

CHAPTER 6

HAZARDOUS WASTE

6-1 SCOPE

This Chapter of the Japan Environmental Governing Standards (JEGS) 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. This program provides a tracking system for management of hazardous waste from generation to ultimate disposal. The reduction of hazardous wastes (HW) is a key to a successful operation of HW management.

6-2 DEFINITIONS

6-2.1 Accumulation Start Date. The date that is entered on the hazardous waste label and in the Hazardous Waste Accumulation Point (HWAP) log. The date that the HW container reached its capacity (i.e., 55 gallons of HW, or 1 quart of acute HW), or transferred to Hazardous Waste Storage Area (HWSA).

6-2.2 Acute Hazardous Waste. Those wastes listed in Appendix A with a USEPA waste number with the designator "P".

6-2.3 Disposal. The utilization of those methods of treatment and/or containment technologies, as are approved in Section 6.3.11 herein, that effectively mitigate the hazards to human health or the environment of the discharge, deposit, injection, dumping, spilling, leaking, or placing of a hazardous waste into, or on any land or water in a manner that, without application of such methods, such hazardous wastes or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwater.

6-2.4 DOD Hazardous Waste Generator. In DOD, a generator is considered to be the installation or in the case of an installation with tenant commands, the activity on an installation which produces a regulated hazardous waste.

6-2.5 Hazardous Constituent. A chemical compound that is listed by name in Appendix A or possesses the characteristics described in Section 6-3.11.j.

6-2.6 Hazardous Waste (HW). A discarded material that may be solid, semi-solid, liquid, or contained gas as identified in Section 6-3.11.j.

6-2.7 Hazardous Waste Accumulation Point (HWAP). An area at or near the point of generation and under control of the process generator where hazardous wastes are temporarily stored, up to 208 liters (55 gallons) or 1 liter (quart) of acute hazardous waste, from each waste stream, until removed to a Hazardous Waste Storage Area (HWSA) or shipped for treatment or disposal. The HWAP is not considered as a HWSA.

6-2.8 Hazardous Waste Fuel. Hazardous wastes burned for energy recovery are termed "hazardous waste fuel." Fuel produced from hazardous waste by processing, blending or other treatment is also hazardous waste fuel.

6-2.9 Hazardous Waste Generation. Any act or process that produces hazardous waste as defined in this Chapter.

6-2.10 Hazardous Waste Profile Sheet (HWPS). A document which identifies and characterizes the waste by providing user's knowledge of the waste, and/or laboratory analysis, and details the physical, chemical, and other descriptive properties or processes which created the hazardous waste (DRMS Form 1930 or equivalent).

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6-2.11 Hazardous Waste Storage Area (HWSA). Refers to a location on a DOD installation where more than 208 liters (55 gallons) of hazardous waste, or more than 1 liter (quart) of acute hazardous waste, from any one waste stream is stored prior to shipment for treatment or disposal.

6-2.12 HWAP/HWSA Site Manager. A person at the HWAP/HWSA assigned the operational responsibility for receiving, storing, inspecting of generating hazardous wastes, and general management of the site's HW management program.

6-2.13 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. (See Table 6-4).

6-2.14 Non-Regulated Waste. A discarded material that does not meet the definition of a hazardous waste but meets the definition of a hazardous material in Table 5-1 or a discarded material contaminated with a non-regulated waste, and requires special handling.

6-2.15 Specially Controlled General Wastes (SCGW)*. The following three categories are regulated as SCGW. Components containing PCBs and infectious waste are discussed in other chapters. Ashes are pertinent to this Section.

- a. Components containing PCBs which have been removed from air conditioners, capacitors, washing machines, refrigerators, TV or radar (microwave) ranges as solid wastes (*JEGS Chapter 14*).
- b. Ashes from incinerators with a capacity of 5 tons/day or more.
- c. Infectious medical waste: *JEGS Chapter 8*.

6-2.16 Specially Controlled Industrial Wastes (SCIW)*. SCIW includes the following five types of wastes:

- a. Ignitable petroleum wastes (gasoline, kerosene, diesel oils; Type 1 in Table 6-5, Flash point less than 70 degrees centigrade).
- b. Waste acids (pH less than 2.0; Type 2 in Table 6-5).
- c. Waste alkalis (pH greater than 12.5; Type 3 in Table 6-5).
- d. Infectious industrial waste from specific sources; Type 4 in Table 6-5. (*JEGS Chapter 8*).
- e. Specified Hazardous Industrial Wastes (SHIW). SHIW from unspecified and specific sources include Types 5 through 20 in Table 6-5, indicating sources and applicable or allowable limits for contaminants. The maximum limits shown in Table 6-5 represent the limits above which the waste is determined to be SCIW.

* SCGW and SCIW are terms which are relevant to final disposal by host nation contractors. The terms are not necessarily applicable to the determination of whether the item will be handled as a hazardous waste under JEGS.

6-2.17 Treatment. Any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or 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.

