

SCOPE & DEFINITIONS

This chapter contains criteria for a comprehensive management program to ensure that hazardous waste is identified, stored, transported, treated, disposed, and recycled in an environmentally-sound manner.

ADR Approved Container – A container manufactured in accordance with the provisions of The European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and used to store material compatible with its intended purpose.

Disposal – Any activity listed in Appendix B.2 (e.g., the discharge, deposit, injection, etc. of any hazardous waste into or on any land or water so that the waste or constituent thereof may enter the environment). Proper disposal effectively mitigates hazards to human health and the environment.

DoD Hazardous Waste Generator – In DoD, a generator is considered to be the installation, or activity on an installation, which produces a hazardous waste.

Elementary Neutralization – A process of neutralizing a hazardous waste, which is hazardous only because of the corrosivity characteristic. It must be accomplished in a tank, transport vehicle, or container.

Hazardous Constituent – A chemical compound that is listed by name in Appendix A or possesses the characteristics described in Appendix A.

Hazardous Waste – Any non-residential waste identified by a “Yes” in the “Hazardous Waste” column in Appendix B.1. The following wastes are excluded from this definition: radioactive waste, waste from mining activities, air emissions, and wastewater.

Hazardous Waste Accumulation Point (HWAP) – A shop, site, or other work center where hazardous wastes are accumulated until removed to a Hazardous Waste Storage Area (HWSA) or shipped for treatment or disposal. A HWAP may be used to accumulate no more than one ADR-approved container of hazardous waste from each waste stream. The HWAP must be at or near the point of generation and under the control of the operator.

Hazardous Waste Fuel – Hazardous wastes burned for energy recovery. Fuel produced from hazardous waste by processing, blending, or other treatment is also hazardous waste fuel.

Hazardous Waste Generation – Any act or process that produces hazardous waste as defined in this document.

Hazardous Waste Landfill – A land disposal facility that holds a valid Spanish (or other EU member state) permit to dispose of hazardous waste.

Hazardous Waste Log – A listing of hazardous waste deposited and removed from a HWSA. Information such as the waste type, volume, location, and storage removal dates should be recorded.

Hazardous Waste Profile Sheet (HWPS) – A document which identifies and characterizes the waste by providing user's knowledge of the waste, and/or lab analysis, and details the physical, chemical, and other descriptive properties or processes which created the hazardous waste.

Hazardous Waste Storage Area (HWSA) – One or more locations on a DoD installation where hazardous waste is collected prior to shipment for treatment or disposal. A HWSA may store more than one ADR-approved container per waste stream.

Hazardous Waste Storage Area 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.

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, underground mines, or caves.

Treatment – Any method, technique, or process, excluding elementary neutralization, designed to change the physical, chemical, or biological characteristics or composition of any hazardous waste so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

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 should be the Spanish Hazardous Waste Producer Identification Number, which should be obtained via the Spanish Base Commander.

Used Oil – Any oil or other waste POL product that has been refined from crude oil, or is a synthetic oil, has been used, and as a result of such use, is contaminated by physical or chemical impurities. Used oil (other than used oil burned for energy recovery in accordance with C6.8.1) is classified as a hazardous waste and will be managed as such.

Used Oil Burned for Energy Recovery – 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.

CRITERIA

C6.1 DOD HAZARDOUS WASTE GENERATORS

- C6.1.1 Hazardous Waste Determination & Characterization. Generators will identify and characterize the wastes generated at their site as follows:

Known Wastes. Generators will classify their known waste streams using the European Waste Catalog (Appendix B.1). Appendix B.1 also incorporates the EU List of Hazardous Wastes, using the “Hazardous Waste” column of the appendix to indicate whether the waste is classified as a hazardous waste. Wastes that are not noted as hazardous wastes (i.e., do not have a “Yes” in the “Hazardous Waste” column) are not classified as hazardous wastes.

Unknown Wastes. Laboratory analysis will be used to identify the chemical constituents of unknown wastes. After the constituents have been identified, the appropriate waste code from Appendix B.1 will be assigned to the waste.

Retrograde Waste. If an installation perceives a need to retrograde waste (i.e., return waste to the United States), the installation must contact the Environmental Executive Agent via the Component chain of command for guidance.

- C6.1.2 Hazardous Waste Profile Sheet (HWPS). A HWPS will be used 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 handled at the storage area.

- C6.1.3 Unique Identification Number. Each generator will use the Spanish Hazardous Waste Producer Identification Number for all record-keeping, reports, and manifests for hazardous waste. For DoD internal tracking purposes, the Unit Identification Code (UIC) or the DoDAAC may also be used.

- C6.1.4 Pre-Transport Requirements

C6.1.4.1 Transportation

- C6.1.4.1.1 When transporting hazardous waste via commercial transportation on Spanish public roads and highways, hazardous waste generators will prepare off-installation hazardous waste shipments in compliance with packaging and labeling requirements in Chapter 5 (Hazardous Material). Hazardous waste designated for international transport will be prepared in accordance with applicable international regulations (i.e., the International Air Transport Association [IATA] regulations).

