DoD Manual 4715.05, Volume 5

Overseas Environmental Baseline Guidance Document: Waste

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Approved by:	W. Jordan Gillis, Assistant Secretary of Defense for Sustainment

Purpose: This manual, known as the OEBGD, is composed of multiple volumes, each addressing specific areas of environmental management such as conservation; air and toxics; water; hazardous materials, storage tanks, spills, and pesticides; and waste. In accordance with the authority in DoD Directives (DoDDs) 5134.01 and 4715.1E and the July 13, 2018 Deputy Secretary of Defense Memorandum, and the requirements in DoD Instruction (DoDI) 4715.05:

- This manual:
  - Implements policy, assigns responsibilities, and provides standards to protect human health and the environment on enduring installations under DoD control outside the United States.
  - Considers and, where relevant, incorporates generally accepted federal environmental standards applicable to DoD installations, facilities, and actions in the United States, and incorporates requirements of U.S. law that have extraterritorial application to the DoD.
  - Is used by DoD lead environmental components (LECs) to establish and update final governing standards (FGSs).
  - Establishes baseline environmental standards for installations in countries for which an FGS is not required or has not been developed.
- This volume identifies environmental standards for installations to ensure:
  - Solid waste is collected, transported, stored, and recycled or disposed of in a manner protective of human health and the environment.
  - Hazardous waste is identified, stored, transported, treated, and recycled or disposed of in a manner protective of human health and the environment.
  - Medical waste is handled, stored, treated, and disposed of safely.

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SECTION 1: GENERAL ISSUANCE INFORMATION

1.1. APPLICABILITY.

This volume:

a. Applies to:

(1) OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this issuance as the "DoD Components").

(2) Actions of the DoD Components on installations, as defined in DoDI 4715.05, under DoD control outside the United States.

(3) Support functions for U.S. military vessels, ships, aircraft, and space vehicles provided by the DoD Components, including management and disposal of off-loaded waste or hazardous materials.

b. Does not apply to:

(1) U.S. military vessels, ships, aircraft, or space vehicles.

(2) Off-installation training.

(3) Contingency locations, which are addressed in DoDI 4715.22.

(4) Facilities and activities associated with the Naval Nuclear Propulsion Program, in accordance with Executive Order (E.O.) 12344 and conducted pursuant to Section 7158 of Title 42, United States Code.

(5) Actions to remediate environmental contamination, which are addressed in DoDI 4715.08.

(6) Environmental analyses conducted in accordance with E.O. 12114.

(7) DoD installations that do not have the potential to affect the natural environment (e.g., activities that are primarily administrative) or where, in consultation with the Assistant Secretary of Defense for Sustainment, the geographic Combatant Commander has determined that no significant force health protection or environmental threats exist.

(8) Activities, systems, operations, and areas where DoD has no authority or responsibility including Cooperative Security Locations.

c. Does not create any rights or obligations enforceable against the United States, DoD, or any of its components, nor does it create any standard of care or practice for individuals. Although this manual refers to other DoDDs, DoDIs, and DoD manuals (DoDMs), it is intended only to coordinate the requirements of those issuances as required to implement the policies in DoDI 4715.05. This manual does not change other DoDDs, DoDIs, or DoDMs or alter DoD policies. Conflicts, issues, or concerns related to the country-specific FGS or this manual should be presented to the LEC or the Combatant Commander, as appropriate.

1.2. POLICY.

In accordance with the policy in DoDI 4715.05, the DoD:

a. Manages and applies installation assets to sustain the DoD national defense mission; uses environmental, safety, and occupational health management systems in mission planning and execution across all military operations and activities; and ensures all organizations plan, program, and budget to manage the environmental, safety, and occupational health risks that their activities generate in accordance with DoDD 4715.1E.

b. Establishes, maintains, and complies with the FGSs to protect human health and the environment for those foreign countries identified by the Under Secretary of Defense for Acquisition and Sustainment. The FGSs will reconcile the requirements of applicable international agreements and applicable host-nation (HN) environmental standards with E.O. 12088 and this manual.

c. Ensures that DoD waste generated on installations outside the United States—that is considered hazardous under this manual or the FGS—will not be disposed of in the HN without an agreement as described in Section 5 of Enclosure 3 of DoDI 4715.05.

1.3. INFORMATION COLLECTIONS.

DD Form 1348-1A, “Issue Release/Receipt Document,” and DD Form 1348-2, “Issue Release/Receipt Document with Address Label,” referred to in Paragraph 5.9.c.(3), do not require licensing with a report control symbol in accordance with Enclosure 3, Paragraph 1.b.(7) of Volume 1 of DoDM 8910.01.

SECTION 2: RESPONSIBILITIES

2.1. DIRECTOR, DEFENSE LOGISTICS AGENCY (DLA).

In addition to the responsibilities in Paragraph 2.4., and under the authority, direction, and control of the Under Secretary of Defense for Acquisition and Sustainment through the Deputy Assistant Secretary of Defense for Materiel Readiness, the Director, DLA, participates in the process to determine whether DoD-generated hazardous waste may be disposed of in a foreign nation in accordance with Section 5 of Enclosure 3 of DoDI 4715.05 and Section 5 of this volume.

2.2. DOD COMPONENT HEADS.

The DoD Component heads:

a. Implement the procedures in this volume when no FGS applies.

b. Plan, program, and budget to meet the standards contained in this volume.

2.3. COMBATANT COMMANDERS.

In addition to the responsibilities in Paragraph 2.2., and through the Chairman of the Joint Chiefs of Staff, the Combatant Commanders:

a. Provide general oversight and coordination with the DoD LECs, as necessary, to carry out their missions in accordance with this volume.

b. Adjudicate requests for exceptions to the requirements of this volume in accordance with DoDI 4715.05, when the Military Department requesting the exception is also the DoD LEC. When the Combatant Commander is the DoD LEC and requests an exception, the request is elevated to the Assistant Secretary of Defense for Sustainment for adjudication.

2.4. COMMANDER, UNITED STATES EUROPEAN COMMAND (USEUCOM).

The Commander, USEUCOM, is designated as the DoD Theater Environmental Coordinator for Europe due to the unique construct and influence of the European Union. In addition to the responsibilities in Paragraphs 2.2. and 2.3., the Commander, USEUCOM, oversees the consistent application of this volume at installations within the European Union and geographically located within the USEUCOM area of responsibility. Additional guidance is provided in Enclosure 4 of DoDI 4715.05.

SECTION 3: GENERAL OEBGD GUIDANCE

3.1. USE OF THIS VOLUME AND FGSs.

DoD LECs use this volume to conduct the comparative analysis of waste required to develop each country-specific FGS. The comparative analysis considers HN environmental standards, international agreements, and the standards found in this volume, with the more protective standard being used to establish the FGS. The FGSs ensure consistent application of environmental standards for all installations operated by DoD Components within an HN. Compliance with the standards of this volume is achieved by complying with the current FGSs, since the standards of this volume are reflected in the FGSs. In cases where updates or revisions to this volume have not yet been considered and incorporated into an FGS, installations must comply with the more protective standard, whether it is found in this volume or the FGS.

a. For DoD Components on DoD installations in foreign countries for which FGSs are not required, or have yet to be established, installations must comply with applicable international agreements, applicable HN environmental standards pursuant to Section 1-801 of E.O. 12088, and this volume. In cases of conflicting requirements, the DoD Components will normally comply with the standard that is more protective of human health and the environment.

b. DoD Components will consult with the DoD LEC or, if no DoD LEC is designated, with the applicable Combatant Commander on actions that could seriously affect mission, involve a substantial commitment of funds, or set a precedent.

3.2. WASTE MANAGEMENT.

This volume contains standards for the management of solid, hazardous, and medical waste generated on DoD installations outside the United States. These standards apply to all facilities, tenants, operations, and activities under DoD control on the installation.

3.3. EFFECTIVE DATES.

Standards identified in this manual are effective immediately upon publication. Installations and DoD Components must plan, program, and budget in accordance with Section 6 of Enclosure 3 of DoDI 4715.05.

3.4. NONCOMPLIANCE TERMINOLOGY.

Terms such as “noncompliance,” “out of compliance,” “violation,” “exceedance,” “nonconformity,” and “nonconformance” are used synonymously to describe the condition of failing to meet a standard or a specific limit or value within a standard in this manual.

3.5. SAMPLING AND ANALYTICAL CONSIDERATIONS.

a. In many cases, standards of this manual are based on specific monitoring, sampling, and analytical methods that must be considered when determining compliance or comparing with HN standards.

b. Laboratory analyses necessary to implement the FGS or this volume must normally be conducted in a laboratory that has been certified by a U.S. or HN regulatory authority, or accredited through the DoD Environmental Laboratory Accreditation Program, for the applicable test method and follows required quality assurance and quality control protocol. In the absence of a certified laboratory, analyses may also be conducted at a laboratory that has an established reliable record of quality assurance compliance with standards for the applicable test method that are generally recognized by appropriate industry or scientific organizations.

c. Field sample and data collection must be conducted by personnel with demonstrated experience in the applicable test method and sampling. All procedures used for testing, quality assurance, and reporting of results should be those commonly accepted in the field of air pollution control.

3.6. RECORDKEEPING.

All records generated while implementing the standards in this manual must be maintained by installations in accordance with the FGS, this manual, DoDI 5015.02, and DoD Component policies.

3.7. RELATED PROGRAMS.

Additional guidance about related programs and initiatives that may apply outside the United States is included in other DoD policies and issuances.

a. Pollution prevention is addressed in DoDD 4715.1E and DoDIs 4715.23 and 4150.07.

b. Sustainable procurement is addressed in DoDI 4105.72.

c. Hazard communication is addressed in DoDI 6050.05.

d. Safety and occupational health is addressed in DoDIs 6055.01 and 6055.05.

SECTION 4: SOLID WASTE

4.1. INTRODUCTION.

This section contains standards on solid wastes so they are collected, transported, stored, and recycled or disposed of in a manner protective of human health and the environment. These integrated waste management standards:

a. Apply to institutional, residential, commercial, and industrial solid waste generated at the installation.

b. Address general solid waste not otherwise classified or specially managed. Standards for hazardous and medical waste are provided in Sections 5 and 6. Standards for disposal of asbestos and polychlorinated biphenyls (PCBs) are provided in Sections 5 and 7 of Volume 2.

4.2. GENERAL.

a. DoD solid wastes must be collected, stored, and recycled in a manner that is protective of human health and the environment and consistent with Paragraphs 4.3., 4.4., and 4.5.

b. DoD solid wastes must be treated or disposed of at facilities that meet the requirements for landfills in Paragraph 4.6., incinerators in Paragraph 4.7., or sludge land application in Paragraph 4.8., as appropriate.

c. The disposal of solid waste in landfills that do not meet the standards of Paragraph 4.6. constitutes open dumping and is prohibited.

d. Except as provided in Paragraph 4.6.c.(5), open burning of solid waste is prohibited.

e. Personnel performing solid waste management activities should be trained in accordance with assigned responsibilities.

f. Installations must maintain records associated with the design, operation, and maintenance of solid waste management facilities, as appropriate.

4.3. COLLECTION.

Installations must:

a. Ensure all vehicles used for the collection and transportation of solid waste are enclosed or have adequate provisions so there is no spillage when vehicles are in transit.

b. Collect solid waste frequently enough to inhibit the propagation or attraction of vectors and pests. At a minimum, collect solid waste containing food waste weekly. In some climates, it

may be necessary to collect waste more often to inhibit the propagation or attraction of vectors and pests.

Installations must:

a. At a minimum, store bulky wastes by removing all doors from large household appliances and covering the items. Such practices are necessary to reduce the attractive nuisance (i.e., hazard to children) and the accumulation of solid waste and water in and around the bulky items. Refer to Section 4 for solid waste management requirements associated with municipal waste combustor units.

(1) Screen bulky wastes for the presence of ozone-depleting substances in accordance with Section 4 of Volume 2 or hazardous constituents in accordance with Section 5 of this volume.

(2) Segregate and dispose of readily detachable or removable hazardous waste in accordance with Section 5 of this volume, or asbestos and PCBs in accordance with Sections 5 and 7 of Volume 2.

b. Design all buildings or other facilities that are constructed, modified, or leased after the effective date of this manual to:

(1) Provide adequate storage to accommodate the anticipated volume of solid waste and recyclables.

(2) Ensure storage areas are easily cleaned and maintained and allow for safe, efficient collection.

c. Securely store solid waste that contains food waste in containers that:

(1) Are leak-proof, waterproof, and vermin-proof, including sides, seams, and bottoms.

(2) Are durable enough to withstand anticipated use and environmental conditions without rusting, cracking, or deforming in a manner that impairs serviceability.

(3) Have functional lids.

d. Store containers on a firm, level, well-drained surface that is large enough to accommodate all of the containers and is maintained in a clean, spillage-free condition.

4.5. RECYCLING.

Installations must:

a. Recycle:

(1) Office paper if there are more than 100 office workers.

(2) Cardboard if more than 10 tons are generated per month.

(3) Newspapers if more than 500 families reside on the installation.

b. Store all solid wastes or materials that have been separated for recycling so they:

(1) Do not create a fire, health, or safety hazard.

(2) Do not provide food or harborage for vectors and pests.

(3) Are contained or bundled to avoid spillage.

c. If implementing a qualified recycling program, institute it in accordance with DoDI 4715.23.

4.6. LANDFILLS.

Installations must comply with these standards for the expansion and construction of new landfill units and the operation of existing and new landfills. Landfills failing to satisfy these standards constitute open dumps, which are prohibited. Landfills on DoD installations must meet all of the requirements of this paragraph. Installations disposing of solid waste at HN landfills must ensure the landfills comply with the requirements of Paragraph 4.6.c. If the landfill complies with the standards of this paragraph, sewage sludge may be disposed of in a municipal solid waste landfill (MSWLF). Installations must:

a. Not initiate new landfill units or expand existing waste landfill units without consulting with the LEC and the Combatant Commander who has responsibility for the area where the landfill would be located. New construction or expansion is only permissible after the installation commander provides sufficient justification to the responsible LEC or Combatant Commander that no suitable alternative exists.

b. Design and operate new DoD MSWLF units that incorporate these factors:

(1) Location restrictions regarding airport safety (e.g., bird hazards), floodplains, wetlands, aquifers, seismic zones, and unstable areas.

(2) Procedures for excluding hazardous waste.

(3) Cover material standards (e.g., daily cover), disease vector control, explosive gas control, air quality standards (e.g., no open burning), access requirements, liquids restrictions, and recordkeeping requirements.

(4) An inspection program.

(5) A liner and leachate collection system designed and installed consistent with Unified Facilities Criteria 3-240-10A and in consideration of the location to prevent groundwater contamination that would adversely affect human health.

(a) Liners must consist of a minimum 30-mils [0.762-millimeter] flexible membrane liner and at least a 0.6-meter [2-foot] layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters (cm) per second [3.94×10^{-8} inches per second]. Liner components consisting of high-density polyethylene must be at least 60-mils [1.524-millimeter] thick.

(b) Leachate collection systems must be designed and constructed to maintain less than 30-cm [11.8-inch] depth of leachate over the liner.

(6) A groundwater monitoring system unless the installation operating the landfill, after consultation with the LEC, determines that there is no reasonable potential for migration of hazardous constituents from the MSWLF to the uppermost aquifer during the active life of the facility and the post-closure care period.

(7) A written closure plan that is kept as part of the installation's permanent records, with a minimum period of 5 years post-closure period. The plan must include, at a minimum:

(a) Monitoring and maintenance activities required to ensure the integrity of the final cover.

(b) Planned uses of the site during the post-closure period.

(c) Plans for continuing (during the post-closure period) leachate collection, groundwater monitoring, and methane monitoring.

(d) A survey plot showing the exact site location.

c. When operating MSWLF units:

(1) Use standard landfilling techniques of spreading and compacting solid wastes and placing daily cover over disposed solid waste at the end of each operating day to control disease vectors, fires, odors, blowing litter, and scavenging.

(2) Establish standards for unacceptable wastes based on site-specific factors, such as hydrology, chemical and biological characteristics of the waste, available alternative disposal methods, environmental and health effects, and the safety of personnel.

(3) Implement a program to detect and prevent the disposal of hazardous wastes, infectious medical wastes, PCBs, and wastes determined unsuitable for the specific MSWLF unit.

(4) Investigate options for composting municipal solid waste (MSW) as an alternative to landfilling or treatment before landfilling.

(5) Prohibit open burning, except for infrequent burning of agricultural wastes, silvicultural wastes, land-clearing debris, diseased trees, or debris from emergency cleanup operations.

(6) Develop procedures to divert recyclables, yard waste, and construction and demolition debris from MSWLF units to the maximum extent possible (e.g., composting, recycling).

(7) Operate the MSWLF unit in a manner to protect the health and safety of personnel associated with the operation.

(8) Maintain conditions that are unfavorable for the harboring, feeding, and breeding of disease vectors.

(9) Ensure that methane gas generated by the MSWLF unit does not exceed 25 percent of the lower explosive limit for methane in structures on or near the MSWLF.

(10) Operate in an aesthetically acceptable manner.

(11) Operate in a manner to protect aquifers.

(12) Control public access to landfill facilities to prevent illegal dumping of waste and scavenging.

(13) If possible, prohibit the disposal of bulk or noncontainerized liquids.

(14) Maintain records of MSWLF operations specified in Paragraphs 4.6.c.(1) through 4.6.c.(13).

d. During closure and post-closure:

(1) Install a final cover system that is designed to minimize infiltration and erosion.

(2) Ensure the infiltration layer is composed of a minimum of 46 cm [18 inches] of earthen material, geotextiles, or a combination of the two, with a permeability:

(a) Less than or equal to the permeability of any bottom liner system or natural subsoil present, or

(b) No greater than 5×10^{-5} cm per second [1.97×10^{-5} inch per second], whichever is less.

(3) Ensure the final layer consists of a minimum of 21 cm [8 inches] of earthen material that is capable of sustaining native plant growth.

(4) If possible, revegetate the final cap with native plants that are compatible with the landfill design, including the liner.

4.7. INCINERATION.

a. Installations operating incinerators must meet the air quality requirements in Section 4 of Volume 2.

b. Installations operating MSW incinerators processing, or designed to process, more than 50 tons per day aggregate must also:

(1) Establish standards for acceptable and unacceptable wastes based on facility capability, chemical and biological characteristics of the waste, environmental and health effects, and personnel safety.

(2) Treat all waters discharged from the facility to meet the more protective of applicable water quality standards. See Section 5 of Volume 3 for wastewater and stormwater standards.

(3) Maintain conditions that are unfavorable for the harboring, feeding, and breeding of disease vectors.

(4) Operate in an aesthetically acceptable manner (e.g., perform routine housekeeping and regularly remove waste that cannot be processed by the facility).

(5) Characterize and dispose of residue and other solid waste resulting from incineration in an environmentally acceptable manner. See Section 5 for waste characterization and hazardous waste management standards.

c. Sewage sludge may be incinerated in an MSW incinerator if the incinerator accepts sewage sludge and has appropriate storage for the sludge while it awaits processing.

4.8. LAND APPLICATION OF SEWAGE SLUDGE.

Installations must comply with the following requirements for land application of sewage sludge.

a. Landfilling, incineration, and land application are acceptable methods of disposal of sewage sludge. Sewage sludge that is landfilled or incinerated must meet the requirements in Paragraph 4.6. or 4.7, respectively.

b. Sewage sludge that has been properly treated and processed becomes biosolids, and can be applied to the land for beneficial reuse to either condition the soil or fertilize crops or other vegetation grown in the soil. Biosolids must meet pollutant limits, pathogen reduction requirements, and vector attraction reduction requirements before land application.

(1) Ensure biosolids applied to the land meet:

(a) The ceiling concentration for the pollutants shown in Table 1.

Table 1. Sewage Sludge Pollutant for Land Application

POLLUTANT	CEILING CONCENTRATION	CUMULATIVE POLLUTANT LOADING RATE	MONTHLY AVERAGE CONCENTRATION	ANNUAL POLLUTANT LOADING RATE
	(mg/kg)*	(kg/hectare)	(mg/kg)*	(kg/hectare/ 365-day period)
Arsenic	75	41	41	2.0
Cadmium	85	39	39	1.9
Copper	4,300	1,500	1,500	75
Lead	840	300	300	15
Mercury	57	17	17	0.85
Molybdenum	75			
Nickel	420	420	420	21
Selenium	100	100	100	5.0
Zinc	7,500	2,800	2,800	140

mg = milligram, kg = kilogram
* Dry weight basis.