6-2.18 Treatment, Storage, and Disposal Facility (TSDF). Refers to any facility not located on a DOD installation that is used for the collection, source separation, storage, transportation, transfer, processing, treatment, or disposal of hazardous waste.

6-2.19 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 will be the Department of Defense Activity Address Code (DODAAC).

6-2.20 Used Oil. Any oil or other waste POL product that has been refined from crude oil, or is a synthetic oil, which has been used and as a result of such use is contaminated by physical or chemical impurities. The following apply to used oil:

- a. Used oil is not a hazardous waste unless an analysis of the oil shows that the parameters in sub-paragraph 6.2.20.b have been exceeded, or the oil has been mixed with a listed hazardous waste. Used oil which exceeds the parameters in the table below, or that has been mixed with a listed hazardous waste must be managed as hazardous waste.
- b. Used oil burned for energy recovery must not exceed the following specifications. Used oil exceeding these specifications is considered to be a hazardous waste.

Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash point	100 degrees F, minimum
Total halogens	1000 ppm maximum.

6-2.21 Detonation. Refers to an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers per second at sea level).

6-3 CRITERIA

6-3.1 DOD Hazardous Waste Generators.

- a. Hazardous waste determination. Generators will identify and characterize the wastes generated at their site using their knowledge, with supporting documentation, of the materials and processes which generated the waste or through laboratory analysis of the waste. MSDS may also be used to identify and characterize the HW. A HWPS will be used to identify each hazardous waste stream with two exceptions: used batteries and manufacturer's unopened containers. In these cases, Material Safety Data Sheets (MSDSs) are acceptable.
- b. Waste characterization. Generators will identify inherent hazardous characteristics associated with a waste in terms of physical properties (e.g, solid, liquid, contained gases), chemical properties (e.g., chemical constituents, technical or chemical name) and/or other descriptive properties (e.g., ignitable, corrosive, reactive, toxic). USFJ installations will typically use USEPA accepted analytical methods; however alternative methods may be employed if better information can be obtained using them. The decision to use alternate methods will be coordinated with the disposal agent and will be based on disposal requirements.
- c. Each generator will use its unique identification number for all record keeping, reports and manifests for hazardous waste. See Section 6-2.19.
- d. Pre-transport requirements:

(1) Hazardous waste generators will prepare hazardous waste shipments in compliance with 49 CFR requirements for land shipments, the International Maritime Dangerous Goods (IMDG) code for water shipments, and the International Airline Transport Association (IATA) rules for air shipments, as applicable. Of note, vehicle placarding is prohibited outside the USFJ installations in Japan.

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- (2) Manifesting. All hazardous waste leaving the installation will be accompanied by a serially numbered manifest to ensure a complete audit trail from point of origin to ultimate disposal. Japanese forms will be used when the destination is to a Japanese facility; otherwise, DD Form 1348-1A will be used. The following information shall be provided on the DD Form 1348-1A:
- (a) Generator's name (HWAP/HWSA unit name and site manager), address, and telephone number (block A on DD Form 1348-1A).
 - (b) Destination name, address, and telephone number (block 3 on DD Form 1348-1A).
 - (c) Type of property, hazardous material (HM) or hazardous waste (HW) (block 4 on DD Form 1348-1A).
 - (d) Description of waste (DOT Proper Shipping Name, DOT Hazardous Class, DOT Identification Number, and EPA Waste Code from applicable transportation regulations (block 16 on DD Form 1348-1A).
 - (e) Item nomenclature (name and general description of waste) (block 17 on DD Form 1348-1A).
 - (f) Total quantity of waste, in pounds (block 20 on DD Form 1348-1A).
 - (g) Signature and a date physically received at DRMO Store (block 22 on DD Form 1348-1A). If a proof of shipment copy is required, the last copy of the Disposal Turn-in Document (DTID) will be removed, signed and marked as delivered in block 22 and given to the driver (this indicates only custody of the property). The official receipt/copy acknowledging accountability will be forwarded later.
 - (h) Transporter's name, address, and telephone number (remarks section on DD Form 1348-1A).
 - (i) Packaging certification and signature (bottom, left hand corner on DD Form 1348-1A)
- (3) Audit trail:
- (a) 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 DD Form 1348-1A 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 DODAAC 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.
 - (b) 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. The manifest will be controlled as follows:
 - I. The transportation contractor must return a copy of the manifest to the generator upon completion of transportation.
 - II. The disposal contractor must send a copy of the manifest to the generator upon completion of disposal.
 - III. In case a copy of the manifest is not received within 60 days after issuance, the issuer should investigate the contractor's work for transportation or disposal and report the findings to USFJ/J42E, including the type and quantity of HW, the name and address of the contractor, contract issuance date, and findings and method of investigation.