- C6.1.4.1.2 When transporting hazardous waste via military vehicle on Spanish public roads and highways, generators will ensure compliance with Service regulations for the transport of hazardous materials and, if required by applicable international agreement (i.e., SOFA, basing, etc.), Spanish transportation regulations.
- C6.1.4.2 Manifesting. All hazardous waste leaving the installation will be accompanied by a Spanish manifest (*Hoja de Control y Seguimiento*) to ensure a complete audit trail from point of origin to ultimate disposal. The manifest will include the information listed below.
- Generator's name, address, and telephone number
 - Generator's unique identification number
 - Transporter's name, address, and telephone number
 - Destination name, address, and telephone number
 - Description of waste (physical state and waste code)
 - Total quantity of waste
 - Date of shipment
 - Date of receipt
 - Acceptance Document (*Solicitud de Admisión*) number
- C6.1.4.3 Audit Trail. Generators will maintain an audit trail of hazardous waste from the point of generation to disposal. Generators using DRMS disposal services will obtain a signed copy of the waste manifest from the initial DRMS recipient of the waste, at which time DRMS assumes responsibility. A generator, as provided in a host-tenant agreement, that uses the hazardous waste management and/or disposal program of a DoD component that has a different unique identification number (see definition above), will obtain a signed copy of the manifest from the receiving component, at which time the receiving component will assume responsibility for subsequent storage, transfer, and disposal of the waste. Activities desiring to dispose of their waste outside of the DRMS system will develop their own manifest tracking system to provide an audit trail from point of generation to ultimate disposal. If the waste is disposed of by a Spanish transportation, treatment, and/or disposal company, an Acceptance Document (*Solicitud de Admisión*) should be obtained from the Spanish company prior to off-site shipment of the hazardous waste.

C6.2 HAZARDOUS WASTE ACCUMULATION POINTS (HWAP)

- C6.2.1 Each HWAP must be designed and operated to provide appropriate segregation for different waste streams, including those that are chemically incompatible. Each HWAP will have warning signs (National Fire Protection Association or appropriate international sign) appropriate for the waste being accumulated at that site.

- C6.2.2 A HWAP will comply with the storage limits given in the definition of a HWAP. When these limits have been reached, the generator will make arrangements within 5 working days to move the hazardous waste to a HWSA or ship it off site for treatment or disposal. Arrangements must include submission of all appropriate turn-in documents to initiate the removal (e.g., DD Form 1348-1A) to appropriate authorities responsible for removing the hazardous waste (e.g., DRMO). For direct shipment of hazardous waste from a HWAP to an off-site Spanish company for treatment or disposal, the provisions of C6.1.1 (Hazardous Waste Determination & Characterization) and C6.1.4 (Pre-transport Requirements) are also applicable. If off-site disposal occurs, the Spanish Hazardous Waste Producer Identification Number must be used.
- C6.2.3 All criteria of C6.4 (Use & Management of Containers) apply to HWAPs with the exception of C6.4.1.5 (Weekly Inspections).
- C6.2.4 The following provisions of C6.5 (Record-Keeping Requirements) apply to HWAPs: C6.5.1 (Turn-in documents), C6.5.5 (Manifests), and C6.5.6 (Waste Characterization). For direct shipment of hazardous waste from an HWAP to an off-site Spanish company for treatment or disposal, the provisions of C6.5.2 (Hazardous Waste Log) are also applicable.
- C6.2.5 Personnel Training. Personnel assigned HWAP duty must successfully complete appropriate hazardous waste training necessary to perform their assigned duties. At a minimum, this must include pertinent waste handling and emergency response procedures. Generic hazardous waste training requirements are described in C6.9.

C6.3 HAZARDOUS WASTE STORAGE AREAS (HWSA)

Installations that intend to operate a HWSA will provide the Spanish Base Commander with sufficient information to seek an operating permit for their HWSA (see Chapter 1 for the process). A technical report with the facility's design specifications and operating procedures must be submitted with the permit request. The Spanish Base Commander may submit the permit request and technical report to the appropriate Spanish authorities. Installations will comply with the following criteria unless more protective requirements are established in their HWSA permit.

- C6.3.1 Location Standards. To the maximum extent possible, all HWSAs will 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 control plan must address the risk.
- C6.3.2 Design & Operation of HWSA. HWSAs must be designed, constructed, maintained, and operated to minimize the possibility of a 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 should not be stored longer than 6 months in a HWSA.