(b) Either the cumulative pollutant loading rate, monthly average concentration, or annual loading rate.

4.9. ALTERNATIVE TECHNOLOGIES.

Alternative technologies and methods of treatment and disposal of solid waste must be protective of human health and the environment and meet the requirements of this volume, as appropriate.

SECTION 5: HAZARDOUS WASTE

5.1. INTRODUCTION.

This section contains standards on all hazardous waste generated so it is identified, characterized, stored, transported, treated, and recycled or disposed of in a manner protective of human health and the environment. It covers wastes that exhibit one or more characteristics of hazardous waste (ignitability, corrosivity, reactivity, or toxicity) or which are listed hazardous wastes. It does not cover:

a. Ammunition and explosives, which are covered in Defense Explosives Safety Regulation 6055.09.

b. Radioactive materials, which are covered in DoDI 4715.27.

5.2. PERSONNEL QUALIFICATIONS.

Installations must ensure that personnel and their supervisors who are assigned duties involving actual or potential exposure to hazardous waste successfully complete an appropriate training program before assuming those duties. Personnel assigned to such duties must work under direct supervision until they have completed appropriate training.

a. Refresher Training.

All personnel performing hazardous waste duties must successfully complete annual refresher hazardous waste training.

b. Training Contents and Requirements.

The training program must:

(1) Include sufficient information to enable personnel to perform their assigned duties and fully comply with pertinent hazardous waste requirements.

(2) Be conducted by qualified personnel who have completed a training program in the subject, have comparable academic credentials, or possess relevant experience.

(3) Be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems.

(4) Address the following areas, in particular for personnel whose duties include hazardous waste handling and management:

(a) Emergency procedures (response to fire, explosion, and spills; use of communications and alarm systems; body and equipment decontamination).

(b) Drum and container handling and storage (including waste compatibility and segregation requirements); safe use of hazardous waste equipment; proper sampling procedures.

(c) Employee protection, including personal protective equipment, safety and health hazards, hazard communication, and worker exposure.

(d) Recordkeeping, security, inspections, spill prevention and response plans, storage requirements, and transportation requirements.

c. Documentation of Training.

Installations must document all hazardous waste training for each individual assigned duties involving actual or potential exposure to hazardous waste. Updated training records must be kept by the responsible facility manager or installation office and retained for at least 3 years after termination of duty of these personnel.

5.3. HAZARDOUS WASTE DETERMINATION AND CHARACTERIZATION.

Generators must:

a. Identify and characterize the solid wastes generated at their site using their knowledge of the materials and processes that generated the waste, or through laboratory analysis of the waste.

b. Identify inherent hazardous characteristics associated with a solid waste in terms of physical properties (e.g., solid, liquid, contained gases), chemical properties (e.g., chemical constituents, technical or chemical name), or other descriptive properties (e.g., ignitable, corrosive, reactive, toxic). The properties defining the characteristics should be measurable by standardized and available testing protocols. A hazardous waste or any mixture of a solid waste and a hazardous waste that is listed solely because it exhibits one or more characteristics of ignitability, corrosivity, or reactivity, is not a hazardous waste if the waste no longer exhibits any characteristic of hazardous waste. See Appendix 5A and Tables 2 through 6 for characteristics of hazardous wastes and lists of hazardous wastes.

c. Prepare and maintain a Hazardous Waste Profile Sheet (HWPS) to identify each hazardous waste stream. The HWPS must be updated by the generator, as necessary, to reflect any new waste streams or process modifications that change the character of the hazardous waste being generated.

d. Use a unique (generator specific) identification number for all recordkeeping, reports, and manifests for hazardous waste.

5.4. HAZARDOUS WASTE ACCUMULATION POINTS (HWAPS).

Installations must ensure that HWAPs comply with the following standards.

a. An HWAP must be at or near the point of generation and under the control of the operator.

b. Each HWAP must be designed and operated to provide appropriate segregation for different waste streams, including those that are chemically incompatible. Each HWAP must have warning signs appropriate for the waste being accumulated at that site. Each HWAP container must be labelled as hazardous waste or with an indication of the hazards of the contents (e.g., hazardous waste characteristic, hazard statement, chemical hazard label).

c. An HWAP may accumulate no more than the equivalent of a 208-liter [55-gallon] drum of hazardous waste, or a 1-liter [1-quart] container of acute hazardous waste, from each waste stream, at or near the point of generation. When these limits have been reached, the generator has 5 working days to move the hazardous waste to a hazardous waste storage area (HWSA) or ship it off-site for treatment or disposal. Wastes designated to be recycled or used for energy recovery (e.g., used oil or antifreeze), in accordance with the installation's hazardous waste management program, are exempt from the 208-liter [55-gallon] and 1-liter [1-quart] volume accumulation limits, but must be transported off-site to a final destination facility within 1 year of first accumulation start date.

d. Installations must have procedures in place to deal with unknown wastes.

e. All standards for use and management of containers in Paragraph 5.6. apply to HWAPs with the exception of weekly inspections in Paragraph 5.6.b.(5).

f. The recordkeeping requirements for turn-in documents, manifests, and waste analysis and characterization records in Paragraphs 5.11.c.(1), 5.11.c.(4), and 5.11.c.(5) apply to HWAPs.

5.5. HWSAS.

Installations must ensure that HWSAs comply with the following standards.

a. Location Standards.

To the maximum extent possible, all HWSAs must be located to minimize the risk of release due to seismic activity, floods, or other natural events. For facilities located where they may face such risks, the installation spill prevention and response plan must address the risk.

b. Design and Operation of HWSAs.

HWSAs must be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or any unplanned release of hazardous waste or hazardous waste constituents to air, soil, groundwater or surface water that could threaten human health or the environment. Hazardous waste must not be stored longer than 1 year in an HWSA. Installations generating more than 1,000 kg [2,204 pounds] per month of hazardous waste, or 1 kg [2.2 pounds] per month of acute hazardous waste, should remove waste within 90 days.

c. Waste Analysis and Verification.

(1) Waste Analysis Plan.

The HWSA manager, in conjunction with the generator(s) served, will develop a plan to determine how and when wastes are to be analyzed. The waste analysis plan will include procedures for characterization and verification testing. The plan must include parameters for testing and the rationale for choosing them, frequency of analysis, test methods, and sampling methods.

(2) Waste Analysis Records.

The HWSA must have, and keep on file, an HWPS for each waste stream that is stored at that HWSA.

(3) Waste Verification.

Generating activities will provide identification of incoming waste on the HWPS to the HWSA manager. Before accepting the waste, the HWSA manager will:

(a) Inspect the waste to ensure it matches the description provided.

(b) Ensure that no waste is accepted for storage unless an HWPS is provided, or is available and properly referenced.

(c) Request a new HWPS from the generator if there is reason to believe that the process generating the waste has changed.

(d) Analyze waste shipments in accordance with the waste analysis plan to determine whether it matches the waste description on the accompanying manifest or other documentation.

(e) Reject wastes that do not match the accompanying waste descriptions unless the generator provides an accurate description.

(4) Waste Identification.

HWSA managers should have an appropriate plan in place for the acceptance or identification of unknown waste.

d. Security.

(1) General.

The installation must prevent the accidental entry, and minimize the possibility for unauthorized entry, of persons or livestock onto the HWSA grounds.

(2) Security System Design.

An acceptable security system for an HWSA consists of either:

(a) A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or other designated personnel) that continuously monitors and controls entry into the HWSA; or

(b) An artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff) that completely surrounds the HWSA, combined with a means to control entrance at all times (e.g., an attendant, television monitors, locked gate, or controlled roadway access).

(3) Required Signs.

A sign with the legend "Danger: Unauthorized Personnel Keep Out," must be posted at each entrance to the HWSA, and at other locations, in sufficient numbers to be seen from any approach to the HWSA. The legend must be written in English and the predominant language of the HN, and must be legible from a distance of at least 7.62 meters [25 feet]. Existing signs with a legend other than "Danger: Unauthorized Personnel Keep Out," may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the HWSA, and that entry can be dangerous.

e. Required Aisle Space.

Aisle space must allow for unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation during an emergency. Containers must not obstruct an exit.

f. Required Equipment.

(1) All HWSAs must be equipped with the following:

(a) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to HWSA personnel.

(b) A device, such as an intrinsically safe telephone (immediately available at the scene of operations), a hand-held two-way radio, or mobile telephone capable of summoning emergency assistance from installation security, fire departments, or emergency response teams.

(c) Portable fire extinguishers, fire control equipment appropriate to the material in storage (including special extinguishing equipment, as needed, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.

(d) Water at adequate volume and pressure to supply water hose streams, foam-producing equipment, automatic sprinklers, or water spray systems.

(e) Readily available personal protective equipment appropriate to the materials stored, and eyewash and shower facilities.

(2) Communications alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be maintained to ensure its proper operation in time of emergency.

g. Access to Communications or Alarm System.

(1) Whenever hazardous waste is being poured, mixed, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another person.

(2) If there is only one person on duty at the HWSA premises, that person must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance.

h. General Inspection Requirements.

(1) General.

Installations must inspect the HWSAs for malfunctions and deterioration, operator errors, and discharges that may be causing, or may lead to, a release of hazardous waste constituents to the environment or threat to human health.

(2) Types of Equipment Covered.

Inspections must include all equipment and areas that are involved in the storage and handling of hazardous waste and are important to preventing, detecting, or responding to environmental or human health hazards. This includes all containers and areas with containers, tank systems and associated piping, and all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps).

(3) Inspection Schedule.

Inspections must be conducted according to a written schedule that is kept at the HWSA. The schedule must identify the types of problems (e.g., malfunctions or deterioration) that are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, or eroding dike).

(4) Frequency of Inspections.

Minimum frequencies for inspecting containers and container storage areas are found in Paragraph 5.6.b.(5). Minimum frequencies for inspecting tank systems are found in Paragraph 5.7.d.(2). For equipment not covered by those sections, inspection frequency should be based on the rate of possible deterioration of the equipment and probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.

(5) Remedy of Problems Revealed by Inspection.

If an inspection reveals any deterioration or malfunction of equipment or structures, the installation must remedy that deficiency in a timely manner to prevent an environmental or human health hazard. Where a hazard is imminent or has already occurred, action must be taken immediately.

(6) Maintenance of Inspection Records.

The installation must record inspections in an inspection log or summary and keep the records for at least 3 years from the date of inspection. At a minimum, these records must include the date and time of inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

i. Storage Practices.

(1) Incompatible Wastes.

Ignitable, reactive, or incompatible wastes must be stored so that they do not threaten human health or the environment. Dangers resulting from improper storage of incompatible wastes include generation of extreme heat, fire, explosion, and generation of toxic gases.

(2) Ignitable or Reactive Wastes.

The HWSA manager must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste.

(a) This waste must be separated and protected from sources of ignition or reaction including, but not limited to, open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat.

(b) While ignitable or reactive waste is being handled, the HWSA personnel must confine smoking and open flame to specially designated locations. "No Smoking" signs, or signs with the appropriate "No Smoking" icon, must be conspicuously placed wherever there is a hazard from ignitable or reactive waste. In areas where access by non-English speaking persons is expected, the "No Smoking" legend must be written in English and the predominant language of the HN.

(c) Water reactive waste cannot be stored in the same area as flammable and combustible liquid.

j. Closure and Closure Plans.

(1) Closure Plan.

Installations must prepare closure plans for all new and existing HWSAs. Closure plans for a new HWSA must be developed before the HWSA is opened. The closure plan will be

implemented concurrent with the decision to close the HWSA. The closure plan must include estimates of the storage capacity of the hazardous waste, steps to be taken to remove or decontaminate all waste residues, and an estimate of the expected date for closure.

(2) Closure.

When the decision is made to close an HWSA, the closure plan must be implemented. Closure should be done:

(a) In a manner that eliminates or minimizes the need for future maintenance or the potential for future releases of hazardous waste.

(b) According to the closure plan, including removal of all hazardous waste and hazardous waste residues from the containment system, including remaining containers, liners, and bases.

5.6. USE AND MANAGEMENT OF CONTAINERS.

Installations must ensure that hazardous waste containers comply with the following standards.

a. Container Handling and Storage.

(1) Containers holding hazardous waste must be in good condition, free from severe rusting, bulging, or structural defects.

(2) Containers used to store hazardous waste, including overpack containers, must be compatible with the materials stored.

b. Management of Containers.

(1) Containers holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

(2) Containers holding hazardous waste must not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

(3) Containers of flammable liquids must be grounded when transferring flammable liquids from one container to the other.

(4) Containers holding hazardous waste must be marked with a hazardous waste marking.

(5) HWSAs where containers are stored must be inspected weekly for leaking and deteriorating containers as well as deterioration of the containment system caused by corrosion or other factors. Secondary containment systems must be inspected for defects and emptied of accumulated releases or retained stormwater.

c. Secondary Containment Systems.

HWAPs and HWSAs with containers must have a secondary containment system that meets the following standards:

(1) Must be sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

(2) Must have sufficient capacity to contain 10 percent of the volume of stored containers or the volume of the largest container, whichever is greater.

(3) HWAPs and HWSAs with containers holding only wastes that do not contain free liquids do not need to have a containment system as described in Paragraphs 5.6.c.(1) and 5.6.c.(2) provided:

(a) The area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation; or

(b) The containers are elevated or are otherwise protected from contact with accumulated liquid.

(4) Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system. Stormwater captured in secondary containment areas should be inspected or tested before release. The inspection or testing must be reasonably capable of detecting contamination by the hazardous waste in the containers. Contaminated water must be treated as hazardous waste until determined otherwise.

d. Incompatible Wastes.

(1) Incompatible wastes and materials must not be placed in the same container.

(2) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

(3) A storage container holding hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments, must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

e. Ignitable or Reactive Waste.

Areas that store containers holding ignitable or reactive waste must be located at least 15 meters [50 feet] inside the installation's boundary.

f. Residues of Hazardous Waste in Containers.

All containers must be emptied of hazardous waste residues before they are disposed. Hazardous waste residues must be managed as hazardous waste. Empty containers may be disposed of as normal solid waste. A container is considered empty when all wastes have been removed that can be removed through normal practices (e.g., pouring or pumping) and for containers holding:

(1) Hazardous waste, where all waste has been removed with no more than 2.5 cm [1 inch] of residue remains or, if the container is less than or equal to 450 liters [119 gallons], no more than 3 percent by weight of total capacity of the container remains, or, if the container is greater than 450 liters [119 gallons], no more than 0.3 percent by weight of the total capacity if the container remains.

(2) Acute hazardous waste, where the container or inner liner has been triple rinsed using a solvent capable of removing acute hazardous waste or has been cleaned by another method that has been shown in scientific literature, or by tests conducted by the generator, to achieve equivalent removal. A container with a liner is empty when the liner has been removed if the liner has prevented contact of the container with the acute hazardous waste.

(3) Compressed gas hazardous waste, when the pressure in the container approaches atmospheric. Compressed gas cylinders should be managed in accordance with DLA Instruction 4145.25.

5.7. TANK SYSTEMS.

Installations must ensure that all tanks (including underground storage tanks) used to treat or store hazardous waste comply with the following standards. See Section 6 of Volume 4 for standards dealing with underground storage tanks containing petroleum, oil, and lubricants and hazardous substances. Tank systems that are used to store or treat hazardous waste that contain no free liquids and are situated inside a building with an impermeable floor are exempted from the secondary containment requirements in Paragraph 5.7.c. Tank systems, including sumps that serve as part of a secondary containment system to collect or contain releases of hazardous waste, are exempt from the requirements in Paragraph 5.7.c.

a. Assessment of Existing Tank System Integrity.

For each existing tank system that does not have secondary containment meeting the requirements of Paragraph 5.7.c, installations must determine annually whether the tank system is leaking or is fit for use. Installations must obtain, and keep on file at the HWSA, a written assessment of tank system integrity reviewed and certified by a competent authority.

b. Design and Installation of New Tank Systems or System Components.

Managers of HWSAs installing new tank systems or system components must obtain a written assessment, reviewed and certified by a registered professional engineer or HN equivalent, attesting that the tank system has sufficient structural integrity and is acceptable for

storing and treating hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail.

c. Containment and Detection of Releases.

To prevent the release of hazardous waste or hazardous constituents from tank systems to the environment, installations must:

(1) Provide secondary containment that includes a liner (external to the tank), a vault, a double-walled tank, or an equivalent device for all new and existing tank systems or components storing hazardous waste.

(2) Design, install, and operate secondary containment to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system.

(3) Construct secondary containment of, or line it with, materials that are compatible with the wastes(s) to be placed in the tank system and have sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic).

(4) Place the secondary containment on a foundation or base capable of providing support to the system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compressions, or uplift.

(5) Provide a leak-detection system that is designed and operated to detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time.

(6) Slope or otherwise design or operate the secondary containment system to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours, or in as timely a manner as possible, to prevent harm to human health and the environment.

d. Operation and Inspection.

(1) Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

(2) The installation must inspect and log at least once each operating day:

(a) The aboveground portions of the tank system, if any, to detect corrosion or releases of waste.

(b) Data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design.

(c) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes) to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation).

(3) The installation must inspect cathodic protection systems to ensure that they are functioning properly. The proper operation of the cathodic protection system must be confirmed within 6 months after initial installation and annually thereafter. All sources of impressed current must be inspected or tested, as appropriate, or at least every other month. The installation manager must document the inspections in the operating record of the HWSA.

e. Response to Leaks or Spills.

A tank system or secondary containment system from which there has been a leak or spill, or that is unfit for use, must be removed from service and immediately repaired or closed. Spills must be addressed in accordance with Section 7 of Volume 4. Installations must immediately:

(1) Stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.

(2) Conduct an inspection of the release and based on that inspection:

(a) Prevent further migration of the leak or spill to soil or surface water.

(b) Remove and properly dispose of any contaminated soil or surface water.

(c) Remove free product to the maximum extent possible.

(d) Continue monitoring and mitigating for any additional fire and safety hazards posed by vapors or free products in subsurface structures.

(3) Make required notifications and reports.

f. Closure.

At closure of a tank system, the installation must remove or decontaminate hazardous waste residues, contaminated containment system components (liners, etc.), contaminated soil to the extent practicable, and structures and equipment.

5.8. MANAGEMENT OF USED OIL, BATTERIES, ANTIFREEZE, AND WIPES.

Installations must ensure that used oil, batteries, antifreeze, and wipes are managed and disposed of in accordance with the following standards.

a. Used Oil Burned for Energy Recovery.

Used oil fuel may be burned only in the following devices:

(1) Industrial furnaces.

(2) Boilers that are identified as:

(a) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes.

(b) Utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids.

(c) Used oil-fired space heaters, provided that:

1. The heater burns only used oil that the installation generates.

2. The heater is designed to have a maximum capacity of not more than 527.5 kilojoules [0.5 million British thermal unit per hour].

3. The combustion gases from the heater are properly vented to the ambient air.

b. Prohibitions on Dust Suppression or Road Treatment.

Installations must not use used oil, hazardous waste, or used oil contaminated with any hazardous waste for dust suppression or road treatment.

c. Disposal of Batteries.

Installations should recycle all batteries when possible. Batteries that are not recycled may be managed as solid waste if determined not to be hazardous in accordance with Paragraph 5.3.

d. Disposal of Antifreeze.

Installations should recycle all antifreeze when possible. Antifreeze that is not recycled may be managed as solid waste if determined not to be hazardous in accordance with Paragraph 5.3.

e. Management of Used Wipes.

Used wipes must be characterized in accordance with Paragraph 5.3. and managed accordingly. Solvent-contaminated wipes may be managed as follows:

(1) Solvent-contaminated wipes that are sent for cleaning at an industrial laundry or dry cleaner and reused are not hazardous waste when all free liquid has been removed and they are stored in closed, non-leaking containers labeled as "reusable wipes." The solvent-contaminated wipes may be accumulated for up to 180 days from the start date of accumulation for each container before being sent for cleaning.

(2) Disposable solvent-contaminated wipes (except those containing trichloroethylene) are not hazardous waste when all free liquid has been removed and they are stored in closed, non-leaking containers labeled as "disposable wipes." The solvent-contaminated wipes may be accumulated for up to 180 days from the start date of accumulation for each container before being sent for disposal.

(3) The conditions in Paragraphs 5.8.e.(1) and 5.8.e.(2) only apply to the solvent-contaminated wipes themselves. Any free liquid removed from the solvent-contaminated wipes or from the container holding the wipes must still be managed according to applicable requirements of this section.

5.9. HAZARDOUS WASTE DISPOSAL.

Installations must ensure that hazardous waste is disposed of in accordance with the following standards.

a. Disposal Through DLA Disposition Services.

