapter 2 of the JEGS. Readily detachable or removable hazardous wastes will be segregated, collected, stored and disposed of in accordance with Chapter 6 (Hazardous Waste), Chapter 14 (Polychlorinated Biphenyls, PCBs), and Chapter 15 (Asbestos) of the JEGS.

7-3.13 If services choose to utilize a yard waste composting facility, it shall meet the following standards:

- a. A record will be maintained for the characteristics of the waste, including the source and volume.
- b. Access to the facility will be controlled.
- c. By-products will be stored to prevent vector intrusion and aesthetic degradation.
- d. Materials that are not composted will be removed periodically.
- e. Run-off water that has been in contact with waste materials will be diverted to a leachate collection system or materials shall be properly covered.
- f. Temperature and retention time for material being composted will be monitored and recorded.

7-3.14 Installations utilizing a composting facility which is located on a DOD installation and which processes 5,000 tons annually of sludge from a domestic wastewater treatment plant will comply with the following criteria:

- a. Operators must maintain a record of the characteristics of the waste composted, sewage sludge and other materials, such as nutrient or bulking agents being composted including the source and volume or weight of the material.
- b. Access to the facility must be controlled. All access points must be secured when the facility is not in operation.
- c. By-products, including residuals and materials that can be recycled, must be stored to prevent vector intrusion and aesthetic degradation. Materials that are not composted must be removed periodically.

- d. Run-off water that has come in contact with composted waste, materials stored for composting, or residual waste must be diverted to a leachate collection and treatment system.
- e. The temperature and retention time for the material being composted must be monitored and recorded.
- f. Periodic analysis of the compost must be completed for the following parameters:
 - Percentage of total solids
 - Volatile solids as a percentage of total solids
 - pH
 - Ammonia
 - Nitrate nitrogen
 - Total phosphorus
 - Cadmium
 - Chromium
 - Copper
 - Lead
 - Nickel
 - Zinc
 - Mercury
 - Polychlorinated biphenyls
- g. Compost must be produced by a process to further reduce pathogens. Two such acceptable methods are:
 - Windrowing, which consists of an unconfined composting process involving periodic aeration and mixing such that aerobic conditions are maintained during the composting process; and
 - The enclosed vessel method, which involves mechanical mixing of compost under controlled environmental conditions. The retention time in the vessel must be at least 72 hours with the temperature maintained at 55 degrees Celsius. A stabilization period of at least seven days must follow the decomposition period.

7-3.15 Classification and Use of Compost from DOD Composting Facilities. Compost produced at a composting facility which is located on a DOD installation and which processes 5,000 tons of sludge from a domestic wastewater treatment plant annually, must be classified as "Class A" or "Class B" based on the criteria below and, depending on this classification, shall be subject to the restrictions on certain uses.

- a. Class A compost must be stored until the compost is matured, i.e., 60 percent decomposition has been achieved. Class A compost may contain contaminant levels no greater than the levels in Table 7-1. The compost must be stabilized and contain no greater amounts of inert material than indicated.
- b. Class B compost consists of any compost generated which fails to meet Class A standards.
- c. Compost distribution and end use:
 - Compost distributed or marketed as a commercial fertilizer, specialty fertilizer, soil amendment, or plant amendment must be registered with the Executive Agent.
 - Class A compost may be distributed for unrestricted use, including agricultural applications.

USFJ ENVIRONMENTAL GOVERNING STANDARDS

-Class B compost may be distributed on a restricted basis. The Executive Agent shall determine the appropriate distribution for Class B compost based on maturity, extent of decomposition, particle size, moisture content, amount of inert material, use, and the soil characteristics at the point of end use.

7-3.16 Open burning is prohibited, except for infrequent burning of agricultural wastes, silvicultural wastes, land-clearing debris, diseased trees, debris from emergency cleanup operations, or other special situations as waived by the EEA. See Section 6-3.13.

**TABLE 7-1
MAXIMUM CONTAMINANT LEVELS FOR
HAZARDOUS SUBSTANCES IN COMPOST**

SUBSTANCE	MCL(mg/L)	TESTING METHOD
Arsenic	50	1
Cadmium	5	1
Mercury	2	1
Lead	3	2
Organophosphorus	1	2
Chromium VI	1.5	2
Cyanide	1	2
PCBs	0.003	2
Zinc	120	1
Copper	500	1

Testing Method: 1: Whole Content Test (dry)
2: Leaching Test