C6.3.3 Waste Analysis & Verification

- C6.3.3.1 Waste Analysis Plan. The HWSA manager, in conjunction with the installation(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 of both on-site and off-site hazardous waste. The plan should include: parameters for testing and rationale for choosing them, frequency of analysis, test methods, and sampling methods.
- C6.3.3.2 Maintenance of Waste Analysis File. The HWSA must have, and keep on file, a hazardous waste profile sheet (HWPS) for each waste stream that is stored at each HWSA.
- C6.3.3.3 Waste Verification. Generating activities will provide identification of incoming waste on the HWPS to the HWSA manager. Prior to accepting the waste, the HWSA manager will:
- Inspect the waste to ensure it matches the description provided
 - Ensure that no waste is accepted for storage unless a HWPS is provided, or available and properly referenced
 - Request a new HWPS from the generator if there is reason to believe that the process generating the waste has changed
 - Analyze waste shipments in accordance with the waste analysis plan to determine whether it matches the waste description on the accompanying manifest and documents
 - Reject shipments, which do not match the accompanying waste descriptions unless the generator provides an accurate description

C6.3.4 Security

- C6.3.4.1 General. The installation must prevent the unknowing entry, and minimize the possibility for unauthorized entry (of persons or livestock) onto the HWSA grounds.
- C6.3.4.2 Security System Design. An acceptable security system for a HWSA consists of either:
- 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
 - 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)

- C6.3.4.3 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 in any other language predominant in the area surrounding the installation, and must be legible from a distance of at least 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 HWSA, and entry to it can be dangerous. Each HWSA will also have warning signs (National Fire Protection Association or appropriate international signs) appropriate for the waste being stored at the HWSA.
- C6.3.5 Required Aisle Space. Aisle space must allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency. Containers must not obstruct an exit.
- C6.3.6 Access to Communications or Alarm System
- C6.3.6.1 General. 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.
- C6.3.6.2 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.
- C6.3.7 Required Equipment. All HWSAs must be equipped with the following:
- C6.3.7.1 An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to HWSA personnel.
- C6.3.7.2 A device, such as an intrinsically safe telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from installation security, fire departments, or emergency response teams.
- C6.3.7.3 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.

- C6.3.7.4 Water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.
- C6.3.7.5 Readily available personal protective equipment (appropriate to the materials stored), eyewash, and shower facilities.
- C6.3.7.6 Testing & Maintenance of Equipment. All HWSA 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.

C6.3.8 General Inspection Requirements

- C6.3.8.1 General. The installation must inspect the HWSA 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. The inspections must be conducted often enough to identify problems in time to correct them before they harm human health or the environment.
- C6.3.8.2 Types of Equipment Covered. Inspections must include all equipment and areas involved in storage and handling of hazardous waste, including all containers and container storage areas, 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) that are important to preventing, detecting, or responding to environmental or human health hazards.
- C6.3.8.3 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, eroding dike, etc.).
- C6.3.8.4 Frequency of Inspections. Minimum frequencies for inspecting containers and container storage areas are found in C6.4.1.5; the minimum frequencies for inspecting tank systems are found in C6.7.5.2. For equipment not covered by those sections, the 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.

- C6.3.8.5 Remedy of Problems Identified by Inspection. The installation must remedy any deterioration or malfunction of equipment or structures that the inspection identifies on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, action must be taken immediately.
- C6.3.8.6 Maintenance of Inspection Records. The installation must record inspections in an inspection log or summary, and keep these 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.
- C6.3.9 Personnel Training. Personnel assigned HWSA duty must successfully complete an appropriate hazardous waste training program in accordance with the training requirements in C6.9.
- C6.3.10 Storage Practices
- C6.3.10.1 Compatible Storage. The storage of ignitable, reactive, or incompatible wastes must be handled so that it does 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.
- C6.3.10.2 General Requirements for Ignitable, Reactive, or Incompatible Wastes. Each HWSA will be designed and operated to provide appropriate segregation for incompatible wastes. The HWSA manager must take precautions to prevent accidental ignition or reaction of ignitable waste (i.e., substances with a flashpoint <60°C) or reactive waste (i.e., substances that release toxic gases in contact with water, air, or an acid/base). 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. 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 appropriate icons, 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 in any other language predominant in the area. Water reactive waste cannot be stored in the same area as flammable and combustible liquid.

C6.3.11 Closure & Closure Plans

- C6.3.11.1 Closure. At closure of a HWSA, hazardous waste and hazardous waste residues must be removed from the containment system including remaining containers, liners, and bases. Closure should be done in a manner, which eliminates or minimizes the need for future maintenance or the potential for future releases of hazardous waste and according to the Closure Plan.
- C6.3.11.2 Closure Plan. Closure plans will be developed before a new HWSA is opened. Each existing HWSA also will develop a closure plan. Concurrent with the decision to close the HWSA, the plan will be implemented. The closure plan will include: estimates of the storage capacity of hazardous waste, steps to be taken to remove or decontaminate all waste residues, and estimate of the expected date for closure.