All DoD hazardous waste must be disposed of through the DLA Disposition Services, except as follows:

(1) A decision not to use DLA Disposition Services for hazardous waste disposal may be made in accordance with Volume 4 of DoDM 4160.21 to best accomplish the installation mission.

(2) A decision must have the concurrence of the DoD Component chain of command to ensure that, if waste is disposed of in the HN, the standards of Paragraph 5.9.b. have been met and installation contracts and disposal standards are at least as protective as those used by the DLA Disposition Services.

(3) Decisions must be documented in accordance with DoD Component guidelines.

b. Disposal Location.

DoD Components must ensure that hazardous waste generated by DoD operations and considered hazardous under either U.S. law or applicable HN standards is not disposed of in the HN unless the disposal complies with this manual and is in accordance with any applicable international agreements. If there is no international agreement that grants disposal authority, DoD Components must obtain concurrence from the appropriate authorities of the HN. The United States will not have continuing responsibility for the hazardous waste after it has been disposed of in accordance with this manual or applicable international agreements. To the

maximum extent practicable, DoD Components will dispose of hazardous waste so as to not retain any future liability for the waste or contractually retain any markings or other indication of ownership of the waste.

(1) When the requirements of Paragraph 5.9.b. cannot be met, DoD Components will dispose of hazardous waste in the United States or in another foreign nation where the applicable conditions are met.

(2) The determination of whether particular DoD-generated hazardous waste may be disposed of in an HN will be made by the LEC, in coordination with the Combatant Commander, the Director, DLA, other relevant DoD Component heads, and the chief of the U.S. diplomatic mission, in accordance with Paragraph 5.9.c.(5).

c. Disposal Procedures.

(1) Pre-Transport.

When transporting hazardous waste via commercial transportation on HN public roads and highways, hazardous waste generators will prepare off-installation hazardous waste shipments in compliance with applicable HN transportation regulations. Requirements may include placarding, marking, containerization, and labeling. Hazardous waste designated for international transport will be prepared in accordance with applicable international regulations. In the absence of HN regulations, international standards will be used.

(2) Transportation.

When transporting hazardous waste via military vehicle on HN public roads and highways, generators will ensure compliance with Parts I, II, III, and IV of Defense Transportation Regulation 4500.9-R, applicable international agreements, and HN transportation regulations.

(3) Manifesting.

All hazardous waste leaving the installation must be accompanied by a manifest to ensure a complete audit trail from point of origin to ultimate disposal. HN forms must be used when applicable; otherwise, DD Form 1348-1A or DD Form 1348-2, available at https://www.esd.whs.mil/Directives/forms/, will be used. This manifest must include:

(a) Generator’s name, address, and telephone number.

(b) Generator’s unique identification number.

(c) Transporter’s name, address, and telephone number.

(d) Destination name, address, and telephone number.

(e) Description of waste.

(f) Total quantity of waste.

(g) Date of shipment.

(h) Date of receipt.

(4) Audit Trail.

Generators must maintain an audit trail of hazardous waste from the point of generation to disposal.

(a) Generators using DLA Disposition Services will maintain a record from the initial DLA Disposition Services receipt of the waste, including receipt in place, at which time the DLA Disposition Services assumes responsibility of the waste. DLA must provide a copy of the manifest (or other documentation) at the time of final disposal. A generator that uses the hazardous waste management or disposal program of a DoD Component with a different unique identification number must maintain documentation from the receiving component. The receiving component assumes responsibility for subsequent storage, transfer, and disposal of the waste.

(b) If DLA does not provide disposal services at a particular installation, generators desiring to dispose of their hazardous waste outside the DLA Disposition Services system must provide an audit trail from point of generation to ultimate disposal.

(5) Disposal in HN.

(a) In addition to meeting the requirements in Paragraph 5.c. of Enclosure 3 of DoDI 4715.05 to determine whether hazardous waste may be disposed of in the HN, the LEC must also consider whether the means of treatment and containment technologies employed in the HN program, as enacted and enforced, effectively mitigate the hazards of such waste to human health and the environment. They must consider whether the HN program includes:

1. An effective system for tracking the movement of hazardous waste to its ultimate destination.

2. An effective system for granting authorization or permission to those engaged in the collection, transportation, storage, treatment, and disposal of hazardous waste.

3. Appropriate standards and limitations on the methods that may be used to treat and dispose of hazardous waste.

4. Standards designed to minimize the possibility of fire, explosion, or any unplanned release or migration of hazardous waste or its constituents to air, soil, surface, or groundwater.

(b) The LEC must also be satisfied, either through reliance on the HN regulatory system or provisions in the disposal contracts, that:

1. Persons and facilities in the waste management process have demonstrated the appropriate level of training and reliability.

2. Effective inspections, monitoring, and recordkeeping have taken place.

3. HN facilities that store, treat, or dispose of DoD-generated waste have been evaluated and approved by the HN as being in compliance with their regulatory requirements. This evaluation and approval may consist of having a valid permit or HN equivalent for the hazardous waste that will be handled.

(6) Recycling and Reuse.

Hazardous waste must be recycled or reused to the maximum extent practical. Installations must safely store hazardous waste that is intended for recycling or reuse to minimize risks to health and the environment.

(7) Land Disposal.

Installations must not dispose of hazardous waste in land disposal facilities on the installation. DLA Disposition Services may dispose of hazardous waste through qualified land disposal facilities that have:

(a) Location restrictions regarding floodplains, wetlands, aquifers, seismic zones, and other unstable areas.

(b) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water. The liner system must include:

1. A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner.

2. A composite bottom liner consisting of at least two components. The upper component must be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least 91 cm [3 feet] of compacted soil material with a hydraulic conductivity of no more than 1×10^{-7} cm per second [3.94×10^{-8} inches per second].

(c) A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The design and operating conditions must ensure that the leachate depth over the liner does not exceed 30 cm [1 foot].

(d) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of

detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

1. Constructed with a bottom slope of 1 percent or more.

2. Constructed of granular drainage materials with a hydraulic conductivity of 1 x 10^{-2} cm per second [3.94 x 10^{-3} inches per second] or more and a thickness of 30.5 cm [12 inches] or more; or constructed of synthetic or geonet drainage materials with a transmissivity of 3 x 10^{-5} square meter per second [3.2x10^{-4} square feet per second] or more.

3. Constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the landfill.

4. Designed and operated to minimize clogging.

5. Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

(e) A groundwater monitoring program capable of determining the facility's impact on the quality of water in the aquifers underlying the facility.

(8) Underground Injection Wells.

Installations must not dispose of hazardous waste by underground injection.

d. Incinerators.

This paragraph applies to incinerators that incinerate hazardous waste as well as boilers and industrial furnaces that burn hazardous waste for any recycling purposes.

(1) Incinerators used to dispose of hazardous waste must be licensed or permitted by a component HN authority or approved by the LEC. This license, permit, or approval must comply with the standards listed in Paragraph 5.9.d.(2).

(2) A license, permit, or LEC approval for incineration of hazardous waste requires the incinerator is designed including appropriate equipment as well as operated according to management practices. Required management practices include proper combustion temperature, waste feed rate, combustion gas velocity, and other relevant specifications to effectively destroy hazardous constituents and control harmful emissions. A permitting, licensing, or approval scheme that would require an incinerator to achieve the standards set forth in either Paragraphs 5.9.d.(2)(a) or 5.9.d.(2)(b) is acceptable.

(a) The incinerator achieves a destruction and removal efficiency of 99.99 percent for the organic hazardous constituents that represent the greatest degree of difficulty of incineration in each waste or mixture of waste. The incinerator must minimize carbon monoxide in stack exhaust gas, minimize emission of particulate matter, and emit no more than 1.8 kg [4 pounds] of hydrogen chloride per hour.

(b) The incinerator has demonstrated, as a condition for obtaining a license, permit, or LEC approval, the ability to effectively destroy the organic hazardous constituents that represent the greatest degree of difficulty of incineration in each waste or mixture of waste to be burned. For example, this standard may be met by requiring the incinerator to conduct a trial burn, submit a waste feed analysis, and provide a detailed engineering description of the facility. The competent HN authority or the LEC uses the provided information to conclude that the incinerator will effectively destroy the principal organic hazardous constituents of each waste to be burned.

e. Treatment.

Treatment technologies may be used to reduce the volume or hazardous characteristics of wastes. Wastes categorized as hazardous on the basis of Paragraph 5A.1. that, after treatment as described herein, no longer exhibit any hazardous characteristic, may be disposed of as solid waste. Treatment residues of wastes categorized as hazardous under any other paragraph of Appendix 5A will continue to be managed as hazardous waste under the standards of this manual, including those for disposal. The treatment technologies listed in Paragraphs 5.9.e.(1) through 5.9.e.(5) are provided as baseline treatment and disposal technologies for use in determining suitability of HN disposal alternatives. These technologies should not be implemented without consultation with the LEC, or the Combatant Commander if there is no LEC.

(1) Organics.

(a) Incinerations.

Incineration in accordance with the requirements of Paragraph 5.9.d.(1).

(b) Fuel Substitution.

Fuel substitution where the units are operated such that destruction of hazardous constituents is at least as efficient as, and hazardous emissions are no greater than those produced by, incineration.

(c) Biodegradation.

Wastes are degraded by microbial action. Such units will be operated under aerobic or anaerobic conditions so that the concentrations of a representative compound or indicator parameter (e.g., total organic carbon) have been substantially reduced in concentration. The level to which biodegradation must occur and the process time vary depending on the hazardous waste being biodegraded.

(d) Recovery.

Wastes are treated to recover organic compounds. This will be done using, but not limited to, one or more of the following technologies: distillation; thin film evaporation; steam stripping; carbon adsorption; critical fluid extraction; liquid extraction; precipitation and crystallization, or phase separation techniques, such as decantation, filtration, and centrifugation when used in conjunction with one of the above techniques.

(e) Chemical Degradation.

The wastes are chemically degraded in such a manner to destroy hazardous constituents and control harmful emissions.

(2) Heavy Metals.

(a) Stabilization or Fixation.

Wastes are treated in such a way that soluble heavy metals are fixed by oxidation or reduction, or by some other means that renders the metals immobile in a landfill environment.

(b) Recovery.

Wastes are treated to recover the metal fraction by thermal processing, precipitation, exchange, carbon absorption, or other techniques that yield nonhazardous levels of heavy metals in the residuals.

(3) Reactives.

Any treatment that changes the chemical or physical composition of a material so it no longer exhibits the characteristic for reactivity defined in Paragraph 5A.1.c.

(4) Corrosives.

Corrosive wastes as defined in Paragraph 5A.1.b. will be neutralized to a pH value between 6.0 and 9.0. Other acceptable treatments include recovery, incineration, chemical or electrolytic oxidation, chemical reduction, or stabilization.

(5) Batteries.

Mercury, nickel-cadmium, lithium, and lead-acid batteries will be processed in accordance with Paragraphs 5.9.e.(2)(a) or 5.9.e.(2)(b) to stabilize, fix, or recover heavy metals, as appropriate, and in accordance with Paragraph 5.9.e.(4) to neutralize any corrosives before disposal.

f. Treatment at the Point of Generation.

DoD generators of hazardous waste may only perform elementary neutralization at the point of generation. No other treatment of hazardous waste is authorized.

5.10. SPILL PREVENTION AND RESPONSE PLAN.

a. Each installation must have a spill prevention and response plan, including a contingency plan, that describes planning and actions to be taken to contain and clean up spills and releases of hazardous waste in accordance with Section 7 of Volume 4.

b. The installation spill prevention and response plan must address each HWSA and HWAP. Each HWSA must maintain a current copy of the plan. Each HWAP must, at a minimum, maintain portions of the plan that are pertinent to its facilities and operations.

5.11. RECORDKEEPING REQUIREMENTS.

Installations must ensure that the following records are maintained.

a. HWSAs.

Maintain all of the records identified in Paragraphs 5.11.c.(1) through 5.11.c.(5).

b. HWAPs.

Maintain the records identified in Paragraphs 5.11.c.(1), 5.11.c.(4), and 5.11.c.(5).

c. Records.

(1) Turn-in Documents.

Turn-in documents (e.g., DD 1348-1A) or manifests must be maintained for 3 years.

(2) Hazardous Waste Log.

A hard copy or electronic hazardous waste log will be maintained at the HWSA to record all hazardous waste handled. The hazardous waste log will be available to emergency personnel in the event of a fire or spill. Logs will be maintained until closure of the installation and should consist of:

(a) Name and address of generator.

(b) Description and hazard class of the hazardous waste.

(c) Number and types of containers.

(d) Quantity of hazardous waste.

(e) Date stored.

(f) Storage location.

(g) Disposition data, including dates received, sealed, and transported, and transporter used.

(3) Inspection Logs.

Records of inspections should be maintained for a period of 3 years.

(4) Manifests.

Manifests of incoming and outgoing hazardous wastes will be retained for a period of 3 years.

(5) Waste Analysis and Characterization Records.

HWAPs and other waste analysis and characterization records must be retained until 3 years after closure of the HWSA.

APPENDIX 5A: CHARACTERISTICS OF HAZARDOUS WASTES AND LISTS OF HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES

5A.1. CHARACTERISTICS OF HAZARDOUS WASTES.

a. Ignitability.

(1) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(a) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has a flash point less than 60 Celsius (°C) [140 Fahrenheit (°F)], as determined by a:

1. Pensky-Martens Closed Cup Tester, using the test method specified in American Society for Testing and Materials Standard D-93-79 or D-93-80;

2. Setaflash Closed Cup Tester, using the test method specified in American Society for Testing and Materials Standard D-3278-78; or

3. An equivalent test method.

(b) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(c) It is an ignitable compressed gas as determined by appropriate test methods.

(d) It is an oxidizer.

(2) A solid waste that exhibits the characteristic of ignitability has the Environmental Protection Agency (EPA) Hazardous Waste Number (HW No.) D001.

b. Corrosivity.

(1) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(a) It is aqueous and has a pH less than or equal to 2, or greater than or equal to 12.5, as determined by a pH meter.

(b) It is a liquid and corrodes steel (Society of Automotive Engineers Standard 1020) at a rate greater than 6.35 millimeters [0.250 inches] per year at a test temperature of 55 °C [130 °F] as determined by Method 1110A in EPA SW-846.

(2) A solid waste that exhibits the characteristic of corrosivity has the EPA HW No. D002.

c. Reactivity.

(1) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

(a) It is normally unstable and readily undergoes violent change without detonating.

(b) It reacts violently with water.

(c) It forms potentially explosive mixtures with water.

(d) When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

(e) It is a cyanide or sulfide-bearing waste that, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

(f) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(g) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(h) It is a forbidden explosive.

(2) A solid waste that exhibits the characteristic of reactivity has the EPA HW No. D003.

d. Toxicity.

(1) A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, the extract from a representative sample of the waste contains any of the contaminants listed for the toxicity characteristic in Table 2, in accordance with Section 261.24 of Title 40, Code of Federal Regulations (CFR) at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself is considered to be the extract for the purpose of this section.

(2) A solid waste that exhibits the characteristic of toxicity has the HW No. specified in Table 2, which corresponds to the toxic contaminant causing it to be hazardous.

Table 2. Maximum Concentration of Contaminants for the Toxicity Characteristic

HW NO.	CONTAMINANT	CHEMICAL ABSTRACTS SERVICE (CAS) NO.	REGULATORY LEVEL (MG/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.60
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.00[1]
D024	m-Cresol	108-39-4	200.0[1]
D025	p-Cresol	106-44-5	200.0[1]
D026	Cresol		200.0[1]
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13[2]
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its exoxide	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13[2]
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentrachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0[2]
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

[1] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 milligrams per liter (mg/L).
[2] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

5A.2. LISTS OF HAZARDOUS WASTES.

a. General.

(1) A solid waste is a hazardous waste if it is identified in Table 3.

Table 3. List of Hazardous Wastes and Hazardous Substances

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	REPORTABLE QUANTITY (RQ)	
			(Pounds)	(kg)
Acenaphthene	83-32-9		100	45.4
Acenaphthylene	208-96-8		5,000	2,270
Acetaldehyde	75-07-0	U001	1,000	454
Acetaldehyde, trichloro-	75-87-6	U034	5,000	2,270
Acetamide	60-35-5		100	45.4
Acetic acid	64-19-7		5,000	2,270
Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240	100	45.4
Acetic acid ethenyl ester	108-05-4		5,000	2,270
Acetic anhydride	108-24-7		5,000	2,270
Acetone	67-64-1	U002	5,000	2,270
Acetone cyanohydrin	75-86-5	P069	10	4.5
Acetonitrile	75-05-8	U003	5,000	2,270
Acetophenone	98-86-2	U004	5,000	2,270
2-Acetylaminofluorene	53-96-3	U005	1	0.454
Acetyl bromide	506-96-7		5,000	2,270
Acetyl chloride	75-36-5	U006	5,000	2,270
1-Acetyl-2-thiourea	591-08-2	P002	1,000	454
Acrolein	107-02-8	P003	1	0.454
Acrylamide	79-06-1	U007	5,000	2,270
Acrylic acid	79-10-7	U008	5,000	2,270
Acrylonitrile	107-13-1	U009	100	45.4
Adipic acid	124-04-9		5,000	2,270
Aldicarb	116-06-3	P070	1	0.454
Aldicarb sulfone	1646-88-4	P203	100	45.4
Aldrin	309-00-2	P004	1	0.454
Allyl alcohol	107-18-6	P005	100	45.4
Allyl chloride	107-05-1		1,000	454
Aluminum phosphide	20859-73-8	P006	100	45.4
Aluminum sulfate	10043-01-3		5,000	2,270
4-Aminobiphenyl	92-67-1		1	0.454
5-(Aminomethyl)-3-isoxazolol	2763-96-4	P007	1,000	454
4-Aminopyridine	504-24-5	P008	1,000	454
Amitrole	61-82-5	U011	10	4.5
Ammonia	7664-41-7		100	45.4
Ammonia (anhydrous)	7664-41-7		100	45.4
Ammonia (concentration of 20% or greater)	7664-41-7		see ammonium hydroxide	
Ammonium acetate	631-61-8		5,000	2,270
Ammonium benzoate	1863-63-4		5,000	2,270
Ammonium bicarbonate	1066-33-7		5,000	2,270
Ammonium bichromate	7789-09-5		10	4.5
Ammonium bifluoride	1341-49-7		100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Ammonium bisulfite	10192-30-0		5,000	2,270
Ammonium carbamate	1111-78-0		5,000	2,270
Ammonium carbonate	506-87-6		5,000	2,270
Ammonium chloride	12125-02-9		5,000	2,270
Ammonium chromate	7788-98-9		10	4.5
Ammonium citrate, dibasic	3012-65-5		5,000	2,270
Ammonium fluoborate	13826-83-0		5,000	2,270
Ammonium fluoride	12125-01-8		100	45.4
Ammonium hydroxide	1336-21-6		1,000	454
Ammonium oxalate	5972-73-6		5,000	2,270
Ammonium oxalate	6009-70-7		5,000	2,270
Ammonium oxalate	14258-49-2		5,000	2,270
Ammonium picrate	131-74-8	P009	10	4.5
Ammonium silicofluoride	16919-19-0		1,000	454
Ammonium sulfamate	7773-06-0		5,000	2,270
Ammonium sulfide	12135-76-1		100	45.4
Ammonium sulfite	10196-04-0		5,000	2,270
Ammonium tartrate	3164-29-2		5,000	2,270
Ammonium tartrate	14307-43-8		5,000	2,270
Ammonium thiocyanate	1762-95-4		5,000	2,270
Ammonium vanadate	7803-55-6	P119	1,000	454
Amyl acetate	628-63-7		5,000	2,270
iso-Amyl acetate	123-92-2		5,000	2,270
sec-Amyl acetate	626-38-0		5,000	2,270
tert-Amyl acetate	625-16-1		5,000	2,270
Aniline	62-53-3	U012	5,000	2,270
o-Anisidine	90-04-0		100	45.4
Anthracene	120-12-7		5,000	2,270
Antimony[b]	7440-36-0		5,000	2,270
Antimony Compounds			&	&
Antimony pentachloride	7647-18-9		1,000	454
Antimony potassium tartrate	28300-74-5		100	45.4
Antimony tribromide	7789-61-9		1,000	454
Antimony trichloride	10025-91-9		1,000	454
Antimony trifluoride	7783-56-4		1,000	454
Antimony trioxide	1309-64-4		1,000	454
ANTU	86-88-4	P072	100	45.4
Aroclor 1016	12674-11-2		1	0.454
Aroclor 1221	11104-28-2		1	0.454
Aroclor 1232	11141-16-5		1	0.454
Aroclor 1242	53469-21-9		1	0.454
Aroclor 1248	12672-29-6		1	0.454
Aroclor 1254	11097-69-1		1	0.454
Aroclor 1260	11096-82-5		1	0.454
Arsenic[b]	7440-38-2		1	0.454
Arsenic acid	7778-39-4	P010	1	0.454
Arsenic Compounds			&	&
Arsenic disulfide	1303-32-8		1	0.454
Arsenic pentoxide	1303-28-2	P011	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Arsenic trioxide	1327-53-3	P012	1	0.454
Arsenic trisulfide	1303-33-9		1	0.454
Arsenous oxide	1327-53-3	P012	1	0.454
Arsenous trichloride	7784-34-1		1	0.454
Asbestos (friable)	1332-21-4		1	0.454
Auramine	492-80-8	U014	100	45.4
Azaserine	115-02-6	U015	1	0.454
Azinphos-methyl	86-50-0		1	0.454
Aziridine	151-56-4	P054	1	0.454
Aziridine, 2-methyl	75-55-8	P067	1	0.454
Barban	101-27-9	U280	10	4.5
Barium cyanide	542-62-1	P013	10	4.5
Bendiocarb	22781-23-3	U278	100	45.4
Bendiocarb phenol	22961-82-6	U364	1000	454
Benezeneamine, 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)-	1582-09-8		10	4.5
Benomyl	17804-35-2	U271	10	4.5
Benz[c]acridine	225-51-4	U016	100	45.4
Benzal chloride	98-87-3	U017	5,000	2,270
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl	23950-58-5	U192	5,000	2,270
Benz[a]anthracene	56-55-3	U018	10	4.5
Benzene	71-43-2	U019	10	4.5
Benzeneacetic acid, 4-chloro-.alpha.-(4-chlorophenyl)-.alpha.-hydroxy-, ethyl ester	510-15-6	U038	10	4.5
Benzene, 2,4-diisocyanato-1-methyl-	584-84-9		100	45.4
Benzene, 1,3-diisocyanato-2-methyl-	91-08-7		100	45.4
Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223	100	45.4
Benzene, m-dimethyl-	108-38-3	U239	1,000	454
Benzene, o-dimethyl-	95-47-6	U239	1,000	454
Benzene, p-dimethyl-	106-42-3	U239	100	45.4
Benzeneethanamine, alpha,alpha-dimethyl-	122-09-8	P046	5,000	2,270
Benzenemethanol, 4-chloro-.alpha.-4-chlorophenyl)-.alpha.-(trichloromethyl)-	115-32-2		10	4.5
Benzenesulfonyl chloride	98-09-9	U020	100	45.4
Benzenethiol	108-98-5	P014	100	45.4
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-	72-43-5	U247	1	0.454
Benzidine	92-87-5	U021	1	0.454
Benzo[b]fluoranthene	205-99-2		1	0.454
Benzo(k)fluoranthene	207-08-9		5,000	2,270
Benzoic acid	65-85-0		5,000	2,270
Benzoic acid, 3-amino-2,5-dichloro-	133-90-4		100	45.4
Benzoic trichloride	98-07-7	U023	10	4.5
Benzonitrile	100-47-0		5,000	2,270
Benzo(rst)pentaphene	189-55-9	U064	10	4.5
Benzo[g,h,i]perylene	191-24-2		5,000	2,270
Benzo(a)phenanthrene	218-01-9	U050	100	45.4
Benzo[a]pyrene	50-32-8	U022	1	0.454
p-Benzoquinone	106-51-4	U197	10	4.5
Benzotrichloride	98-07-7	U023	10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Benzoyl chloride	98-88-4		1,000	454
Benzyl chloride	100-44-7	P028	100	45.4
Beryllium[b]	7440-41-7	P015	10	4.5
Beryllium chloride	7787-47-5		1	0.454
Beryllium Compounds			&	&
Beryllium fluoride	7787-49-7		1	0.454
Beryllium nitrate	7787-55-5		1	0.454
Beryllium nitrate	13597-99-4		1	0.454
alpha-BHC	319-84-6		10	4.5
beta-BHC	319-85-7		1	0.454
delta-BHC	319-86-8		1	0.454
2,2'-Bioxirane	1464-53-5	U085	10	4.5
Biphenyl	92-52-4		100	45.4
Bis(2-chloroethoxy) methane	111-91-1	U024	1,000	454
Bis(2-chloroethyl) ether	111-44-4	U025	10	4.5
Bis(chloromethyl) ether	542-88-1	P016	10	4.5
Bis(2-chloro-1-methylethyl)ether	108-60-1	U027	1,000	454
Bis(2-ethylhexyl)phthalate	117-81-7	U028	100	45.4
Bromoacetone	598-31-2	P017	1,000	454
Bromoform	75-25-2	U225	100	45.4
Bromomethane	74-83-9	U029	1,000	454
4-Bromophenyl phenyl ether	101-55-3	U030	100	45.4
Brucine	357-57-3	P018	100	45.4
1,3-Butadiene	106-99-0		10	4.5
1,3-Butadiene, 2-methyl-	78-79-5		100	45.4
2-Butenal	4170-30-3	U053	100	45.4
2-Butenal, (e)-	123-73-9	U053	100	45.4
2-Butene, 1,4-dichloro-	764-41-0	U074	1	0.454
2,4-D butoxyethyl ester	1929-73-3		100	45.4
Butyl acetate	123-86-4		5,000	2,270
iso-Butyl acetate	110-19-0		5,000	2,270
sec-Butyl acetate	105-46-4		5,000	2,270
tert-Butyl acetate	540-88-5		5,000	2,270
n-Butyl alcohol	71-36-3	U031	5,000	2,270
Butylamine	109-73-9		1,000	454
iso-Butylamine	78-81-9		1,000	454
sec-Butylamine	513-49-5		1,000	454
sec-Butylamine	13952-84-6		1,000	454
tert-Butylamine	75-64-9		1,000	454
Butyl benzyl phthalate	85-68-7		100	45.4
1,2-Butylene oxide	106-88-7		100	45.4
n-Butyl phthalate	84-74-2	U069	10	4.5
Butyric acid	107-92-6		5,000	2,270
iso-Butyric acid	79-31-2		5,000	2,270
Cacodylic acid	75-60-5	U136	1	0.454
Cadmium[b]	7440-43-9		10	4.5
Cadmium acetate	543-90-8		10	4.5
Cadmium bromide	7789-42-6		10	4.5
Cadmium chloride	10108-64-2		10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Cadmium Compounds			&	&
Calcium arsenate	7778-44-1		1	0.454
Calcium arsenite	52740-16-6		1	0.454
Calcium carbide	75-20-7		10	4.5
Calcium chromate	13765-19-0	U032	10	4.5
Calcium cyanamide	156-62-7		1,000	454
Calcium cyanide	592-01-8	P021	10	4.5
Calcium dodecylbenzenesulfonate	26264-06-2		1,000	454
Calcium hypochlorite	7778-54-3		10	4.5
Camphechlor	8001-35-2	P123	1	0.454
Camphene, octachloro-	8001-35-2	P123	1	0.454
Captan	133-06-2		10	4.5
Carbamic acid, ethyl ester	51-79-6	U238	100	45.4
Carbamic acid, methyl-, O-(((2,4-dimethyl-1,3-dithiolan-2-yl)methylene)amino)-	26419-73-8	P185	100	45.4
Carbamothioic acid, bis(1-methylethyl)-S-(2,3-dichloro-2-propenyl)ester	2303-16-4	U062	100	45.4
Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester	52888-80-9	U387	5000	2,270
Carbaryl	63-25-2	U279	100	45.4
Carbendazim	10605-21-7	U372	10	4.5
Carbofuran	1563-66-2	P127	10	4.5
Carbofuran phenol	1563-38-8	U367	10	4.5
Carbon disulfide	75-15-0	P022	100	45.4
Carbonic difluoride	353-50-4	U033	1,000	454
Carbonic dichloride	75-44-5	P095	10	4.5
Carbonochloridic acid, methylester	79-22-1	U156	1,000	454
Carbon oxide sulfide (COS)	463-58-1		100	45.4
Carbon tetrachloride	56-23-5	U211	10	4.5
Carbonyl sulfide	463-58-1		100	45.4
Carbosulfan	55285-14-8	P189	1000	454
Catechol	120-80-9		100	45.4
CFC-11	75-69-4	U121	5,000	2,270
CFC-12	75-71-8	U075	5,000	2,270
Chloramben	133-90-4		100	45.4
Chlorambucil	305-03-3	U035	10	4.5
Chlordane	57-74-9	U036	1	0.454
Chlordane (Technical Mixture and Metabolites)			&	&
Chlorinated Benzenes			&	&
Chlorinated Ethanes			&	&
Chlorinated Naphthalene			&	&
Chlorinated Phenols			&	&
Chlorine	7782-50-5		10	4.5
Chlornaphazine	494-03-1	U026	100	45.4
Chloroacetaldehyde	107-20-0	P023	1,000	454
Chloroacetic acid	79-11-8		100	45.4
2-Chloroacetophenone	532-27-4		100	45.4
Chloroalkyl Ethers			&	&
p-Chloroaniline	106-47-8	P024	1,000	454
Chlorobenzene	108-90-7	U037	100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Chlorobenzilate	510-15-6	U038	10	4.5
p-Chloro-m-cresol	59-50-7	U039	5,000	2,270
2,4-D chlorocrotyl ester	2971-38-2		100	45.4
Chlorodibromomethane	124-48-1		100	45.4
Chloroethane	75-00-3		100	45.4
2-Chloroethyl vinyl ether	110-75-8	U042	1,000	454
Chloroform	67-66-3	U044	10	4.5
Chloromethane	74-87-3	U045	100	45.4
Chloromethyl ether	542-88-1	P016	10	4.5
Chloromethyl methyl ether	107-30-2	U046	10	4.5
2-Chloronaphthalene	91-58-7	U047	5,000	2,270
2-Chlorophenol	95-57-8	U048	100	45.4
Chlorophenols			&	&
4-Chlorophenyl phenyl ether	7005-72-3		5,000	2,270
Chloroprene	126-99-8		100	45.4
3-Chloropropionitrile	542-76-7	P027	1,000	454
Chlorosulfonic acid	7790-94-5		1,000	454
4-Chloro-o-toluidine, hydrochloride	3165-93-3	U049	100	45.4
Chlorpyrifos	2921-88-2		1	0.454
Chromic acetate	1066-30-4		1,000	454
Chromic acid	7738-94-5		10	4.5
Chromic acid	11115-74-5		10	4.5
Chromic sulfate	10101-53-8		1,000	454
Chromium[b]	7440-47-3		5,000	2,270
Chromium Compounds			&	&
Chromous chloride	10049-05-5		1,000	454
Chrysene	218-01-9	U050	100	45.4
C.I. Solvent Yellow 34	492-80-8	U014	100	45.4
Cobalt Compounds			&	&
Cobaltous bromide	7789-43-7		1,000	454
Cobaltous formate	544-18-3		1,000	454
Cobaltous sulfamate	14017-41-5		1,000	454
Coke Oven Emissions			1	0.454
Copper[b]	7440-50-8		5,000	2,270
Copper Compounds			&	&
Copper cyanide	544-92-3	P029	10	4.5
Coumaphos	56-72-4		10	4.5
Creosote		U051	1	0.454
m-Cresol	108-39-4	U052	100	45.4
o-Cresol	95-48-7	U052	100	45.4
p-Cresol	106-44-5	U052	100	45.4
Cresol (mixed isomers)	1319-77-3	U052	100	45.4
Crotonaldehyde	4170-30-3	U053	100	45.4
Crotonaldehyde, (E)-	123-73-9	U053	100	45.4
Cumene	98-82-8	U055	5,000	2,270
Cumene hydroperoxide	80-15-9	U096	10	4.5
Cupric acetate	142-71-2		100	45.4
Cupric acetoarsenite	12002-03-8		1	0.454
Cupric chloride	7447-39-4		10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Cupric nitrate	3251-23-8		100	45.4
Cupric oxalate	5893-66-3		100	45.4
Cupric sulfate	7758-98-7		10	4.5
Cupric sulfate, ammoniated	10380-29-7		100	45.4
Cupric tartrate	815-82-7		100	45.4
Cyanide Compounds			&	&
Cyanides (soluble salts and complexes), not otherwise specified		P030	10	4.5
Cyanogen	460-19-5	P031	100	45.4
Cyanogen bromide	506-68-3	U246	1,000	454
Cyanogen chloride	506-77-4	P033	10	4.5
Cyclohexane	110-82-7	U056	1,000	454
Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1.alpha.,2.alpha. ,3.beta.,4.alpha.,5.alpha.,6.beta.)-	58-89-9	U129	1	0.454
Cyclohexanone	108-94-1	U057	5,000	2,270
2-Cyclohexyl-4,6-dinitrophenol	131-89-5	P034	100	45.4
Cyclophosphamide	50-18-0	U058	10	4.5
2,4-D	94-75-7	U240	100	45.4
2,4-D Acid	94-75-7	U240	100	45.4
2,4-D butyl ester	94-80-4		100	45.4
2,4-D Esters	94-11-1		100	45.4
2,4-D Esters	94-79-1		100	45.4
2,4-D Esters	94-80-4		100	45.4
2,4-D Esters	1320-18-9		100	45.4
2,4-D Esters	1928-38-7		100	45.4
2,4-D Esters	1928-61-6		100	45.4
2,4-D Esters	1929-73-3		100	45.4
2,4-D Esters	2971-38-2		100	45.4
2,4-D Esters	25168-26-7		100	45.4
2,4-D Esters	53467-11-1		100	45.4
2,4-D isopropyl ester	94-11-1		100	45.4
2,4-D propylene glycol butyl ether ester	1320-18-9		100	45.4
2,4-D, salts and esters	94-75-7	U240	100	45.4
Daunomycin	20830-81-3	U059	10	4.5
DBCP	96-12-8	U066	1	0.454
DDD	72-54-8	U060	1	0.454
DDE	72-55-9		1	0.454
DDE	3547-04-4		5,000	2,270
DDT	50-29-3	U061	1	0.454
DDT and Metabolites			&	&
DEHP	117-81-7	U028	100	45.4
Diallate	2303-16-4	U062	100	45.4
Diaminotoluene	496-72-0	U221	10	4.5
Diaminotoluene	823-40-5	U221	10	4.5
2,4-Diaminotoluene	95-80-7		10	4.5
Diaminotoluene (mixed isomers)	25376-45-8	U221	10	4.5
Diazinon	333-41-5		1	0.454
Diazomethane	334-88-3		100	45.4
Dibenz[a,h]anthracene	53-70-3	U063	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Dibenzofuran	132-64-9		100	45.4
Dibenz[a,i]pyrene	189-55-9	U064	10	4.5
1,2-Dibromo-3-chloropropane	96-12-8	U066	1	0.454
1,2-Dibromoethane	106-93-4	U067	1	0.454
Dibutyl phthalate	84-74-2	U069	10	4.5
Dicamba	1918-00-9		1,000	454
Dichlobenil	1194-65-6		100	45.4
Dichlone	117-80-6		1	0.454
o-Dichlorobenzene	95-50-1	U070	100	45.4
Dichlorobenzene	25321-22-6		100	45.4
1,2-Dichlorobenzene	95-50-1	U070	100	45.4
1,3-Dichlorobenzene	541-73-1	U071	100	45.4
1,4-Dichlorobenzene	106-46-7	U072	100	45.4
Dichlorobenzene (mixed isomers)	25321-22-6		100	45.4
Dichlorobenzidine			&	&
3,3'-Dichlorobenzidine	91-94-1	U073	1	0.454
Dichlorobromomethane	75-27-4		5,000	2,270
1,4-Dichloro-2-butene	764-41-0	U074	1	0.454
Dichlorodifluoromethane	75-71-8	U075	5,000	2,270
1,1-Dichloroethane	75-34-3	U076	1,000	454
1,2-Dichloroethane	107-06-2	U077	100	45.4
1,1-Dichloroethylene	75-35-4	U078	100	45.4
1,2-Dichloroethylene	156-60-5	U079	1,000	454
Dichloroethyl ether	111-44-4	U025	10	4.5
Dichloroisopropyl ether	108-60-1	U027	1,000	454
Dichloromethane	75-09-2	U080	1,000	454
3,6-Dichloro-2-methoxybenzoic acid	1918-00-9		1,000	454
Dichloromethyl ether	542-88-1	P016	10	4.5
2,6-Dichlorophenol	87-65-0	U082	100	45.4
2,4-Dichlorophenol	120-83-2	U081	100	45.4
Dichlorophenylarsine	696-28-6	P036	1	0.454
Dichloropropane	26638-19-7		1,000	454
Dichloropropane - Dichloropropene (mixture)	8003-19-8		100	45.4
1,1-Dichloropropane	78-99-9		1,000	454
1,2-Dichloropropane	78-87-5	U083	1,000	454
1,3-Dichloropropane	142-28-9		1000	454
Dichloropropene	26952-23-8		100	45.4
1,3-Dichloropropene	542-75-6	U084	100	45.4
2,3-Dichloropropene	78-88-6		100	45.4
2,2-Dichloropropionic acid	75-99-0		5,000	2,270
1,3-Dichloropropylene	542-75-6	U084	100	45.4
Dichlorvos	62-73-7		10	4.5
Dicofol	115-32-2		10	4.5
Dieldrin	60-57-1	P037	1	0.454
Diepoxybutane	1464-53-5	U085	10	4.5
Diethanolamine	111-42-2		100	45.4
Diethylamine	109-89-7		100	45.4
N,N-Diethylaniline	91-66-7		1,000	454
Diethylarsine	692-42-2	P038	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Di(2-ethylhexyl) phthalate	117-81-7	U028	100	45.4
O,O-Diethyl S-methyl dithiophosphate	3288-58-2	U087	5,000	2,270
Diethyl-p-nitrophenyl phosphate	311-45-5	P041	100	45.4
Diethyl phthalate	84-66-2	U088	1,000	454
O,O-Diethyl O-pyrazinyl phosphorothioate	297-97-2	P040	100	45.4
Diethylstilbestrol	56-53-1	U089	1	0.454
Diethyl sulfate	64-67-5		10	4.5
Dihydrosafrole	94-58-6	U090	10	4.5
Diisopropylfluorophosphate	55-91-4	P043	100	45.4
1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1.alpha.,4.alpha.,4a.beta., 5.alpha.,8.alpha.,8a.beta.)-	309-00-2	P004	1	0.454
Dimethoate	60-51-5	P044	10	4.5
3,3'-Dimethoxybenzidine	119-90-4	U091	100	45.4
Dimethylamine	124-40-3	U092	1,000	454
4-Dimethylaminoazobenzene	60-11-7	U093	10	4.5
Dimethylaminoazobenzene	60-11-7	U093	10	4.5
N,N-Dimethylaniline	121-69-7		100	45.4
7,12-Dimethylbenz[a]anthracene	57-97-6	U094	1	0.454
3,3'-Dimethylbenzidine	119-93-7	U095	10	4.5
2,2-Dimethyl-1,3-benzodioxol-4-ol methylcarbamate	22781-23-3	U278	100	45.4
Dimethylcarbamyl chloride	79-44-7	U097	1	0.454
Dimethylformamide	68-12-2		100	45.4
N,N-Dimethylformamide	68-12-2		100	45.4
1,1-Dimethyl hydrazine	57-14-7	U098	10	4.5
Dimethylhydrazine	57-14-7	U098	10	4.5
2,4-Dimethylphenol	105-67-9	U101	100	45.4
Dimethyl phthalate	131-11-3	U102	5,000	2,270
Dimethyl sulfate	77-78-1	U103	100	45.4
Dimetilan	644-64-4	P191	1	0.454
Dinitrobenzene (mixed isomers)	25154-54-5		100	45.4
m-Dinitrobenzene	99-65-0		100	45.4
o-Dinitrobenzene	528-29-0		100	45.4
p-Dinitrobenzene	100-25-4		100	45.4
Dinitrobutyl phenol	88-85-7	P020	1,000	454
4,6-Dinitro-o-cresol	534-52-1	P047	10	4.5
Dinitrocresol	534-52-1	P047	10	4.5
4,6-Dinitro-o-cresol and salts	534-52-1	P047	10	4.5
Dinitrophenol	25550-58-7		10	4.5
2,4-Dinitrophenol	51-28-5	P048	10	4.5
2,5-Dinitrophenol	329-71-5		10	4.5
2,6-Dinitrophenol	573-56-8		10	4.5
Dinitrotoluene (mixed isomers)	25321-14-6		10	4.5
2,4-Dinitrotoluene	121-14-2	U105	10	4.5
2,6-Dinitrotoluene	606-20-2	U106	100	45.4
3,4-Dinitrotoluene	610-39-9		10	4.5
Dinoseb	88-85-7	P020	1,000	454
Di-n-octyl phthalate	117-84-0	U107	5,000	2,270
n-Dioctylphthalate	117-84-0	U107	5,000	2,270