C6.4 USE & MANAGEMENT OF CONTAINERS

- C6.4.1 Container Handling & Storage. To protect human health and the environment, the following guidelines will apply when handling and storing hazardous waste containers:
- C6.4.1.1 Containers holding hazardous waste will be in good condition, free from severe rusting, bulging, or structural defects.
- C6.4.1.2 Containers used to store hazardous waste, including overpack containers, must be compatible with the materials stored.
- C6.4.1.3 Management of Containers
- C6.4.1.3.1 A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.
- C6.4.1.3.2 A container holding hazardous waste must not be opened, handled, or stored in a manner, which may rupture the container or cause it to leak.
- C6.4.1.3.3 Containers of flammable liquids must be grounded when transferring flammable liquids from one container to the other.
- C6.4.1.4 Containers holding hazardous waste will be marked with a hazardous waste label which includes the EU waste code, the generator's unique identification number, the packaging date (i.e., the date the container was closed), and the hazard class of the waste contained (i.e., flammable, corrosive, etc.). The label must be firmly affixed to the container and must have minimum dimensions of 10 cm x 10 cm; a label is not required when the container itself has all of the information printed on it. The label information will be written in English and Spanish.

- C6.4.1.5 Areas where containers are stored must be inspected weekly for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. Secondary containment systems will be inspected for defects and emptied of accumulated releases or retained storm water.
- C6.4.2 Containment. Container storage areas must have a secondary containment system meeting the following:
- C6.4.2.1 Must be sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.
 - C6.4.2.2 The secondary containment system must have sufficient capacity to contain 10% of the volume of stored containers or the volume of the largest container, whichever is greater.
 - C6.4.2.3 Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system as described in C6.4.2.1, provided the storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation, or the containers are elevated or are otherwise protected from contact with accumulated liquid.
 - C6.4.2.4 Rainwater captured in secondary containment areas should be inspected and/or tested prior to release. The inspection or testing must be reasonably capable of detecting contamination by the hazardous waste in the containers. Contaminated water shall be treated as hazardous waste until determined otherwise.
- C6.4.3 Special Requirements for Ignitable or Reactive Waste. Areas which store containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) inside the installation's boundary.
- C6.4.4 Special Requirements for Incompatible Wastes
- C6.4.4.1 Incompatible wastes and materials must not be placed in the same container.
 - C6.4.4.2 Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.
 - C6.4.4.3 A storage container holding a 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.

C6.5 RECORD-KEEPING REQUIREMENTS

- C6.5.1 Turn-in Documents. Turn-in documents (e.g., DD1348-1A or manifests) must be maintained for 5 years.
- C6.5.2 Hazardous Waste Log. A written log will be maintained at the HWSA to record all hazardous waste handled and should consist of the following:
- Name/address of generator
 - Description, EU waste code, and hazard class of the hazardous waste
 - Number and types of containers
 - Quantity of hazardous waste
 - Date stored
 - Storage location
 - Disposition data, to include: dates received, sealed, and transported; transporter used; treatment method and place, if any; disposal method and location
- C6.5.3 Hazardous Waste Log. 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 for a minimum of 5 years after the date of the last entry.
- C6.5.4 Inspection Logs. Records of inspections should be maintained for a period of 3 years.
- C6.5.5 Manifests. Manifests of incoming and outgoing hazardous wastes will be retained for a period of 5 years.
- C6.5.6 Waste Analysis/Characterization Records. Waste Analysis/Characterization Records will be retained until 3 years after closure of the HWSA.
- C6.5.7 The installation will maintain records, identified in C6.5.1, C6.5.5, and C6.5.6, for HWAPs on the installation.

C6.6 CONTINGENCY PLAN

- C6.6.1 Each installation will have a contingency plan that describes actions to be taken to contain and clean up spills and releases of hazardous waste in accordance with the provisions of Chapter 18.
- C6.6.2 Copies of Contingency Plan. A current copy of the installation contingency plan must be:
- C6.6.2.1 Maintained at each HWSA and HWAP (HWAPs need maintain only portions of the contingency plan which are pertinent to their facilities and operation).

- C6.6.2.2 Submitted to all police departments, fire departments, hospitals, and emergency response teams identified in the plan, and which the plan relies upon to provide emergency services. Plans should be available in both English and Spanish.

C6.7 TANK SYSTEMS

The following criteria apply to all storage tanks containing hazardous wastes. See Chapter 19 for criteria dealing with underground storage tanks containing petroleum, oil, and lubricants and hazardous substances.

- C6.7.1 Application. The requirements of this part apply to HWSAs that use tank systems for storing or treating hazardous waste. Tank systems that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in C6.7.4 (Containment and Detection of Releases). Tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in C6.7.4.
- C6.7.2 Assessment of Existing Tank System's Integrity. For each existing tank system that does not have secondary containment meeting the requirements of C6.7.4, 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.
- C6.7.3 Design & Installation of New Tank Systems or Components. Managers of HWSAs installing new tank systems or components must obtain a written assessment, reviewed and certified by a competent authority (e.g., Chief of Engineering or equivalent at the installation or higher level), attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of 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.
- C6.7.4 Containment & Detection of Releases. In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this section must be:
- Provided for all tank systems or components that store or treat hazardous wastes
 - Designed, installed, and operated 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; and capable of detecting and collecting releases and accumulated liquid until the collected material is removed

- Constructed to include one or more of the following; a liner external to the tank, a vault, or double-walled tank

C6.7.5 General Operating Requirements

C6.7.5.1 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.