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
1,4-Dioxane	123-91-1	U108	100	45.4
1,2-Diphenylhydrazine	122-66-7	U109	10	4.5
Diphenylhydrazine			&	&
Diphosphoramide, octamethyl-	152-16-9	P085	100	45.4
Dipropylamine	142-84-7	U110	5,000	2,270
Di-n-propylnitrosamine	621-64-7	U111	10	4.5
Diquat	85-00-7		1,000	454
Diquat	2764-72-9		1,000	454
Disulfoton	298-04-4	P039	1	0.454
Dithiobiuret	541-53-7	P049	100	45.4
2,4-Dithiobiuret	541-53-7	P049	100	45.4
Diuron	330-54-1		100	45.4
Dodecylbenzenesulfonic acid	27176-87-0		1,000	454
Endosulfan	115-29-7	P050	1	0.454
alpha – Endosulfan	959-98-8		1	0.454
beta – Endosulfan	33213-65-9		1	0.454
Endosulfan and Metabolites			&	&
Endosulfan sulfate	1031-07-8		1	0.454
Endothall	145-73-3	P088	1,000	454
Endrin	72-20-8	P051	1	0.454
Endrin aldehyde	7421-93-4		1	0.454
Endrin and Metabolites			&	&
Epichlorohydrin	106-89-8	U041	100	45.4
Epinephrine	51-43-4	P042	1,000	454
Ethanamine	75-04-7		100	45.4
Ethane, chloro-	75-00-3		100	45.4
1,2-Ethanediamine	107-15-3		5,000	2,270
Ethanedinitrile	460-19-5	P031	100	45.4
Ethane, 1,1'-oxybis-	60-29-7	U117	100	45.4
Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208	100	45.4
Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester	30558-43-1	U394	5000	2,270
Ethanimidothioic acid, N-[[methylamino)carbonyl]	16752-77-5	P066	100	45.4
Ethanol, 2-ethoxy-	110-80-5	U359	1,000	454
Ethanol, 2,2'-oxybis-, dicarbamate	5952-26-1	U395	5000	2,270
Ethene, chloro-	75-01-4	U043	1	0.454
Ethene, 1,1-dichloro-	75-35-4	U078	100	45.4
Ethion	563-12-2		10	4.5
2-Ethoxyethanol	110-80-5	U359	1,000	454
Ethyl acetate	141-78-6	U112	5,000	2,270
Ethyl acrylate	140-88-5	U113	1,000	454
Ethylbenzene	100-41-4		1,000	454
Ethyl carbamate	51-79-6	U238	100	45.4
Ethyl chloride	75-00-3		100	45.4
Ethyl cyanide	107-12-0	P101	10	4.5
Ethylenebisdithiocarbamic acid, salts & esters	111-54-6	U114	5,000	2,270
Ethylenediamine	107-15-3		5,000	2,270
Ethylenediamine-tetraacetic acid (EDTA)	60-00-4		5,000	2,270
Ethylene dibromide	106-93-4	U067	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Ethylene dichloride	107-06-2	U077	100	45.4
Ethylene glycol	107-21-1		5,000	2,270
Ethyleneimine	151-56-4	P054	1	0.454
Ethylene oxide	75-21-8	U115	10	4.5
Ethylene thiourea	96-45-7	U116	10	4.5
Ethyl ether	60-29-7	U117	100	45.4
Ethylidene Dichloride	75-34-3	U076	1,000	454
Ethyl methacrylate	97-63-2	U118	1,000	454
Ethyl methanesulfonate	62-50-0	U119	1	0.454
Famphur	52-85-7	P097	1,000	454
Ferric ammonium citrate	1185-57-5		1,000	454
Ferric ammonium oxalate	2944-67-4		1,000	454
Ferric ammonium oxalate	55488-87-4		1,000	454
Ferric chloride	7705-08-0		1,000	454
Ferric fluoride	7783-50-8		100	45.4
Ferric nitrate	10421-48-4		1,000	454
Ferric sulfate	10028-22-5		1,000	454
Ferrous ammonium sulfate	10045-89-3		1,000	454
Ferrous chloride	7758-94-3		100	45.4
Ferrous sulfate	7720-78-7		1,000	454
Ferrous sulfate	7782-63-0		1,000	454
Fine mineral fibers			&	&
Fluoranthene	206-44-0	U120	100	45.4
Fluorene	86-73-7		5,000	2,270
Fluorine	7782-41-4	P056	10	4.5
Fluoroacetamide	640-19-7	P057	100	45.4
Fluoroacetic acid, sodium salt	62-74-8	P058	10	4.5
Formaldehyde	50-00-0	U122	100	45.4
Formaldehyde (solution)	50-00-0	U122	100	45.4
Formetanate hydrochloride	23422-53-9	P198	100	45.4
Formic acid	64-18-6	U123	5,000	2,270
Formparanate	17702-57-7	P197	100	45.4
Fumaric acid	110-17-8		5,000	2,270
Furan	110-00-9	U124	100	45.4
Furan, tetrahydro-	109-99-9	U213	1,000	454
Furfural	98-01-1	U125	5,000	2,270
Glycidylaldehyde	765-34-4	U126	10	4.5
Glycol Ethers			&	&
Guanidine, N-methyl-N'-nitro-N-nitroso-	70-25-7	U163	10	4.5
Guthion	86-50-0		1	0.454
Haloethers			&	&
Halomethanes			&	&
Heptachlor	76-44-8	P059	1	0.454
Heptachlor and Metabolites			&	&
Heptachlor epoxide	1024-57-3		1	0.454
1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methano-1H-indene	76-44-8	P059	1	0.454
Hexachlorobenzene	118-74-1	U127	10	4.5
Hexachloro-1,3-butadiene	87-68-3	U128	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Hexachlorobutadiene	87-68-3	U128	1	0.454
Hexachlorocyclohexane (all isomers)	608-73-1		&	&
alpha-Hexachlorocyclohexane	319-84-6		10	4.5
Hexachlorocyclohexane (gamma isomer)	58-89-9	U129	1	0.454
Hexachlorocyclopentadiene	77-47-4	U130	10	4.5
Hexachloroethane	67-72-1	U131	100	45.4
Hexachlorophene	70-30-4	U132	100	45.4
Hexachloropropene	1888-71-7	U243	1,000	454
Hexaethyl tetraphosphate	757-58-4	P062	100	45.4
Hexamethylene-1,6-diisocyanate	822-06-0		100	45.4
Hexamethylphosphoramide	680-31-9		1	0.454
Hexane	110-54-3		5,000	2,270
n-Hexane	110-54-3		5,000	2,270
Hydrazine	302-01-2	U133	1	0.454
Hydrazine, 1,2-diethyl-	1615-80-1	U086	10	4.5
Hydrazine, 1,1-dimethyl-	57-14-7	U098	10	4.5
Hydrazine, 1,2-dimethyl-	540-73-8	U099	1	0.454
Hydrazine, 1,2-diphenyl-	122-66-7	U109	10	4.5
Hydrazine, methyl-	60-34-4	P068	10	4.5
Hydrazobenzene	122-66-7	U109	10	4.5
Hydrochloric acid	7647-01-0		5,000	2,270
Hydrochloric acid (concentration of 37% or greater)	7647-01-0		5,000	2,270
Hydrochloric acid (aerosol forms only)	7647-01-0		5,000	2,270
Hydrocyanic acid	74-90-8	P063	10	4.5
Hydrofluoric acid	7664-39-3	U134	100	45.4
Hydrofluoric acid (concentration of 50% or greater)	7664-39-3	U134	100	45.4
Hydrogen chloride (anhydrous)	7647-01-0		5,000	2,270
Hydrogen chloride (gas only)	7647-01-0		5,000	2,270
Hydrogen cyanide	74-90-8	P063	10	4.5
Hydrogen fluoride	7664-39-3	U134	100	45.4
Hydrogen fluoride (anhydrous)	7664-39-3	U134	100	45.4
Hydrogen sulfide	7783-06-4	U135	100	45.4
Hydroperoxide, 1-methyl-1-phenylethyl-	80-15-9	U096	10	4.5
Hydroquinone	123-31-9		100	45.4
Indeno(1,2,3-cd)pyrene	193-39-5	U137	100	45.4
Isobutyl alcohol	78-83-1	U140	5,000	2,270
Isodrin	465-73-6	P060	1	0.454
Isofluorphate	55-91-4	P043	100	45.4
1H-Isoindole-1,3(2H)-dione, 3a,4,7,7a-tetrahydro-2-[(trichloromethyl)thio]-	133-06-2		10	4.5
Isophorone	78-59-1		5,000	2,270
Isoprene	78-79-5		100	45.4
Isopropanolamine dodecylbenzene sulfonate	42504-46-1		1,000	454
Isopropylmethylpyrazolyl dimethylcarbamate	119-38-0	P192	100	45.4
Isosafrole	120-58-1	U141	100	45.4
Kepone	143-50-0	U142	1	0.454
Lasiocarpine	303-34-4	U143	10	4.5
Lead[b]	7439-92-1		10	4.5
Lead acetate	301-04-2	U144	10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Lead arsenate	7645-25-2		1	0.454
Lead arsenate	7784-40-9		1	0.454
Lead arsenate	10102-48-4		1	0.454
Lead chloride	7758-95-4		10	4.5
Lead compounds			&	&
Lead fluoborate	13814-96-5		10	4.5
Lead fluoride	7783-46-2		10	4.5
Lead iodide	10101-63-0		10	4.5
Lead nitrate	10099-74-8		10	4.5
Lead phosphate	7446-27-7	U145	10	4.5
Lead stearate	1072-35-1		10	4.5
Lead stearate	7428-48-0		10	4.5
Lead stearate	52652-59-2		10	4.5
Lead stearate	56189-09-4		10	4.5
Lead subacetate	1335-32-6	U146	10	4.5
Lead sulfate	7446-14-2		10	4.5
Lead sulfate	15739-80-7		10	4.5
Lead sulfide	1314-87-0		10	4.5
Lead thiocyanate	592-87-0		10	4.5
Lindane	58-89-9	U129	1	0.454
Lithium chromate	14307-35-8		10	4.5
Malathion	121-75-5		100	45.4
Maleic acid	110-16-7		5,000	2,270
Maleic anhydride	108-31-6	U147	5,000	2,270
Maleic hydrazide	123-33-1	U148	5,000	2,270
Malononitrile	109-77-3	U149	1,000	454
Manganese, bis(dimethylcarbamodithioato-S,S')-	15339-36-3	P196	10	4.5
Manganese Compounds			&	&
MBOCA	101-14-4	U158	10	4.5
MDI	101-68-8		5,000	2,270
Melphalan	148-82-3	U150	1	0.454
Mercaptodimethur	2032-65-7	P199	10	4.5
Mercuric cyanide	592-04-1		1	0.454
Mercuric nitrate	10045-94-0		10	4.5
Mercuric sulfate	7783-35-9		10	4.5
Mercuric thiocyanate	592-85-8		10	4.5
Mercurous nitrate	7782-86-7		10	4.5
Mercurous nitrate	10415-75-5		10	4.5
Mercury	7439-97-6	U151	1	0.454
Mercury Compounds			&	&
Mercury fulminate	628-86-4	P065	10	4.5
Methacrylonitrile	126-98-7	U152	1,000	454
Methanamine	74-89-5		100	45.4
Methanamine, N,N-dimethyl-	75-50-3		100	45.4
Methanamine, N-methyl-	124-40-3	U092	1,000	454
Methanamine, N-methyl-N-nitroso-	62-75-9	P082	10	4.5
Methane, chloro-	74-87-3	U045	100	45.4
Methane, chloromethoxy-	107-30-2	U046	10	4.5
Methane, isocyanato-	624-83-9	P064	10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Methane, oxybis[chloro-	542-88-1	P016	10	4.5
Methanesulfenyl chloride, trichloro-	594-42-3		100	45.4
Methane, tetranitro-	509-14-8	P112	10	4.5
Methanethiol	74-93-1	U153	100	45.4
Methane, trichloro-	67-66-3	U044	10	4.5
4,7-Methanoindan, 1,2,3,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	57-74-9	U036	1	0.454
Methanol	67-56-1	U154	5,000	2,270
Methapyrilene	91-80-5	U155	5,000	2,270
Methiocarb	2032-65-7	P199	10	4.5
Methomyl	16752-77-5	P066	100	45.4
Methoxychlor	72-43-5	U247	1	0.454
Methyl bromide	74-83-9	U029	1,000	454
Methyl chloride	74-87-3	U045	100	45.4
Methyl chlorocarbonate	79-22-1	U156	1,000	454
Methyl chloroform	71-55-6	U226	1,000	454
Methyl chloroformate	79-22-1	U156	1,000	454
3-Methylcholanthrene	56-49-5	U157	10	4.5
4,4'-Methylenebis(2-chloroaniline)	101-14-4	U158	10	4.5
Methylenebis(phenylisocyanate)	101-68-8		5,000	2,270
Methylene bromide	74-95-3	U068	1,000	454
Methylene chloride	75-09-2	U080	1,000	454
4,4'-Methylenedianiline	101-77-9		10	4.5
Methyl ethyl ketone	78-93-3	U159	5,000	2,270
Methyl ethyl ketone peroxide	1338-23-4	U160	10	4.5
Methyl hydrazine	60-34-4	P068	10	4.5
Methyl iodide	74-88-4	U138	100	45.4
Methyl isobutyl ketone	108-10-1	U161	5,000	2,270
Methyl isocyanate	624-83-9	P064	10	4.5
2-Methyllactonitrile	75-86-5	P069	10	4.5
Methyl mercaptan	74-93-1	U153	100	45.4
Methyl methacrylate	80-62-6	U162	1,000	454
Methyl parathion	298-00-0	P071	100	45.4
2-Methylpyridine	109-06-8	U191	5,000	2,270
Methyl tert-butyl ether	1634-04-4		1,000	454
Methylthiouracil	56-04-2	U164	10	4.5
Metolcarb	1129-41-5	P190	1000	454
Mevinphos	7786-34-7		10	4.5
Mexacarbate	315-18-4	P128	1,000	454
Mitomycin C	50-07-7	U010	10	4.5
Monoethylamine	75-04-7		100	45.4
Monomethylamine	74-89-5		100	45.4
Muscimol	2763-96-4	P007	1,000	454
Naled	300-76-5		10	4.5
Naphthalene	91-20-3	U165	100	45.4
1-Naphthalenol, methylcarbamate	63-25-2	U279	100	45.4
Naphthenic acid	1338-24-5		100	45.4
1,4-Naphthoquinone	130-15-4	U166	5,000	2,270
alpha-Naphthylamine	134-32-7	U167	100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
beta-Naphthylamine	91-59-8	U168	10	4.5
Nickel[b]	7440-02-0		100	45.4
Nickel ammonium sulfate	15699-18-0		100	45.4
Nickel carbonyl	13463-39-3	P073	10	4.5
Nickel chloride	7718-54-9		100	45.4
Nickel chloride	37211-05-5		100	45.4
Nickel Compounds			&	&
Nickel cyanide	557-19-7	P074	10	4.5
Nickel hydroxide	12054-48-7		10	4.5
Nickel nitrate	14216-75-2		100	45.4
Nickel sulfate	7786-81-4		100	45.4
Nicotine	54-11-5	P075	100	45.4
Nicotine and salts	54-11-5	P075	100	45.4
Nicotine sulfate	65-30-5		100	45.4
Nitric acid	7697-37-2		1,000	454
Nitric acid (conc 80% or greater)	7697-37-2		1,000	454
Nitric oxide	10102-43-9	P076	10 @	4.5 @
p-Nitroaniline	100-01-6	P077	5,000	2,270
Nitrobenzene	98-95-3	U169	1,000	454
4-Nitrobiphenyl	92-93-3		10	4.5
Nitrogen dioxide	10102-44-0	P078	10 @	4.5 @
Nitrogen dioxide	10544-72-6		10 @	4.5 @
Nitrogen oxide (NO)	10102-43-9	P076	10 @	4.5 @
Nitroglycerin	55-63-0	P081	10	4.5
Nitrophenol (mixed isomers)	25154-55-6		100	45.4
2-Nitrophenol	88-75-5		100	45.4
4-Nitrophenol	100-02-7	U170	100	45.4
m-Nitrophenol	554-84-7		100	45.4
p-Nitrophenol	100-02-7	U170	100	45.4
Nitrophenols			&	&
2-Nitropropane	79-46-9	U171	10	4.5
Nitrosamines			&	&
N-Nitrosodi-n-butylamine	924-16-3	U172	10	4.5
N-Nitrosodiethanolamine	1116-54-7	U173	1	0.454
N-Nitrosodiethylamine	55-18-5	U174	1	0.454
N-Nitrosodimethylamine	62-75-9	P082	10	4.5
Nitrosodimethylamine	62-75-9	P082	10	4.5
N-Nitrosodiphenylamine	86-30-6		100	45.4
N-Nitrosodi-n-propylamine	621-64-7	U111	10	4.5
N-Nitroso-N-ethylurea	759-73-9	U176	1	0.454
N-Nitroso-N-methylurea	684-93-5	U177	1	0.454
N-Nitroso-N-methylurethane	615-53-2	U178	1	0.454
N-Nitrosomethylvinylamine	4549-40-0	P084	10	4.5
N-Nitrosomorpholine	59-89-2		1	0.454
N-Nitrosopiperidine	100-75-4	U179	10	4.5
N-Nitrosopyrrolidine	930-55-2	U180	1	0.454
Nitrotoluene	1321-12-6		1,000	454
m-Nitrotoluene	99-08-1		1,000	454
o-Nitrotoluene	88-72-2		1,000	454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
p-Nitrotoluene	99-99-0		1,000	454
5-Nitro-o-toluidine	99-55-8	U181	100	45.4
Oleum (fuming sulfuric acid)	8014-95-7		1,000	454
Organorhodium Complex (PMN-82-147)				
Osmium oxide OsO4 (T-4)-	20816-12-0	P087	1,000	454
Osmium tetroxide	20816-12-0	P087	1,000	454
Oxamyl	23135-22-0	P194	100	45.4
Oxirane	75-21-8	U115	10	4.5
Oxirane, (chloromethyl)-	106-89-8	U041	100	45.4
Oxirane, methyl-	75-56-9		100	45.4
Paraformaldehyde	30525-89-4		1,000	454
Paraldehyde	123-63-7	U182	1,000	454
Parathion	56-38-2	P089	10	4.5
Parathion-methyl	298-00-0	P071	100	45.4
Paris green	12002-03-8		1	0.454
PCBs	1336-36-3		1	0.454
PCNB	82-68-8	U185	100	45.4
PCP	87-86-5		10	4.5
Pentachlorobenzene	608-93-5	U183	10	4.5
Pentachloroethane	76-01-7	U184	10	4.5
Pentachloronitrobenzene	82-68-8	U185	100	45.4
Pentachlorophenol	87-86-5		10	4.5
1,3-Pentadiene	504-60-9	U186	100	45.4
Perchloroethylene	127-18-4	U210	100	45.4
Perchloromethyl mercaptan	594-42-3		100	45.4
Phenacetin	62-44-2	U187	100	45.4
Phenanthrene	85-01-8		5,000	2,270
Phenol	108-95-2	U188	1,000	454
Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	U411	100	45.4
Phenol, 3-(1-methylethyl)-, methylcarbamate	64-00-6	P202	10	4.5
Phenyl dichloroarsine	696-28-6	P036	1	0.454
p-Phenylenediamine	106-50-3		5,000	2,270
Phenylmercuric acetate	62-38-4	P092	100	45.4
Phenylmercury acetate	62-38-4	P092	100	45.4
Phenylthiourea	103-85-5	P093	100	45.4
Phorate	298-02-2	P094	10	4.5
Phosgene	75-44-5	P095	10	4.5
Phosphine	7803-51-2	P096	100	45.4
Phosphonic acid, (2,2,2-trichloro-1-hydroxyethyl)-, dimethyl ester	52-68-6		100	45.4
Phosphoric acid	7664-38-2		5,000	2,270
Phosphoric acid, 2-dichloroethenyl dimethyl ester	62-73-7		10	4.5
Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl) ester	56-38-2	P089	10	4.5
Phosphorous trichloride	7719-12-2		1,000	454
Phosphorus (yellow or white)	7723-14-0		1	0.454
Phosphorus	7723-14-0		1	0.454
Phosphorus oxychloride	10025-87-3		1,000	454
Phosphorus trichloride	7719-12-2		1,000	454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Phosphoryl chloride	10025-87-3		1,000	454
Phthalate Esters			&	&
Phthalic anhydride	85-44-9	U190	5,000	2,270
Physostigmine	57-47-6	P204	100	45.4
Physostigmine, salicylate (1:1)	57-64-7	P188	100	45.4
2-Picoline	109-06-8	U191	5,000	2,270
PCBs	1336-36-3		1	0.454
Polycyclic organic matter			&	&
Polynuclear Aromatic Hydrocarbons			&	&
Potassium arsenate	7784-41-0		1	0.454
Potassium arsenite	10124-50-2		1	0.454
Potassium bichromate	7778-50-9		10	4.5
Potassium chromate	7789-00-6		10	4.5
Potassium cyanide	151-50-8	P098	10	4.5
Potassium hydroxide	1310-58-3		1,000	454
Potassium permanganate	7722-64-7		100	45.4
Potassium silver cyanide	506-61-6	P099	1	0.454
Promecarb	2631-37-0	P201	1000	454
Pronamide	23950-58-5	U192	5,000	2,270
Propane 1,2-dichloro-	78-87-5	U083	1,000	454
Propanenitrile	107-12-0	P101	10	4.5
Propane sultone	1120-71-4	U193	10	4.5
1,3-Propane sultone	1120-71-4	U193	10	4.5
Propargite	2312-35-8		10	4.5
Propargyl alcohol	107-19-7	P102	1,000	454
2-Propenal	107-02-8	P003	1	0.454
2-Propenenitrile	107-13-1	U009	100	45.4
2-Propenenitrile, 2-methyl-	126-98-7	U152	1,000	454
2-Propen-1-ol	107-18-6	P005	100	45.4
Propham	122-42-9	U373	1000	454
beta-Propiolactone	57-57-8		10	4.5
Propionaldehyde	123-38-6		1,000	454
Propionic acid	79-09-4		5,000	2,270
Propionic anhydride	123-62-6		5,000	2,270
Propionitrile	107-12-0	P101	10	4.5
Propionitrile, 3-chloro-	542-76-7	P027	1,000	454
Propoxur	114-26-1	U411	100	45.4
n-Propylamine	107-10-8	U194	5,000	2,270
Propyleneimine	75-55-8	P067	1	0.454
Propylene oxide	75-56-9		100	45.4
Pyrene	129-00-0		5,000	2,270
Pyrethrins	121-21-1		1	0.454
Pyrethrins	121-29-9		1	0.454
Pyrethrins	8003-34-7		1	0.454
Pyridine	110-86-1	U196	1,000	454
Pyridine, 4-amino-	504-24-5	P008	1,000	454
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-,(S)-	54-11-5	P075	100	45.4
Quinoline	91-22-5		5,000	2,270
Quinone	106-51-4	U197	10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Quintozene	82-68-8	U185	100	45.4
Reserpine	50-55-5	U200	5,000	2,270
Resorcinol	108-46-3	U201	5,000	2,270
Saccharin (manufacturing)	81-07-2	U202	100	45.4
Saccharin and salts	81-07-2	U202	100	45.4
Safrole	94-59-7	U203	100	45.4
Selenious acid	7783-00-8	U204	10	4.5
Selenious acid, dithallium(1+) salt	12039-52-0	P114	1,000	454
Selenium[b]	7782-49-2		100	45.4
Selenium Compounds			&	&
Selenium dioxide	7446-08-4		10	4.5
Selenium sulfide	7488-56-4	U205	10	4.5
Selenourea	630-10-4	P103	1,000	454
Silver[b]	7440-22-4		1,000	454
Silver Compounds			&	&
Silver cyanide	506-64-9	P104	1	0.454
Silver nitrate	7761-88-8		1	0.454
Silvex (2,4,5-TP)	93-72-1		100	45.4
Sodium	7440-23-5		10	4.5
Sodium arsenate	7631-89-2		1	0.454
Sodium arsenite	7784-46-5		1	0.454
Sodium azide (Na(N3))	26628-22-8	P105	1,000	454
Sodium bichromate	10588-01-9		10	4.5
Sodium bifluoride	1333-83-1		100	45.4
Sodium bisulfite	7631-90-5		5,000	2,270
Sodium chromate	7775-11-3		10	4.5
Sodium cyanide (Na(CN))	143-33-9	P106	10	4.5
Sodium dodecylbenzenesulfonate	25155-30-0		1,000	454
Sodium fluoride	7681-49-4		1,000	454
Sodium fluoroacetate	62-74-8	P058	10	4.5
Sodium hydrosulfide	16721-80-5		5,000	2,270
Sodium hydroxide	1310-73-2		1,000	454
Sodium hypochlorite	7681-52-9		100	45.4
Sodium hypochlorite	10022-70-5		100	45.4
Sodium methylate	124-41-4		1,000	454
Sodium nitrite	7632-00-0		100	45.4
Sodium phosphate, dibasic	7558-79-4		5,000	2,270
Sodium phosphate, dibasic	10039-32-4		5,000	2,270
Sodium phosphate, dibasic	10140-65-5		5,000	2,270
Sodium phosphate, tribasic	7601-54-9		5000	2,270
Sodium phosphate, tribasic	10101-89-0		5,000	2,270
Sodium phosphate, tribasic	10361-89-4		5,000	2,270
Sodium selenite	7782-82-3		100	45.4
Sodium selenite	10102-18-8		100	45.4
Streptozotocin	18883-66-4	U206	1	0.454
Strontium chromate	7789-06-2		10	4.5
Strychnine	57-24-9	P108	10	4.5
Strychnine and salts	57-24-9	P108	10	4.5
Strychnine, sulfate	60-41-3		10	4.5

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Styrene	100-42-5		1,000	454
Styrene oxide	96-09-3		100	45.4
Sulfotep	3689-24-5	P109	100	45.4
Sulfuric acid (aerosol forms only)	7664-93-9		1,000	454
Sulfuric acid	7664-93-9		1,000	454
Sulfuric acid (fuming)	8014-95-7		1,000	454
Sulfuric acid, mixture with sulfur trioxide	8014-95-7		1,000	454
Sulfur monochloride	12771-08-3		1,000	454
Sulfur monochloride	10025-67-9		1,000	454
Sulfur phosphide	1314-80-3	U189	100	45.4
2,4,5-T acid	93-76-5		1,000	454
2,4,5-T amines	1319-72-8		5,000	2,270
2,4,5-T amines	2008-46-0		5,000	2,270
2,4,5-T amines	3813-14-7		5,000	2,270
2,4,5-T amines	6369-96-6		5,000	2,270
2,4,5-T amines	6369-97-7		5,000	2,270
2,4,5-T esters	93-79-8		1,000	454
2,4,5-T esters	1928-47-8		1,000	454
2,4,5-T esters	2545-59-7		1,000	454
2,4,5-T esters	25168-15-4		1,000	454
2,4,5-T esters	61792-07-2		1,000	454
2,4,5-T salts	13560-99-1		1,000	454
TEPP	107-49-3	P111	10	4.5
1,2,4,5-Tetrachlorobenzene	95-94-3	U207	5,000	2,270
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6		1	0.454
1,1,2,2-Tetrachloroethane	79-34-5	U209	100	45.4
1,1,1,2-Tetrachloroethane	630-20-6	U208	100	45.4
Tetrachloroethylene	127-18-4	U210	100	45.4
2,3,4,6-Tetrachlorophenol	58-90-2		10	4.5
Tetraethyldithiopyrophosphate	3689-24-5	P109	100	45.4
Tetraethyl lead	78-00-2	P110	10	4.5
Tetraethyl pyrophosphate	107-49-3	P111	10	4.5
Tetranitromethane	509-14-8	P112	10	4.5
Thallic oxide	1314-32-5	P113	100	45.4
Thallium[b]	7440-28-0		1,000	454
Thallium(I) acetate	563-68-8	U214	100	45.4
Thallium(I) carbonate	6533-73-9	U215	100	45.4
Thallium chloride TlCl	7791-12-0	U216	100	45.4
Thallium Compounds			&	&
Thallium(I) nitrate	10102-45-1	U217	100	45.4
Thallium(I) sulfate	7446-18-6	P115	100	45.4
Thallium sulfate	10031-59-1		100	45.4
Thallous carbonate	6533-73-9	U215	100	45.4
Thallous chloride	7791-12-0	U216	100	45.4
Thallous sulfate	7446-18-6	P115	100	45.4
Thioacetamide	62-55-5	U218	10	4.5
Thiodicarb	59669-26-0	U410	100	45.4
Thiofanox	39196-18-4	P045	100	45.4
Thiomethanol	74-93-1	U153	100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Thionazin	297-97-2	P040	100	45.4
Thiophanate-methyl	23564-05-8	U409	10	4.5
Thiophenol	108-98-5	P014	100	45.4
Thiosemicarbazide	79-19-6	P116	100	45.4
Thiourea	62-56-6	U219	10	4.5
Thiourea, (2-chlorophenyl)-	5344-82-1	P026	100	45.4
Thiourea, 1-naphthalenyl-	86-88-4	P072	100	45.4
Thiram	137-26-8	U244	10	4.5
Titanium chloride (TiCl4) (T-4)-	7550-45-0		1,000	454
Titanium tetrachloride	7550-45-0		1,000	454
o-Tolidine	119-93-7	U095	10	4.5
Toluene	108-88-3	U220	1,000	454
Toluenediamine	25376-45-8	U221	10	4.5
Toluene-2,4-diisocyanate	584-84-9		100	45.4
Toluene-2,6-diisocyanate	91-08-7		100	45.4
Toluenediisocyanate (mixed isomers)	26471-62-5	U223	100	45.4
Toluene diisocyanate (unspecified isomer)	26471-62-5	U223	100	45.4
o-Toluidine	95-53-4	U328	100	45.4
p-Toluidine	106-49-0	U353	100	45.4
o-Toluidine hydrochloride	636-21-5	U222	100	45.4
Toxaphene	8001-35-2	P123	1	0.454
2,4,5-TP esters	32534-95-5		100	45.4
Triallate	2303-17-5	U389	100	45.4
Tribromomethane	75-25-2	U225	100	45.4
Trichlorfon	52-68-6		100	45.4
1,2,4-Trichlorobenzene	120-82-1		100	45.4
1,1,1-Trichloroethane	71-55-6	U226	1,000	454
1,1,2-Trichloroethane	79-00-5	U227	100	45.4
Trichloroethylene	79-01-6	U228	100	45.4
Trichlorofluoromethane	75-69-4	U121	5,000	2,270
Trichloromethanesulfenyl chloride	594-42-3		100	45.4
Trichloromonofluoromethane	75-69-4	U121	5,000	2,270
Trichlorophenol	25167-82-2		10	4.5
2,3,4-Trichlorophenol	15950-66-0		10	4.5
2,3,5-Trichlorophenol	933-78-8		10	4.5
2,3,6-Trichlorophenol	933-75-5		10	4.5
2,4,5-Trichlorophenol	95-95-4		10	4.5
2,4,6-Trichlorophenol	88-06-2		10	4.5
3,4,5-Trichlorophenol	609-19-8		10	4.5
Triethanolamine dodecylbenzene sulfonate	27323-41-7		1,000	454
Triethylamine	121-44-8	U404	5,000	2,270
Trifluralin	1582-09-8		10	4.5
Trimethylamine	75-50-3		100	45.4
2,2,4-Trimethylpentane	540-84-1		1,000	454
1,3,5-Trinitrobenzene	99-35-4	U234	10	4.5
Tris(2,3-dibromopropyl) phosphate	126-72-7	U235	10	4.5
Trypan blue	72-57-1	U236	10	4.5
Uracil mustard	66-75-1	U237	10	4.5
Uranyl acetate	541-09-3		100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Uranyl nitrate	10102-06-4		100	45.4
Uranyl nitrate	36478-76-9		100	45.4
Urethane	51-79-6	U238	100	45.4
Vanadium pentoxide	1314-62-1	P120	1,000	454
Vanadyl sulfate	27774-13-6		1,000	454
Vinyl acetate	108-05-4		5,000	2,270
Vinyl acetate monomer	108-05-4		5,000	2,270
Vinyl bromide	593-60-2		100	45.4
Vinyl chloride	75-01-4	U043	1	0.454
Vinylidene chloride	75-35-4	U078	100	45.4
Warfarin	81-81-2	P001	100	45.4
Warfarin and salts, concentration > 0.3%	81-81-2	P001	100	45.4
Warfarin sodium	129-06-6		100	45.4
m-Xylene	108-38-3	U239	1,000	454
o-Xylene	95-47-6	U239	1,000	454
p-Xylene	106-42-3	U239	100	45.4
Xylene (mixed isomers)	1330-20-7	U239	100	45.4
Xylenol	1300-71-6		1,000	454
Zinc (fume or dust)	7440-66-6		1,000	454
Zinc[b]	7440-66-6		1,000	454
Zinc acetate	557-34-6		1,000	454
Zinc ammonium chloride	14639-97-5		1,000	454
Zinc ammonium chloride	14639-98-6		1,000	454
Zinc ammonium chloride	52628-25-8		1,000	454
Zinc borate	1332-07-6		1,000	454
Zinc bromide	7699-45-8		1,000	454
Zinc carbonate	3486-35-9		1,000	454
Zinc chloride	7646-85-7		1,000	454
Zinc Compounds			&	&
Zinc cyanide	557-21-1	P121	10	4.5
Zinc fluoride	7783-49-5		1,000	454
Zinc formate	557-41-5		1,000	454
Zinc hydrosulfite	7779-86-4		1,000	454
Zinc nitrate	7779-88-6		1,000	454
Zinc phenolsulfonate	127-82-2		5,000	2,270
Zinc phosphide	1314-84-7	P122	100	45.4
Zinc phosphide (concentration ≤ 10%)	1314-84-7	U249	100	45.4
Zinc phosphide (concentration > 10%)	1314-84-7	P122	100	45.4
Zinc silicofluoride	16871-71-9		5,000	2,270
Zinc sulfate	7733-02-0		1,000	454
Ziram	137-30-4	P205	10	4.5
Zirconium nitrate	13746-89-9		5,000	2,270
Zirconium potassium fluoride	16923-95-8		1,000	454
Zirconium sulfate	14644-61-2		5,000	2,270
Zirconium tetrachloride	10026-11-6		5,000	2,270
UNLISTED CHARACTERISTIC HAZARDOUS WASTES				
Unlisted hazardous wastes characteristic of ignitability		D001	100	45.4
Unlisted hazardous wastes characteristic of corrosivity		D002	100	45.4
Unlisted hazardous wastes characteristic of reactivity		D003	100	45.4

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
UNLISTED HAZARDOUS WASTES CHARACTERISTIC OF TOXICITY				
Arsenic		D004	1	0.454
Barium		D005	1,000	454
Cadmium		D006	10	4.54
Chromium		D007	10	4.54
Lead		D008	10	4.54
Mercury		D009	1	0.454
Selenium		D010	10	4.54
Silver		D011	1	0.454
Endrin		D012	1	0.454
Lindane		D013	1	0.454
Methoxychlor		D014	1	0.454
Toxaphene		D015	1	0.454
2,4-D		D016	100	45.4
2,4,5-TP		D017	100	45.4
Benzene		D018	10	4.54
Carbon tetrachloride		D019	10	4.54
Chlordane		D020	1	0.454
Chlorobenzene		D021	100	45.4
Chloroform		D022	10	4.54
o-Cresol		D023	100	45.4
m-Cresol		D024	100	45.4
p-Cresol		D025	100	45.4
Cresol		D026	100	45.4
1,4-Dichlorobenzene		D027	100	45.4
1,2-Dichloroethane		D028	100	45.4
1,1-Dichloroethylene		D029	100	45.4
2,4-Dinitrotoluene		D030	10	4.54
Heptachlor (and epoxide)		D031	1	0.454
Hexachlorobenzene		D032	10	4.54
Hexachlorobutadiene		D033	1	0.454
Hexachloroethane		D034	100	45.4
Methyl ethyl ketone		D035	5,000	2270
Nitrobenzene		D036	1,000	454
Pentachlorophenol		D037	10	4.54
Pyridine		D038	1,000	454
Tetrachloroethylene		D039	100	45.4
Trichloroethylene		D040	100	45.4
2,4,5-Trichlorophenol		D041	10	4.54
2,4,6-Trichlorophenol		D042	10	4.54
Vinyl chloride		D043	1	0.454
NONSPECIFIC SOURCE HAZARDOUS WASTES[c]				
Spent halogenated solvents used in degreasing:		F001	10	4.54
(a) Tetrachloroethylene	127184	U210	100	45.4
(b) Trichloroethylene	79016	U228	100	45.4
(c) Methylene chloride	75092	U080	1,000	454
(d) 1,1,1-Trichloroethane	71556	U226	1,000	454
(e) Carbon tetrachloride	56235	U211	10	4.54
(f) Chlorinated fluorocarbons			5,000	2270

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Spent halogenated solvents:		F002	10	4.54
(a) Tetrachloroethylene	127184	U210	100	45.4
(b) Methylene chloride	75092	U080	1,000	454
(c) Trichloroethylene	79016	U228	100	45.4
(d) 1,1,1-Trichloroethane	71556	U226	1,000	454
(e) Chlorobenzene	108907	U037	100	45.4
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	76131		5,000	2270
(g) o-Dichlorobenzene	95501	U070	100	45.4
(h) Trichlorofluoromethane	75694	U121	5,000	2270
(i) 1,1,2-Trichloroethane	79005	U227	100	45.4
Spent non-halogenated solvents and still bottoms from recovery:		F003	100	45.4
(a) Xylene	1330207	U239	1,000	454
(b) Acetone	67641	U002	5,000	2270
(c) Ethyl acetate	141786	U112	5,000	2270
(d) Ethylbenzene	100414		1,000	454
(e) Ethyl ether	60297	U117	100	45.4
(f) Methyl isobutyl ketone	108101	U161	5,000	2270
(g) n-Butyl alcohol	71363	U031	5,000	2270
(h) Cyclohexanone	108941	U031	5,000	2270
(i) Methanol	67561	U154	5,000	2270
Spent non-halogenated solvents and still bottoms from recovery:		F004	100	45.4
(a) Cresols/cresylic acid	1319773	U052	100	45.4
(b) Nitrobenzene	98953	U169	1,000	454
Spent non-halogenated solvents and still bottoms from recovery:		F005	100	45.4
(a) Toluene	108883	U220	1,000	454
(b) Methyl ethyl ketone	78933	U159	5,000	2270
(c) Carbon disulfide	75150	P022	100	45.4
(d) Isobutanol	78831	U140	5,000	2270
(e) Pyridine	110861	U196	1,000	454
Wastewater treatment sludges from electroplating operations (with some exceptions)		F006	10	4.54
Spent cyanide plating bath solutions from electroplating		F007	10	4.54
Plating bath residues from electroplating where cyanides are used		F008	10	4.54
Spent stripping/cleaning bath solutions from electroplating where cyanides are used		F009	10	4.54
Quenching bath residues from metal heat treating where cyanides are used		F010	10	4.54
Spent cyanide solution from salt bath pot cleaning from metal heat treating		F011	10	4.54
Quenching wastewater sludges from metal heat treating where cyanides are used		F012	10	4.54
Wastewater treatment sludges from chemical conversion aluminum coating		F019	10	4.54
Wastes from production or use of tri/tetrachlorophenol or derivative intermediates		F020	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Wastes from production or use of pentachlorophenol or intermediates for derivatives		F021	1	0.454
Wastes from use of tetra/penta/hexachlorobenzenes under alkaline conditions		F022	1	0.454
Wastes from material production on equipment previously used for tri\tetrachlorophenol		F023	1	0.454
Wastes from production of chlorinated aliphatic hydrocarbons (C1-C5)		F024	1	0.454
Lights ends, filters from production of chlorinated aliphatic hydrocarbons (C1-C5)		F025	1	0.454
Waste from equipment previously used to production tetra/penta/hexachlorobenzenes		F026	1	0.454
Discarded formulations containing tri/tetra/pentachlorophenols or derivatives		F027	1	0.454
Residues from incineration of soil contaminated with F020, F021, F022, F023, F026, F027		F028	1	0.454
Wastewaters, process residuals from wood preserving using chlorophenolic solutions.		F032	1	0.454
Wastewaters, process residuals from wood preserving using creosote formulations		F034	1	0.454
Wastewaters, process residuals from wood preserving using arsenic or chromium		F035	1	0.454
Petroleum refinery primary oil/water/solids separation sludge		F037	1	0.454
Petroleum refinery secondary (emulsified) oil/water/solids separation sludge		F038	1	0.454
Multisource leachate		F039	1	0.454
SOURCE-SPECIFIC HAZARDOUS WASTES				
Wastewater treatment sludge from creosote/pentachlorophenol wood preserving		K001	1	0.454
Wastewater treatment sludge from production of chrome yellow and orange pigments		K002	10	4.54
Wastewater treatment sludge from production of molybdate orange pigments		K003	10	4.54
Wastewater treatment sludge from production of zinc yellow pigments		K004	10	4.54
Wastewater treatment sludge from production of chrome green pigments		K005	10	4.54
Wastewater treatment sludge from production of chrome oxide green pigments		K006	10	4.54
Wastewater treatment sludge from production of iron blue pigments		K007	10	4.54
Oven residue from production of chrome oxide green pigments		K008	10	4.54
Distillation bottoms from production of acetaldehyde from ethylene		K009	10	4.54
Distillation side cuts from production of acetaldehyde from ethylene		K010	10	4.54