C6.7.5.2 The installation must inspect and log at least once each operating day:

- The above-ground portions of the tank system, if any, to detect corrosion or releases of waste
- 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
- 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)

C6.7.5.3 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 and/or tested, as appropriate, or at least every other month. The installation manager must document the inspections in the operating record of the HWSA.

C6.7.6 Response to Leaks or Spills and Disposition of Leaking or Unfit-For-Use Tank Systems. A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, must be removed from service immediately and repaired or closed. Installations must satisfy the following requirements:

C6.7.6.1 Cessation of use; prevention of flow or addition of wastes. The installation must immediately 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.

C6.7.6.2 Containment of visible releases to the environment. The Installation must immediately conduct an inspection of the release and, based upon that inspection:

- Prevent further migration of the leak or spill to soils or surface water

- Remove and properly dispose of any contamination of the soil or surface water
- Remove free product to the maximum extent possible
- Continue monitoring and mitigating for any additional fire and safety hazards posed by vapors or free products in subsurface structures

C6.7.6.3 Make required notifications and reports following the procedures established in Chapter 18

C6.7.7 Closure. At closure of a tank system, the installation must remove or decontaminate hazardous waste residues, contaminated containment system components (liners, etc.), contaminated soils to the extent practicable, and structures and equipment.

C6.8 STANDARDS FOR THE MANAGEMENT OF USED OIL & LEAD-ACID BATTERIES

Installations that generate, treat, or dispose of used oils in quantities greater than 500 liters/year (132.1 gallons/year) must:

- Maintain a log of the types and quantities of used oil generated, recycled, burned on site as combustible fuel, and disposed of each year, the origin of the oil, and the disposition dates and quantities
- Make this data available to the Spanish Base Commander if requested during inspections by the competent authorities

C6.8.1 Used Oil Burned for Energy Recovery. Installations that intend to burn used oil for fuel must submit a permit request to the Spanish Base Commander (who may submit the request to the competent authorities). Used oil burned in combustion facilities cannot have a PCB/PCT concentration >50 ppm. Used oil fuel may be burned only in the following devices:

C6.8.1.1 Industrial furnaces

C6.8.1.2 Boilers that are identified as follows:

C6.8.1.2.1 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

C6.8.1.2.2 Utility boilers used to produce electric power, steam or heated or cooled air, or other gases or fluids

C6.8.1.2.3 Used oil-fired space heaters provided that:

- The heater burns only used oil that the installation generates
- The heater is designed to have a maximum capacity of not more than 0.5 million BTU per hour
- The combustion gases from the heater are properly vented to the ambient air

Used oil burned in combustion units with a thermal power capacity of 3 MW (10.24 million BTU/hr) or larger must comply with the following emissions limits:

Emission Limits for Used Oil Burning Facilities with a Capacity ³ 3 MW

Parameter	Emission Limit (mg/Nm ³) ¹	Notes
Cd	0.5	-
Ni	1	-
Cr	1.5	The total amount of Cr, Cu, V, and Pb may not exceed 5 mg/Nm ³
Cu	1.5	
V	1.5	
Pb	5	
Cl	100	Chloride inorganic gas compounds
F	5	Fluoride inorganic gas compounds

Notes:

1. Nm³ = meters³ at 1013 mbar, 273°K

Used oil burned in combustion units with a capacity of less than 3 MW (10.24 million BTU/hr) must comply with the hazardous waste incinerator standards in C6.10.7.

C6.8.2 Prohibitions on Dust Suppression or Road Treatment. The discharge of used oil on the soil and in groundwater or marine waters is prohibited. Therefore, used oil, hazardous waste, or used oil contaminated with any hazardous waste will not be used for dust suppression or road treatment. Any destination for used oil other than recycling, burning, or incineration is prohibited.

C6.8.3 Lead-Acid Batteries. Lead-acid batteries should be recycled whenever possible. Lead-acid batteries that are to be recycled will be managed as hazardous material. Lead-acid batteries that cannot be recycled will be managed as hazardous waste.

C6.9 HAZARDOUS WASTE TRAINING

C6.9.1 Application. Personnel and their supervisors that are assigned duties involving actual or potential exposure to hazardous waste must successfully complete an appropriate training program prior to assuming those duties. Personnel assigned to such duty after the effective date of this guidance document must work under direct supervision until they have completed appropriate training. Personnel involved in the transport of

hazardous waste on Spanish public roads will also meet the training requirements in C5.3.2, C5.3.3, and C5.10. Additional guidance is contained in DoDI 6050.5 (DoD Hazard Communication Program).

C6.9.2 Refresher Training. All personnel performing hazardous waste duties must successfully complete annual refresher hazardous waste training.

C6.9.3 Training Contents & Requirements. The training program must:

C6.9.3.1 Include sufficient information to enable personnel to perform their assigned duties and fully comply with pertinent hazardous waste requirements.

C6.9.3.2 Be conducted by qualified trainers who have completed an instructor training program in the subject, have comparable academic credentials, or experience.

C6.9.3.3 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.

C6.9.3.4 Address the following areas in particular for personnel whose duties include hazardous waste handling and management:

- Emergency procedures (response to fire/explosion/spills; use of communications/alarm systems; body and equipment clean up)
- Drum/container handling/storage; safe use of hazardous waste equipment; proper sampling procedures
- Employee Protection. Personal Protective Equipment (PPE), safety and health hazards, hazard communication, worker exposure
- Record-Keeping. Record-keeping, security, inspections, contingency plans, storage requirements, transportation requirements

C6.9.4 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 on personnel assigned duties involving actual or potential exposure to hazardous waste must be kept by the HWSA manager or the responsible installation office and retained for at least 3 years after termination of duty of these personnel.

C6.10 HAZARDOUS WASTE DISPOSAL

C6.10.1 Use of DRMS. All DoD hazardous waste should normally be disposed of through the Defense Reutilization and Marketing Service (DRMS). A decision not to use the DRMS for hazardous waste disposal may be made in accordance with DoDD 4001.1

for best accomplishment of the installation mission, but should be concurred in by the component chain of command to ensure that installation contracts and disposal criteria are at least as protective as criteria used by DRMS.

C6.10.2 In-Country & Out-of-Country Disposal. DoD components must ensure that wastes generated by DoD operations and considered hazardous under either U.S. law or Spanish law are not disposed of in Spain unless the disposal is conducted in accordance with this FGS and the following:

C6.10.2.1 When hazardous wastes cannot be disposed of in accordance with this FGS within Spain, it will be turned into DRMS for retrograding to the U.S. or, if permissible under international agreements, transferred to another country outside the U.S. where it can be disposed of in an environmentally-sound manner and in compliance with the FGS applicable to the country of disposal, if any exist. Transshipment of hazardous wastes to another country other than the U.S. for disposal must be approved by, at a minimum, the Deputy Under Secretary of Defense for Environmental Security [DUSD(ES)]. [Note: delegated to DLA on 25 May 1995.]

C6.10.2.2 The determination of whether particular DoD-generated hazardous waste may be disposed of in Spain will be made by the DoD Environmental Executive Agent, in coordination with the Unified Combatant Commander, the Director of Defense Logistics Agency (DLA), or other relevant DoD Components, and the Chief of the U.S. Diplomatic Mission.

C6.10.3 Disposal Procedures

C6.10.3.1 The determination of whether hazardous wastes may be disposed of in Spain must include consideration of whether the means of treatment and/or containment technologies employed in the Spanish program, as enacted and enforced, effectively mitigate the hazards of such waste to human health and the environment and must consider whether the Spanish program includes:

- An effective system for tracking the movement of hazardous waste to its ultimate destination.
- An effective system for granting authorization or permission to those engaged in the collection, transportation, storage, treatment, and disposal of hazardous waste.
- Appropriate standards and limitations on the methods, which may be used to treat and dispose of hazardous waste.
- 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.

C6.10.3.2 The Environmental Executive Agent must also be satisfied, either through reliance on the Spanish regulatory system and/or provisions in the disposal contracts, that:

- Persons and facilities in the waste management process have demonstrated the appropriate level of training and reliability
- Effective inspections, monitoring, and record-keeping will take place

C6.10.4 Spanish facilities that either store, treat, or dispose of DoD-generated waste must be evaluated and approved by Spanish regulatory authorities as being in compliance with their regulatory requirements. This evaluation and approval may consist of having a valid permit or Spanish equivalent for the hazardous waste which will be handled.

C6.10.5 Recycling/Recovery. Hazardous waste will be recycled or reused to the maximum extent practical. Safe and environmentally acceptable methods will be used to identify, store, prevent leakage, and dispose of hazardous waste, to minimize risks to health and the environment. Priority should be given to the recycling/recovery activities listed in Appendix B.3.

Installations that intend to conduct on-base recycling/recovery operations listed in Appendix B.3 must submit a permit request to the Spanish Base Commander. The permit request must be accompanied by an engineering plan and technical report detailing the characteristics of the recycling/recovery of the anticipated types of waste (and planned safety and protective measures). The Spanish Base Commander may submit the permit application package to the appropriate Spanish authorities.

C6.10.6 Land Disposal Requirements. Hazardous waste will only be land disposed when there is a reasonable degree of certainty that there will be no migration of hazardous constituents from the disposal site for as long as the wastes remain hazardous. Spanish facilities for land disposal of hazardous wastes must hold a valid Spanish permit. The facility must comply with the following criteria unless more protective requirements are established in the site-specific permit.

C6.10.6.1 The land disposal facility has a liner and a leachate collection system. The liner will be of natural or man-made materials and restrict the downward or lateral escape of hazardous waste, hazardous constituents, or leachate. The permeability of such liners will be no greater than 10^{-7} cm/sec.