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Bottom stream from wastewater stripper in acrylonitrile production		K011	10	4.54
Bottom stream from acetonitrile column in acrylonitrile production		K013	10	4.54
Bottoms from acetonitrile purification column in acrylonitrile production		K014	5,000	2270
Still bottoms from the distillation of benzyl chloride		K015	10	4.54
Heavy ends or distillation residues from production of carbon tetrachloride		K016	1	0.454
Heavy ends from the purification column in epichlorohydrin production		K017	10	4.54
Heavy ends from the fractionation column in ethyl chloride production		K018	1	0.454
Heavy ends from the distillation of ethylene dichloride during its production		K019	1	0.454
Heavy ends from the distillation of vinyl chloride during production of the monomer		K020	1	0.454
Aqueous spent antimony catalyst waste from fluoromethanes production		K021	10	4.54
Distillation bottom tars from production of phenol/acetone from cumene		K022	1	0.454
Distillation light ends from production of phthalic anhydride from naphthalene		K023	5,000	2270
Distillation bottoms from production of phthalic anhydride from naphthalene		K024	5,000	2270
Distillation bottoms from production of nitrobenzene by nitration of benzene		K025	10	4.54
Stripping still tails from the production of methyl ethyl pyridines		K026	1,000	454
Centrifuge/distillation residues from toluene diisocyanate production		K027	10	4.54
Spent catalyst from hydrochlorinator reactor in production of 1,1,1-trichloroethane		K028	1	0.454
Waste from product steam stripper in production of 1,1,1-trichloroethane		K029	1	0.454
Column bottoms/heavy ends from production of trichloroethylene and perchloroethylene		K030	1	0.454
By-product salts generated in the production of monosodium methanearsonate and cacodylic acid		K031	1	0.454
Wastewater treatment sludge from the production of chlordane		K032	10	4.54
Wastewaster/scrubwater from chlorination of cyclopentadiene in chlordane production		K033	10	4.54
Filter solids from filtration of hexachlorocyclopentadiene in chlordane production		K034	10	4.54
Wastewater treatment sludges from the production of creosote		K035	1	0.454

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Still bottoms from toluene reclamation distillation in disulfoton production		K036	1	0.454
Wastewater treatment sludges from the production of disulfoton		K037	1	0.454
Wastewater from the washing and stripping of phorate production		K038	10	4.54
Filter cake from filtration of diethylphosphorodithioic acid in phorate production		K039	10	4.54
Wastewater treatment sludge from the production of phorate		K040	10	4.54
Wastewater treatment sludge from the production of toxaphene		K041	1	0.454
Heavy ends/residues from distillation of tetrachlorobenzene in 2,4,5-T production		K042	10	4.54
2,6-Dichlorophenol waste from the production of 2,4-D		K043	10	4.54
Wastewater treatment sludge from manufacturing and processing of explosives		K044	10	4.54
Spent carbon from treatment of wastewater containing explosives		K045	10	4.54
Wastewater sludge from manufacturing, formulating, loading of lead-based initiating compound		K046	10	4.54
Pink/red water from trinitrotolune operations		K047	10	4.54
Dissolved air flotation float from the petroleum refining industry		K048	10	4.54
Slop oil emulsion solids from the petroleum refining industry		K049	10	4.54
Heat exchanger bundle cleaning sludge from petroleum refining industry		K050	10	4.54
API separator sludge from the petroleum refining industry		K051	10	4.54
Tank bottoms (leaded) from the petroleum refining industry		K052	10	4.54
Ammonia still lime sludge from coking operations		K060	1	0.454
Emission control dust/sludge from primary production of steel in electric furnaces		K061	10	4.54
Spent pickle liquor generated by steel finishing (SIC codes 331 and 332)		K062	10	4.54
Acid plant blowdown slurry/sludge from blowdown slurry from primary copper production		K064	10	4.54
Surface impoundment solids at primary lead smelting facilities		K065	10	4.54
Sludge from treatment of wastewater/acid plant blowdown from primary zinc production		K066	10	4.54
Emission control dust/sludge from secondary lead smelting		K069	10	4.54
Brine purification muds from mercury cell process in chlorine production		K071	1	0.454
Chlorinated hydrocarbon waste from diaphragm cell process in chlorine production		K073	10	4.54

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Distillation bottoms from aniline extraction		K083	100	45.4
Wastewater sludges from production of veterinary pharmaceuticals from arsenic compounds		K084	1	0.454
Distillation or fractionation column bottoms in production of chlorobenzenes		K085	10	4.54
Wastes/sludges from production of inks from chromium and lead-containing substances		K086	10	4.54
Decanter tank tar sludge from coking operations		K087	100	45.4
Spent potliners from primary aluminum reduction		K088	10	4.54
Emission control dust/sludge from ferrochromiumsilicon production		K090	10	4.54
Emission control dust/sludge from ferrochromium production		K091	10	4.54
Distillation light ends from production of phthalic anhydride by ortho-xylene		K093	5,000	2270
Distillation bottoms in production of phthalic anhydride by ortho-xylene		K094	5,000	2270
Distillation bottoms in production of 1,1,1-trichloroethane		K095	100	45.4
Heavy ends from distillation column in production of 1,1,1-trichloroethane		K096	100	45.4
Vacuum stripper discharge from the chlordane chlorinator in production of chlordane		K097	1	0.454
Untreated process wastewater from the production of toxaphene		K098	1	0.454
Untreated wastewater from the production of 2,4-D		K099	10	4.54
Waste leaching solution from emission control dust/sludge in secondary lead smelting		K100	10	4.54
Distillation tar residue from aniline in production of veterinary pharmaceuticals from arsenic compd.		K101	1	0.454
Residue from activated carbon in production of veterinary pharmaceuticals from arsenic compounds		K102	1	0.454
Process residues from aniline extraction from the production of aniline		K103	100	45.4
Combined wastewater streams generated from production of nitrobenzene/aniline		K104	10	4.54
Aqueous stream from washing in production of chlorobenzenes		K105	10	4.54
Wastewater treatment sludge from mercury cell process in chlorine production		K106	1	0.454
Column bottoms from separation in production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides		K107	10	4.54
Condensed column overheads and vent gas from production of UDMH from -COOH hydrazides		K108	10	4.54
Spent filter cartridges from purification of UDMH production from carboxylic acid hydrazides		K109	10	4.54
Condensed column overheads from separation in UDMH production from -COOH hydrazides		K110	10	4.54

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Product washwaters from production of dinitrotoluene via nitration of toluene		K111	10	4.54
Reaction by-product water from drying in toluenediamine production from dinitrotoluene		K112	10	4.54
Condensed liquid light ends from purification of toluenediamine during its production		K113	10	4.54
Vicinals from purification of toluenediamine during its production from dinitrotoluene		K114	10	4.54
Heavy ends from toluenediamine purification during production from dinitrotoluene		K115	10	4.54
Organic condensate from solvent recovery system in production of toluene diisocyanate		K116	10	4.54
Wastewater from vent gas scrubber in ethylene bromide production by ethene bromination		K117	1	0.454
Spent absorbent solids in purification of ethylene dibromide in its production		K118	1	0.454
Process wastewater from the production of ethylenebisdithiocarbamic acid and salts		K123	10	4.54
Reactor vent scrubber water from production of ethylenebisdithiocarbamic acid and salts		K124	10	4.54
Filtration/other solids from production of ethylenebisdithiocarbamic acid and salts		K125	10	4.54
Dust/sweepings from the production of ethylenebisdithiocarbamic acid and salts		K126	10	4.54
Wastewater and spent sulfuric acid from the production of methyl bromide		K131	100	45.4
Spent absorbent and wastewater solids from the production of methyl bromide		K132	1,000	454
Still bottoms from ethylene dibromide purification in production by ethene bromination		K136	1	0.454
Process residues from coal tar recovery in coking		K141	1	0.454
Tar storage tank residues from coke production from coal or recovery of coke by-prods.		K142	1	0.454
Process residues from recovery of light oil in coking		K143	1	0.454
Wastewater residues from light oil refining in coking		K144	1	0.454
Residues from naphthalene collection and recovery from coke by-products		K145	1	0.454
Tar storage tank residues from coal tar refining in coking		K147	1	0.454
Residues from coal tar distillation, including still bottoms, in coking		K148	1	0.454
Distillation bottoms from the production of chlorinated toluenes/benzoyl chlorides		K149	10	4.54
Organic residuals from chlorine gas and hydrogen chloride recovery from chlorinated toluene production		K150	10	4.54
Wastewater treatment sludge from production of chlorotoluenes/benzoyl chlorides		K151	10	4.54
Organic waste from production of carbamates and carbamoyl oximes		K156	10	4.54

Table 3. List of Hazardous Wastes and Hazardous Substances, Continued

HAZARDOUS WASTES AND HAZARDOUS SUBSTANCES	CAS NO.	HW NO.	RQ	
			(Pounds)	(kg)
Wastewaters from production of carbamates and carbamoyl oximes (not sludges)		K157	10	4.54
Bag house dusts & filter/separation solids from prod of carbamates, carb oximes		K158	10	4.54
Organics from treatment of thiocarbamate waste		K159	10	4.54
Purified solids/bag house dust/sweepings from prod of dithiocarbamate acids/salts		K161	1	0.454
Crude oil storage tank sediment from refining operations		K169	10	4.54
Clarified slurry oil tank sediment of in-line filter/separation solids		K170	1	0.454
Spent hydrotreating catalyst		K171	1	0.454
Spent hydrorefining catalyst		K172	1	0.454
Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer, (including sludges that result from commingled ethylene dichloride or vinyl chloride monomer wastewater and other wastewater), unless the sludges meet certain disposal conditions. See Section 261.32 of Title 40, CFR		K174	1	0.454
Wastewater treatment sludges from the production vinyl chloride monomer using mercuric chloride catalyst in an acetylene-based process. See Section 261.32 of Title 40, CFR		K175	1	0.454
Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metal or crude antimony oxide)		K176	1	0.454
Slag from the production of antimony oxide that is speculatively accumulated or disposed, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide)		K177	5,000	2270
Non-wastewaters generated from the production of certain dyes, pigments, and Food, Drug & Cosmetics colorants, exceeding constituent mass loading levels, subject to disposal exceptions in Section 261.32 of Title 40, CFR		K181	1	0.454

& = Indicates that no RQ is assigned to this generic or broad class, although the class is a hazardous substance.
@ = Releases in amounts less than 453.5 kg [1,000 pounds] per 24 hours of nitrogen oxide or nitrogen dioxide to the air that are the result of combustion and combustion related activities are exempt from the notification requirements.
[a] RQ (See Section 7 of Volume 4)
[b] For metals, no reporting of releases of the solid form is required if the mean diameter of the pieces of the solid metal released is greater than 100 micrometers [0.004 inches]. The RQs shown apply to smaller particles.
[c] Detailed descriptions of nonspecific source hazardous wastes are contained in Table 5.

(2) Each listed waste was listed because of one or more of the hazard codes shown in Table 4.

Table 4. Hazard Codes

TYPE OF WASTE	HAZARD CODE
Ignitable Waste	(I)
Corrosive Waste	(C)
Reactive Waste	(R)
Toxicity Characteristic Waste	(E)
Acute Hazardous Waste	(H)
Toxic Waste	(T)

(3) Each listed hazardous waste is assigned an HW No.

b. Hazardous Wastes from Nonspecific Sources.

The solid wastes in Table 5 are listed hazardous wastes from nonspecific sources. These hazardous wastes are designated with an "F."

Table 5. Listed Hazardous Wastes from Nonspecific Sources

HW NO.	HAZARDOUS WASTES	HAZARD CODE[A]
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F007	Spent cyanide plating bath solutions from electroplating operations.	(R,T)

Table 5. Listed Hazardous Wastes from Nonspecific Sources, Continued

HW NO.	HAZARDOUS WASTES	HAZARD CODE[A]
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R,T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum, except from zirconium phosphating in aluminum can washing when such phosphating is an exclusion conversion coating process.	(T)
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives (this listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5- trichlorophenol).	(H)
F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.	(H)
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.	(H)
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols (this listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5- trichlorophenol).	(H)
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to five, with varying amounts and positions of chlorine substitution.	(T)
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(H)
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols (this listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5- trichlorophenol as the sole component).	(H)

Table 5. Listed Hazardous Wastes from Nonspecific Sources, Continued

HW NO.	HAZARDOUS WASTES	HAZARD CODE[A]
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with HW No.'s F020, F021, F022, F023, F026, and F027.	(T)
F032	Wastewater (except that which has not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross- contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator has cleaned or replaced all process equipment that may have come into contact with chlorophenolic formulations or constituents thereof, and does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol.	(T)
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	(T)
F035	Wastewater (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote or pentachlorophenol.	(T)
F037	Petroleum refinery primary oil/water/solids separation sludge: Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewater and oily cooling wastewater from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling water segregated for treatment from other process or oily cooling water, sludges generated in activated sludge, trickling filter, rotating biological contactor, or high-rate aeration biological treatment units (including sludges generated in one or more additional units after wastewater has been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.	(T)
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste listed in Tables 3 or 5 (leachate resulting from the disposal of one or more of the following hazardous wastes and no other hazardous wastes retains its HW No.'s: F020, F021, F022, F026, F027, and/or F028).	(T)

[a] Hazard Codes: Ignitable Waste (I), Corrosive Waste (C), Reactive Waste (R), Toxicity Characteristic Waste (E), Acute Hazardous waste (H), Toxic Waste (T).
(I,T) should be used to specify mixtures containing ignitable and toxic constituents.

c. Hazardous Waste from Specific Sources.

The solid wastes listed in Table 3, annotated "K" as the first character of the HW No. column, are listed hazardous wastes from specific sources.

d. Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residue.

(1) The commercial chemical product or manufacturing chemical intermediate generic name listed in Table 3 refers to a chemical substance that is manufactured or formulated for commercial or manufacturing use. These chemicals and chemical intermediates include the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a manufacturing process waste that contains any of the substances listed in Table 3, annotated "P" or "U" as the first character in the HW No., since it is considered used. This manufacturing process waste is deemed a hazardous waste even if containing a substance listed in Table 3, annotated "P" or "U" as the first character in the HW No., when it exhibits a characteristic of hazardous waste or is a listed hazardous waste from a nonspecific source identified in Table 5.

(2) Residue intended for discard is a hazardous waste unless it is being beneficially used or reused; legitimately recycled or reclaimed; or being accumulated, stored, transported or treated before such use, reuse, recycling, or reclamation. An example of a legitimate re-use of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.

(3) The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded; mixed with waste oil, used oil, or other material and applied to the land for dust suppression or road treatment; otherwise applied to the land in lieu of their original intended use or contained in products that are applied to the land in lieu of their original intended use; or, in lieu of their original intended use, produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel:

(a) Any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Table 3, annotated "P" or "U" as the first character in the HW No.

(b) Any off-specification commercial chemical product or manufacturing chemical intermediate that, if it met specifications, would have the generic name listed in Table 3, annotated "P" or "U" as the first character in the HW No.

(c) Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Table 3, annotated "P" or "U" as the first character in the HW No., unless the container is empty.

(d) Any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Table 3, annotated "P" or "U" as the first character in the HW No. Any residue or contaminated soil, water, or other debris

resulting from the cleanup of a spill into or on any land or water of any off-specification chemical product and manufacturing chemical intermediate that, if it met specifications, would have the generic name listed in Table 3, annotated "P" or "U" as the first character in the HW No.

(e) The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in Table 3, annotated "P" as the first character in the HW No. are identified as acute hazardous waste (H). For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters "T" (Toxicity), and "R" (Reactivity). Absence of a letter indicates that the compound is only listed for acute toxicity. These wastes and their corresponding HW Nos. are listed in Table 3, annotated "P" as the first character in the HW No.

(f) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in Table 3 are identified as toxic wastes (T), unless otherwise designated. For the convenience of the regulated community, the primary hazardous properties of these materials are designated with the letter "T" (Toxicity), "R" (Reactivity), "I" (Ignitability), and "C" (Corrosivity).

Table 6. Maximum Concentration of Contaminants for Non-Wastewater

HW NO.	CONTAMINANT	CAS NO.	REGULATORY LEVEL (MG/L)
D018	Benzene	71-43-2	0.5
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D023	o-Cresol	95-48-7	200.0[a]
D024	m-Cresol	108-39-4	200.0[a]
D025	p-Cresol	106-44-5	200.0[a]
D026	Cresol		200.0[a]
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D035	Methyl Ethyl Ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0[b]
D039	Tetrachloroethylene	127-18-4	0.7
D040	Trichloroethylene	79-01-6	0.5

Table 6. Maximum Concentration of Contaminants for Non-Wastewater, Continued

HW NO.	CONTAMINANT	CAS NO.	REGULATORY LEVEL (MG/L)
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D043	Vinyl Chloride	75-01-4	0.2

[a] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.
[b] Quantification limit is greater than the calculated regulatory level. The quantification limit, therefore, becomes the regulatory level.
L = liter

SECTION 6: MEDICAL WASTE

6.1. INTRODUCTION.

This section contains standards on the safe handling, storage, treatment, and disposal of medical waste generated by medical, dental, research and development, and veterinary facilities. Medical waste includes wastes generated in the diagnosis, treatment, or immunization of human beings or animals or in the production or testing of biologicals (i.e., medical products, such as a vaccine, made from biological sources) subject to certain exclusions. It also includes mixtures of medical waste and hazardous waste. Wastes that would otherwise be solid waste or radiological waste are not covered in this section. Standards for solid waste are provided in Section 4. Standards for radiological wastes are covered in DoDI 4715.27.

6.2. TRAINING.

Installations must:

a. Ensure that all employees are adequately trained to perform their duties.

b. Train employees who come in direct contact with patients, or who generate, segregate, package, store, transport, treat, or dispose of infectious medical waste, in the safe handling and management of infectious medical waste.

6.3. GENERATION.

Installations must:

a. Separate infectious medical waste, if practical, from other solid waste at the point of origin.

(1) Handle mixtures of infectious medical wastes and hazardous wastes as infectious hazardous waste in accordance with Volume 4 of DoDM 4160.21.

(a) These mixtures are the responsibility of the generating DoD Component, with priority given to the hazard that presents the greatest risk.

(b) DLA Disposition Services has no responsibility for this type of hazardous waste until it is rendered noninfectious, as determined by the appropriate DoD medical authority.

(2) Handle mixtures of other solid waste and infectious medical waste as infectious medical waste.

(3) Segregate and manage mixtures of infectious medical waste and radioactive waste in accordance with DoD Component guidance.

b. Segregate from routine infectious medical waste any medical wastes from animal or human treatment containing a Category A infectious substance and manage in accordance with regulations of the HN and the International Air Transport Association.

c. Segregate, transport, and store infectious medical waste in red bags or receptacles that are a minimum of 3-mils [0.0762-millimeters] thick and have durability, puncture resistance, and burst strength as to prevent rupture or leaks during ordinary use.

d. Clearly mark all bags or receptacles used to segregate, transport, or store infectious medical waste with:

(1) The universal biohazard symbol.

(2) The word "BIOHAZARD" in English and the predominant HN language.