C6.10.6.2 The land disposal facility has a groundwater-monitoring program capable of determining the facility's impact on the quality of water in the aquifers underlying the facility.

C6.10.6.3 The requirements of C6.10.6.1 or C6.10.6.2 may be waived for a particular land disposal facility by the Environmental Executive Agent if a written determination is made by a qualified geologist or geotechnical engineer that

there is a low potential for migration of hazardous waste, hazardous constituents, or leachate from the facility to water supply wells, irrigation wells, or surface water. This determination will be based on an analysis of local precipitation, geologic conditions, physical properties, depth to groundwater, and proximity of water supply wells or surface water, as well as use of alternative design and operating practices. Methods for preventing migration will be at least as effective as liners and leachate collection systems required in C6.10.6.1.

C6.10.7 Incinerator Standards. This paragraph applies to incinerators that incinerate hazardous waste as well as boilers and industrial furnaces that burn hazardous waste for any recycling purposes.

C6.10.7.1 Incinerators used to dispose of hazardous waste must be licensed or permitted by the competent Spanish authority or approved by the Environmental Executive Agent. This license, permit, or approval must comply with the criteria listed in C6.10.7.2. Installations that intend to operate an on-base incinerator must submit a permit request to the Spanish Base Commander. The permit request must be accompanied by an engineering plan and technical report detailing the characteristics of the incineration and the anticipated types of waste (including planned safety and protective measures). The Spanish Base Commander may submit the permit application package to the appropriate Spanish authorities.

C6.10.7.2 A license, permit, or Environmental Executive Agent approval for incineration of hazardous waste must require the incinerator to be designed to include appropriate equipment as well as to be operated according to management practices (including proper combustion temperature, waste feed rate, combustion gas velocity, and other relevant criteria) so as to effectively destroy hazardous constituents and control harmful emissions. A permitting, licensing, or approval scheme which would require an incinerator to achieve the standards set forth in either C6.10.7.2.1 or C6.10.7.2.2 is acceptable.

C6.10.7.2.1 The incinerator achieves a destruction and removal efficiency of 99.99% for the organic hazardous constituents which 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.

C6.10.7.2.2 The incinerator has demonstrated, as a condition for obtaining a license, permit, or Environmental Executive Agent approval, the ability to effectively destroy the organic hazardous constituents which represent the greatest degree of difficulty of incineration in each waste

or mixture of waste to be burned. Incinerators must also demonstrate that they comply with the emission limits in Tables 6.1 to 6.4.

- C6.10.7.3 In addition to the requirements in C6.10.7.2.1 or C6.10.7.2.2, incinerators must be designed, equipped, and operated to meet the following conditions:

O ₂ content in wet flue gas	6% volume
Contact time	2 seconds
Minimum temperature for flue gas and internal combustion chamber (for waste containing >1% of halogenated organic substances expressed as chlorine)	850°C (1,100°C)

The incinerator must be equipped with auxiliary burners that automatically activate when the temperature drops below 850°C (or 1,100°C if the hazardous waste contains > 1% of halogen-containing organic substances). These burners should also be used during start-up and interruption of operations, to insure that the required minimum temperature is maintained as long as unburned waste is still present in the combustion chamber.

The incinerator must also be designed, equipped, and operated to meet the emission limits in Tables 6.1, 6.2, 6.3, and 6.4.

Air emissions monitoring must be continuously measured and recorded for the following: dust, CO, total organic carbon (TOC), HCl, HF, and SO₂. Continual measurement of HF may be omitted if a treatment system for HCl is installed that ensures that the emission limits for this compound are not exceeded. Heavy metals, dioxins, and furans must be monitored at least twice per year; however, these parameters must be measured every 2 months during the first operational year. In addition, the following operational parameters must be continuously monitored: temperature, oxygen, pressure, and water vapor content.

- C6.10.8 Treatment Technologies. The following treatment technologies may be used to reduce the volume or hazardous characteristics of wastes. Wastes which are categorized as hazardous on the basis of Appendix B cannot be disposed of as a non-hazardous waste, even after treatment. The treatment technologies listed below are provided as baseline treatment/disposal technologies for use in determining suitability of Spanish disposal alternatives. These technologies should not be implemented without consultation with the EEA, or the Unified Combatant Commander, if there is no EEA.

Installations that intend to conduct on-base treatment operations listed in Appendix B.2 or the following subcriteria must submit a permit request to the Spanish Base Commander. The permit request must be accompanied by an engineering plan and technical report detailing the characteristics of the treatment and the anticipated types of waste (including planned safety and protective measures). The Spanish Base Commander may submit the permit application package to the appropriate Spanish

authorities. Installations will comply with the following criteria unless more protective requirements are established in their treatment permit.

C6.10.8.1 Organics

C6.10.8.1.1 Incineration in accordance with the requirements of C6.10.7.1.

C6.10.8.1.2 Fuel substitution where the units are operated such that destruction of hazardous constituents are at least as efficient, and hazardous emissions are no greater than those produced by incineration.

C6.10.8.1.3 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) has been substantially reduced in concentration. The level to which biodegradation must occur and the process time vary depending on the hazardous waste being biodegraded.

C6.10.8.1.4 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/crystallization or phase separation techniques, such as decantation, filtration, and centrifugation when used in conjunction with one of the above techniques.

C6.10.8.1.5 Chemical Degradation. The wastes are chemically degraded in such a manner so as to destroy hazardous constituents and control harmful emissions.

C6.10.8.2 Heavy Metals

C6.10.8.2.1 Stabilization or Fixation. Wastes are treated in such a way that soluble heavy metals are fixed by oxidation/reduction, or by some other means which renders the metals immobile in a landfill environment.

C6.10.8.2.2 Recovery. Wastes are treated to recover the metal fraction by thermal processing, precipitation, exchange, carbon absorption, or other techniques that yield non-hazardous levels of heavy metals in the residuals.

C6.10.8.3 Reactives. Any treatment which changes the chemical or physical composition of a material such that it no longer exhibits the characteristic for reactivity defined in Appendix A.

- C6.10.8.4 Corrosives. Corrosive wastes as defined in Appendix A 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.
- C6.10.8.5 Batteries. Mercury, nickel-cadmium, lithium, and lead-acid batteries will be processed in accordance with C6.10.8.2.1 or C6.10.8.2.2 to stabilize, fix, or recover heavy metals, as appropriate, and in accordance with C6.10.8.4 to neutralize any corrosives before disposal.
- C6.10.9 DoD generators of hazardous waste shall not treat hazardous waste at the point of generation except for elementary neutralization. This shall not preclude installations from treating hazardous waste in accordance with C6.10.7 and C6.10.8.

C6.11 WASTE MINIMIZATION STUDY

Installations will prepare a waste minimization study of the types and volumes of hazardous waste generated. The study will include goals for the reduction of individual waste streams and a plan to reach those goals. The waste minimization study and plan will be updated every 4 years.

ADMINISTRATIVE ITEMS

1. Installations that generate, treat, or dispose of used oils in quantities greater than 500 liters/year must maintain records of the quantities and types of used oil generated, recycled, burned on site as combustible fuel, and disposed of each year, the origin of the oil, and disposition dates and quantities. The installation must make this data available to the Spanish Base Commander if requested during inspections by the competent authorities.
2. Installations that intend to conduct the following operations must submit a permit request to the Spanish Base Commander. The permit request must be accompanied by an engineering plan and technical report detailing the characteristics of the disposal/treatment/handling and the anticipated types of waste (including planned safety and protective measures). The Spanish Base Commander may submit the permit application package to the appropriate Spanish authorities.
 - Operate a HWSA
 - Burn used oil for fuel
 - Conduct on-base recycling/recovery operations listed in Appendix B.3
 - Operate an on-base hazardous waste incinerator
 - Conduct on-base treatment operations

Table 6.1 - General Emission Limits for Hazardous Waste Incinerators

Pollutant	Emission Limits (mg/Nm ³)		
	Daily Average Values	Average Values ²	
		A	B
Total dust	10	30	10
Total organic substances (as TOC ¹)	10	20	10
Hydrochloric acid (HCl)	10	60	10
Hydrofluoric acid (HF)	1	4	2
Sulfur dioxide (SO _x)	50	200	50

Notes:

1. Total Organic Carbon
2. 30-minute average values
3. The air emissions are considered in compliance with the 30-minutes average limits if 100% of measurements do not exceed the above A-values, or if 70% of measurements do not exceed the above B-values.

Table 6.2 - Dioxin & Furan Emission Limits for Hazardous Waste Incinerators

Parameter	Average Value (ng/Nm ³) ¹
Total dioxins and dibenzofurans ¹	0.1

Notes:

1. Average values during a maximum 8-hour period and a minimum 6-hour period. This value corresponds to the sum of the individual concentrations of dioxins and furans, with the corresponding individual equivalent factors as included in Annex I of Royal Decree 1217/97.

Table 6.3 - CO Emission Limits for Hazardous Waste Incinerators

Pollutant	Emission Limits (mg/Nm ³)		
	Daily Average Values	Average Values ¹	
		C	D
Total CO	100	150	100

Notes:

1. 10-minute average values
2. The air emissions are considered in compliance with the 10-minute average limits if 95% of measurements do not exceed the C-values, or if 100% of measurements do not exceed the D-values.

Table 6.4 - Heavy Metals Emission Limits for Hazardous Waste Incinerators

Pollutant	Emission Limits (mg/Nm ³)	
	Hourly Average Values	
	New Incinerators	Existing Incinerators
Total Cd + Th	0.05	0.1
Total Hg	0.05	0.1
Total As, Co, Cr, Cu, Mn, Ni, Pb, Sb, Sn, V	0.5	1

Note:

1. Nm³ = meters³ at 1013 mbar, 273°K.