(3) Markings or a label that identify the generator, date of generation, and contents.

e. Segregate and store sharps in upright and stable heavy-duty plastic containers with tight-fitting, puncture-resistant, leak-resistant lids. Discard sharps in rigid receptacles. Do not clip, cut, bend, or recap needles before disposal. **Close s**harps containers and remove them when they are three-fourths full.

f. Place all anatomical pathology waste (e.g., large body parts) in containers lined with plastic bags in accordance with Paragraph 6.3.b.

g. Ensure all receptacles can be closed and are kept closed, except when the container is actively being used.

6.4. HANDLING WITHIN THE FACILITY.

Installations must:

a. Transport infectious medical waste to minimize human exposure. Do not place in chutes or dumbwaiters.

b. Avoid compacting infectious medical waste unless first converted to noninfectious medical waste by the treatment described in Paragraph 6.6. Do not compact containers holding sharps.

c. Ensure all personnel handling infectious medical waste wear appropriate protective apparel or equipment such as gloves, coveralls, masks, and goggles, and receive appropriate training on the use of protective equipment and risk reduction associated with exposure to infectious agents, pathogens, and physical hazards.

6.5. STORAGE.

Installations must:

a. Manage infectious waste when stored on-site.

(1) Store infectious medical waste in a manner that prevents decay, spoilage, or becoming putrid. Refrigeration is required for pathology waste.

(2) Infectious medical waste must not be placed in hallways.

(3) Infectious medical waste with multiple hazards (e.g., infectious hazardous waste or infectious radioactive waste) must be segregated from the general infectious waste stream when additional or alternate treatment and disposal is required.

b. Ensure storage sites:

(1) Are specifically designated for such use.

(2) Are constructed to prevent entry of insects, rodents, and other pests.

(3) Prevent access by unauthorized personnel.

(4) Are marked on the outside with the universal biohazard symbol and the word "BIOHAZARD" in both English and the predominant HN language.

c. Post signage that:

(1) Identifies any special requirements for entering the site, and the name and telephone number of the person responsible for the storage site.

(2) Is fluorescent orange-red in color, or predominately so, with lettering and symbols in contrasting color, and easily visible to workers.

d. Remove waste from:

(1) Interim storage sites (e.g., soiled utility rooms) daily.

(2) The final storage site at least every 7 calendar days unless refrigerated. If refrigerated, the infectious medical waste may remain in the final storage site for 30 calendar days. Infectious medical waste is typically refrigerated at temperatures between 0-4 °C [32-39.2 °F].

6.6. TREATMENT AND DISPOSAL.

Installations must:

a. Treat and dispose of blood, blood products, and other liquid infectious wastes as follows:

(1) Decant bulk blood and blood products into a sewer system connection (e.g., sinks, drains), unless pre-treatment is required.

(a) If pre-treatment is required, use the methods outlined in Table 7 before discharge to the sewer system. Continue to manage the emptied containers as infectious medical waste.

(b) If pre-treatment is not feasible to allow for sewer system disposal, seal the liquid waste in leak-proof containers and incinerate.

(2) Either decant suction canister waste from operating rooms into a clinical sink (if pre-treatment is available) or sealed in leak-proof containers and incinerate.

b. Before disposal, treat infectious medical waste in accordance with Table 7 and:

(1) Ensure sterilizers maintain their temperature at 121 °C [250 °F] for at least 30 minutes at 103.4 kilopascal [15 pounds per square inch].

(2) Check the effectiveness of sterilizers at least weekly using *Bacillus stearo thermophilus* spore strips or an equivalent biological performance test.

(3) Design and operate incinerators used to treat infectious medical waste to maintain a minimum temperature and retention time sufficient to destroy all infectious agents and pathogens and meet the applicable air emission standards in Paragraph 4.4. of Volume 2.

(4) Assess ash or residue from the incineration of infectious medical waste for classification as hazardous waste in accordance with Paragraph 5.3.

(a) Manage ash that is determined to be hazardous waste in accordance with Section 5.

(b) Dispose of all other residue in a landfill that complies with the standards in Section 4.

(5) Conduct chemical disinfection using procedures and compounds approved by the appropriate DoD medical authority for use on any pathogen or infectious agent suspected to be present in the waste.

Table 7. Treatment and Disposal Methods for Infectious Medical Waste

TYPE OF MEDICAL WASTE	METHOD OF TREATMENT	METHOD OF DISPOSAL
Microbiological	Steam sterilization[a]	MSWLF[b]
	Chemical disinfection	MSWLF
	Incineration	MSWLF
Pathology	Incineration[c]	MSWLF
	Cremation[c]	Burial
	Chemical sterilization[d]	Domestic wastewater treatment plant (DWTP)[e]
	Steam sterilization[d]	DWTP
Bulk blood and suction canister waste	Steam sterilization[f] Chemical disinfection	DWTP
	Incineration[f]	MSWLF

Table 7. Treatment and Disposal Methods for Infectious Medical Waste, Continued

TYPE OF MEDICAL WASTE	METHOD OF TREATMENT	METHOD OF DISPOSAL
Sharps in sharps containers	Steam sterilization	MSWLF
	Incineration	MSWLF

[a] Preferred method for cultures and stocks because they can be treated at point of generation.
[b] See Section 4 of this volume for solid waste landfill standards.
[c] Treat anatomical pathology waste (e.g., large body parts) either by incineration or cremation before disposal. See Section 4 of Volume 2 for incinerator standards.
[d] This only applies to placentas, small organs, and small body parts that may be steam sterilized or chemically sterilized, ground, and discharged to a domestic wastewater treatment plant.
[e] See Section 5 of Volume 3 for wastewater standards.
[f] Treat bulk blood or suction canister waste known to be infectious by incineration or steam sterilization before disposal.

c. For the disposal of non-contaminated animal carcasses, consider and appropriately address HN requirements that may vary from the standards in this section.

d. Place bags and receptacles containing infectious medical waste in rigid or semi-rigid, leak-proof containers before being transported off-site.

e. Package and document the transport of infectious medical waste off-site for disposal in accordance with transportation regulations of the HN and the International Air Transport Association. At a minimum, the transporter must be appropriately credentialed by the affected HN(s) to transport the waste and must provide a receipt for transport to the installation.

6.7. CONTINGENCY PLANNING.

Installations must:

a. Develop contingency plans for treatment or disposal of infectious medical waste in case the primary means become inoperable.

b. Include alternate storage sites or alternate means of treatment and disposal in the contingency plans.

6.8. SPILLS.

Installations must:

a. Clean up spills of infectious medical waste as soon as possible.

b. Comply with personal protection equipment requirements in Paragraph 6.4.c.

c. Remove blood, body fluid, and other infectious fluid spills with an absorbent material that must then be managed as infectious medical waste.

d. Wash surfaces contacted by infectious medical waste with soap and water and chemically decontaminate the surfaces in accordance with Paragraph 6.6.b.(5).

6.9. RECORDKEEPING.

Installations must keep records of the following information concerning infectious medical waste for at least 3 years after the date of disposal:

a. Type of waste.

b. Amount of waste (volume or weight).

c. Treatment method, including date of treatment.

d. Disposition, including:

(1) Date of disposition.

(2) If the waste was transferred to HN facilities.

(3) Receipts acknowledging Paragraphs 6.9.a. through 6.9.c. for each transfer.

GLOSSARY

G.1. ACRONYMS.

ACRONYM	MEANING
°C	degrees Celsius
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
cm	centimeter
DLA	Defense Logistics Agency
DoDD	DoD directive
DoDI	DoD instructions
DoDM	DoD manual
DWTP	domestic wastewater treatment plant
E.O.	Executive order
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
FGS	final governing solution
HN	host-nation
HW No.	hazardous waste number
HWAP	hazardous waste accumulation point
HWPS	hazardous waste profile sheet
HWSA	hazardous waste storage area
kg	kilogram
L	liter
LEC	lead environmental component
mg	milligram
MSW	municipal solid waste
MSWLF	municipal solid waste landfill
PCB	polychlorinated biphenyl
RQ	reportable quantity
UDMH	1, 1-dimethylhydrazine
USEUCOM	United States European Command

G.2. DEFINITIONS.

Unless otherwise noted, these terms and their definitions are for the purpose of this issuance.

TERM	DEFINITION
acute hazardous waste.	Wastes listed in Table 3 with a waste number with the "P" designator, or hazardous wastes in Table 5 with the Hazard Code "H."
applicable HN environmental standards.	Defined in DoDI 4715.05.
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.
Category A infectious substance.	An infectious substance which is transported in a form that, if exposure occurs, is capable of causing permanent disability, or life-threatening or fatal disease, to otherwise healthy humans or animals.
cathodic protection.	A technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.
collection.	In the context of solid waste management in Section 4, the act of consolidating solid wastes, or materials that have been separated for the purpose of recycling, from various locations.
commercial solid waste.	All types of solid wastes generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential, institutional, and industrial solid wastes.
construction and demolition debris.	The waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavements, houses, commercial buildings, and other structures.
cover material.	Material that is used to cover compacted solid wastes in a land disposal site.

TERM	DEFINITION
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 to control vectors, fire, moisture, and erosion and assure an aesthetic appearance. Mature compost or other natural material may be substituted for soil if soil is not reasonably available in the vicinity of the landfill and the substituted material will control vectors, fire, moisture, and erosion and assure an aesthetic appearance.
disposal.	In the context of hazardous waste management in Section 5, the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water that would allow the waste or constituent to enter the environment. Proper disposal effectively mitigates hazards to human health and the environment.
elementary neutralization.	A process of neutralizing a hazardous waste that is hazardous only because of the corrosivity characteristic. It must be accomplished in a tank, transport vehicle, or container.
enduring location.	Defined in DoDI 4715.05.
FGS.	Defined in DoDI 4715.05.
final cover.	A layer of soil, mature compost, other natural material, or synthetic material with an equivalent minimum permeability that is applied to the landfill after completion of a cell or trench, including a layer of material that will sustain native vegetation, if any.
food waste.	The organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage.
generation.	The act or process of producing waste.
generator.	An installation, or a unit or activity on an installation, whose act or process produces hazardous waste.
hazardous constituent.	A chemical compound listed by name in Table 3 or that possesses the characteristics described in Paragraph 5A.1.

TERM	DEFINITION
hazardous substance.	Any substance having the potential to do serious harm to human health or the environment if spilled or released in RQ. A list of these substances and the corresponding RQs is provided in Table 3 of Appendix 5A. Hazardous substances do not include: Petroleum, including crude petroleum, oil, and lubricants or any fraction thereof, that is not otherwise specifically listed or designated in Table 3 of Appendix 5A as a hazardous substance. Natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).
hazardous waste.	A waste that may be solid, semi-solid, liquid, or contained gas, and either exhibits a characteristic of a hazardous waste as detailed in Paragraph 5A.1. or is listed as a hazardous waste in Tables 3 through 6. Does not include domestic sewage sludge, household wastes, and medical wastes.
hazardous waste log.	A listing of hazardous waste deposited and removed from an HWSA. Information such as the waste type, volume, location, and storage removal dates should be recorded.
HWAP.	A shop, site, or other work center where hazardous wastes are accumulated until removed to an HWSA or shipped for treatment or disposal.
HWPS.	A document that identifies and characterizes the waste by providing the user's knowledge of the waste and lab analysis, and details the physical, chemical, and other descriptive properties or processes that created the hazardous waste.
HWSA.	Any location on a DoD installation where hazardous waste is collected before shipment for treatment or disposal. An HWSA may store more than the equivalent of a 208-liter [55-gallon] drum of hazardous waste, or a 1-liter [1-quart] container of an acute hazardous waste, from each waste stream.
HWSA manager.	A person or agency on the installation assigned the operational responsibility for receiving, storing, inspecting, and general management of the installation's HWSA or HWSA program.

TERM	DEFINITION
incompatible waste.	A hazardous waste that is unsuitable for: placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container inner liners or tank walls); or commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.
industrial solid waste.	Solid waste generated by industrial processes and manufacturing that is not characterized as hazardous waste in accordance with Section 5.
infectious agent.	Any organism, such as a virus or bacterium, that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans.
infectious hazardous waste.	Mixtures of infectious medical waste and hazardous waste including solid waste, such as fluids from a laboratory.

TERM	DEFINITION
infectious medical waste.	Solid waste produced by medical facilities that is specially managed because it has the potential for causing disease in humans or animals, or may pose a risk to both individuals or community health if not managed properly, and that includes the following classes: Microbiology waste, including cultures and stocks of etiologic agents that, due to their species, type, virulence, or concentration, are known to cause disease in humans. Pathology waste, including tissues and organs, amputated limbs or other body parts, fetuses, placentas, and similar tissues from surgery, delivery, or autopsy procedures. Waste contaminated with an infectious agent, including carcasses, body parts, blood, and bedding are also included. Non-contaminated carcasses of animals that died from natural causes or vehicular impact are not considered pathology waste and are disposed of as solid waste in accordance with Section 4 where local regulations permit. Blood and blood products (including serum, plasma, and other blood components), items contaminated with liquid or semi-liquid blood or blood products and items saturated or dripping with blood or blood products, and items caked with blood or blood products that are capable of releasing these materials during handling. Potentially infectious materials, including fluids such as semen, vaginal secretions, cerebrospinal fluid, pericardial fluid, pleural fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids. Sharps, including hypodermic needles, syringes, biopsy needles, and other types of needles used to obtain tissue or fluid specimens, needles used to deliver intravenous solutions, scalpel blades, Pasteur pipettes, specimen slides, cover slips, glass petri plates, and broken glass potentially contaminated with infectious waste. Infectious waste from isolation rooms, but only including those items that were contaminated or likely to have been contaminated with infectious agents or pathogens, including bodily excretions and discarded materials contaminated with blood.
installation.	Defined in DoDI 4715.05.

TERM	DEFINITION
institutional solid waste.	Solid waste generated by educational, health care, correctional, and other institutional facilities.
international agreement.	Defined in DoDI 4715.05.
land application unit.	An area where wastes are applied onto or incorporated into the soil surface, excluding manure spreading operations, for agricultural purposes or for treatment or disposal.
land disposal.	Placement in or on the land including, but not limited to, land treatment, facilities, surface impoundments, underground injection wells, salt dome formations, salt bed formations, and underground mines or caves.
lower explosive limit.	The lowest percentage by volume of a mixture of explosive gases in air that will propagate a flame at 25 °C [77 °F] and atmospheric pressure.
medical facility.	Medical, dental, research and development, and veterinary facilities that generate waste in the diagnosis, treatment, or immunization of human beings or animals or in the production or testing of biological subjects.
MSW.	Institutional, residential, commercial, and industrial solid waste generated within a community, not including yard waste. See Section 4 of Volume 2.
MSWLF unit.	A discrete area of land or an excavation, on or off an installation, that receives institutional, commercial, residential, or industrial solid waste, and is not a land application unit, surface impoundment, injection well, or waste pile. Employs an engineered method of disposing of solid waste that minimizes environmental hazards by spreading the solid waste in thin layers, compacting the solid waste to the smallest practical volume, and applying and compacting cover materials daily.
noninfectious medical waste.	Solid waste created that does not require special management because it has been determined to be incapable of causing disease in humans or animals, or that has been treated to render it noninfectious. This waste should be disposed of as solid waste in accordance with Section 4 if local regulations permit.

TERM	DEFINITION
open burning.	Burning of solid wastes in the open, not in a commercially manufactured incinerator or other equipment specifically designed and manufactured for the burning of solid waste.
open dump.	A land disposal site where 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. Includes sites that do not meet the design and operational requirements of Paragraph 4.6.
residential solid waste.	The wastes generated by normal household activities, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes.
rubbish.	A general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments, and institutions.
scavenging.	The uncontrolled and unauthorized removal of materials at any point in the solid waste management system.
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.
solid waste.	Garbage, refuse, sludge, and other discarded materials, including solid, semi-solid, liquid, and contained gaseous materials resulting from institutional, industrial, residential, 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.

TERM	DEFINITION
solvent-contaminated wipe.	A woven or non-woven shop towel, rag, pad, or swab made of wood pulp, fabric, cotton, polyester blends, or other material that, after use or after cleaning up a spill, either: Contains one or more of the F001 through F005 solvents listed in Table 5 or the corresponding P- or U-listed solvents found in in Table 3; Exhibits a hazardous characteristic found in Paragraph 5A.1. when that characteristic results from a solvent listed in Tables 3 or 5; or Exhibits only the hazardous waste characteristic of ignitability found in Paragraph 5A.1.a, due to the presence of one or more solvents that are not listed in Tables 3 or 5.
Standards.	Substantive elements of U.S. laws and federal regulations applicable to DoD installations, facilities, and actions in the United States or that have extraterritorial application.
storage.	The interim containment of waste after generation and before collection for ultimate recovery or disposal.
storage site.	In the context of medical waste management in Section 6, an interim (e.g., soiled utility room) or final location where infectious medical waste is stored before treatment or disposal. This does not include point-of-use collection sites.

TERM	DEFINITION
treatment.	In the context of hazardous waste management in Section 5, any method, technique, or process, excluding elementary neutralization, designed to change the physical, chemical, or biological characteristics or composition of any hazardous waste that would render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. In the context of medical waste management in Section 6, any method, technique, or process designed to change the physical, chemical, or biological character or composition of any infectious hazardous or infectious medical waste so as to render such waste noninfectious; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. Treatment methods for infectious medical waste must eliminate infectious agents so that they no longer pose a hazard to persons who may be exposed.
unique identification number.	A number assigned to generators of hazardous waste to identify the generator and used to assist in tracking the waste from point of generation to ultimate disposal. The number is typically the DoD Activity Address Code but could be another unique identifier. The method for determining the unique identification number is usually specified by the LEC in the FGS.
United States.	Defined in DoDI 4715.05.
used oil.	Any oil or other waste petroleum, oil, or lubricant product that has been refined from crude oil or is synthetic oil and, as a result of being used, is contaminated by physical or chemical impurities or is off-specification and cannot be used as intended. Although used oil may exhibit the characteristics of reactivity, toxicity, ignitability, or corrosivity, it is still considered used oil unless it has been mixed with hazardous waste. Used oil mixed with hazardous waste is a hazardous waste and is managed as such.
used oil fuel.	Used oil that is burned for energy recovery is termed “used oil fuel.” Used oil fuel includes any fuel produced from used oil by processing, blending, or other treatment.
vector.	A carrier that is capable of transmitting a pathogen from one organism to another.

TERM	DEFINITION
yard waste.	Grass and shrubbery clippings, tree limbs, leaves, and similar organic materials commonly generated in residential yard maintenance (also known as green waste).

REFERENCES

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American Society for Testing and Materials Standard D-3278-78, "Standard Test Methods for Flash Point of Liquids by Setaflash Closed Tester," current edition[1]

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Defense Transportation Regulation 4500.9-R-Part II, "Defense Transportation Regulation – Cargo Movement," current edition

Defense Transportation Regulation 4500.9-R-Part III, "Defense Transportation Regulation – Mobility," current edition

Defense Transportation Regulation 4500.9-R-Part IV, "Defense Transportation Regulation – Personal Property," current edition

Department of Defense Explosives Safety Board, "Defense Explosives Safety Regulation 6055.09," current edition

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DoD Directive 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005, as amended

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DoD Instruction 4105.72, "Procurement of Sustainable Goods and Services," September 7, 2016, as amended

DoD Instruction 4150.07, "DoD Pest Management Program," December 26, 2019

DoD Instruction 4715.05, "Environmental Compliance at Installations Outside the United States," November 1, 2013, as amended

DoD Instruction 4715.08, "Remediation of Environmental Contamination Outside the United States," November 1, 2013, as amended

DoD Instruction 4715.22, "Environmental Management Policy for Contingency Locations," February 18, 2016, as amended

DoD Instruction 4715.23, "Integrated Recycling and Solid Waste Management," October 24, 2016, as amended

[1] Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

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DoD Instruction 5015.02, "DoD Records Management Program," February 24, 2015, as amended

DoD Instruction 6050.05, "DoD Hazard Communication (HAZCOM) Program," February 26, 2019, as amended

DoD Instruction 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014, as amended

DoD Instruction 6055.05, "Occupational and Environmental Health (OEH)," November 11, 2008, as amended

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DoD Manual 8910.01, Volume 1, "DoD Information Collections Manual: Procedures for DoD Internal Information Collections," June 30, 2014, as amended

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Executive Order 12088, "Federal Compliance with Pollution Control Standards," October 13, 1978, as amended

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Executive Order 12344, "Naval Nuclear Propulsion Program," February 1, 1982

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Unified Facilities Criteria 3-240-10A, "Sanitary Landfill," January 16, 2004

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