IV. Copies of the manifest will be kept on file for five years.

- (c) DRMO will provide the generating installation, upon request, with a periodic listing of completed disposal actions including the DTID number, quantity, disposal cost, date disposal was accomplished.
- e. HW management plan. Generators of HW will develop and implement a management plan for storage, treatment, and disposal of HW. The plan will be made available to all interested employees, and all employees working with or around HW will be trained on any existent hazards and their control, and on the requirements of the plan. The plan should contain the following sections, as a minimum. Individual service component regulations may require slightly different organizations of the installation/activity hazardous waste management plan (HWMP), however, all of the elements listed below must be addressed in the HWMP.
 - (1) Name of the HWAP/HWSA site manager(s).
 - (2) Organization for management and emergency contact network.
 - (3) Type, generated and processed quantities, and characteristics of HW.
 - (4) Target for waste reduction or other appropriate measures for treatment.
 - (5) Methods of process and disposal.
 - (6) Method of storage at the installation/activity.
 - (7) Methods of collection and transportation.
 - (8) Permitting for the contractor and terms of the waste disposal contract, in cases where process or disposal is contracted, as applicable.
- f. HW transportation. Sections 5-2.4 and 5-3.4 in Chapter 5 apply to transportation of HW.

6-3.2 Hazardous Waste Accumulation Point (HWAP)

- a. A HWAP may be a shop, site, or other work center dealing with one or more waste streams. Each HWAP must be designed and operated to provide appropriate segregation for different waste streams, including those which are chemically incompatible. Each HWAP will have warning signs appropriate for the waste being accumulated at that site.
- b. A HWAP will comply with the storage limits in Section 6-2.6. When these limits have been reached, the generator will immediately move the hazardous waste to a HWSA or ship it off-site for treatment or disposal. (Note that if it takes few days to make arrangements for transportation, then the generator may need to start those arrangements at HWAP rather than waiting until the drum/container is full in order to avoid violation of maximum storage limits).
- c. The provisions of Section 6-3.4 of this Chapter, use and management of containers, will be applied to all HWAP. In addition, container storage areas must have a containment system that has sufficient capacity to contain 10% of the volume of all containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination.
- d. Designated HWAP must provide installation HW management authority and the fire department(s) with a detailed map of facility, and detailed drawing identifying the storage location of each waste stream.
- e. A HWAP will provide security, spill response equipment, communication, and fire equipment.

6-3.3 Hazardous Waste Storage Area (HWSA)

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- a. Location standards: To the maximum extent possible, a new HWSA 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 SPCC plan, as described in Section 18-3.1, must address the risk.
- b. Design and 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, or surface water that could threaten human health or the environment.
- c. Waste analysis
 - (1) Waste analysis plan: The installation, in conjunction with the HW manager, 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. For appropriate analytical procedures, consult the specific section or method described in USEPA Publication SW-846.
 - (2) Maintenance of waste analysis file: The installation must have, and keep on file, a HWPS or MSDS as appropriate for each waste stream handled by each HWSA. No waste may be accepted for storage unless such information has been provided. 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. The HWSA manager will ensure random verification testing of the hazardous wastes received for storage to ensure that the hazardous wastes being stored are accurately identified by the generator.
 - (3) Waste identification: Generating activities will provide identification of incoming waste with a HWPS or MSDS, as appropriate, to the HWSA manager. Prior to accepting the waste, the HWSA manager will:
 - (a) Inspect the waste to ensure it is properly classified, marked, labeled, and packaged, ready for turn-in.
 - (b) Require a new HWPS or MSDS/analysis from the generator if there is a reason to believe that the process generating the waste has been changed.
 - (c) Analyze waste shipments in accordance with the waste analysis plan to determine whether it matches the waste description on the accompanying manifest and documents.
 - (d) Reject shipments which do not match the accompanying waste descriptions until the generator provides an accurate description.
- d. Security
 - (1) General: The installation must prevent unknowing entry and minimize the possibility of unauthorized entry of persons or livestock onto the hazardous waste storage area grounds.
 - (2) Security system design: An acceptable security system for a hazardous waste storage area 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 hazardous waste storage area; 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 hazardous waste storage area, 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 hazardous waste storage area, and at other locations, in sufficient numbers to be seen from any approach to the hazardous waste storage area. The legend must be written in English and Japanese, 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 the hazardous waste storage area, and entry to it can be dangerous.
- e. 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.
- f. Access to communications or alarm system
- (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.
- (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 directly summoning external emergency assistance.
- g. Required equipment: All HWSAs must be equipped with the following-
- (1) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to HWSA personnel. 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 base security, fire departments, or emergency response teams.
- (2) Portable fire extinguishers, fire control equipment appropriate to the material in storage (including special extinguishing equipment as needed, such as foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.
- (3) Water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.
- (4) Readily available personal protective equipment appropriate to the materials stored, eyewash and shower facilities.
- (5) Testing and maintenance of equipment: All HWSA communications alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be periodically tested and maintained to assure its proper operation in time of emergency.
- h. General inspection requirements
- (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.
- (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

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operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

- (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.).
- (4) Frequency of inspections: Minimum frequencies for inspecting containers and container storage areas are found in Section 6-3.4.a.(5) of this Chapter; minimum frequencies for inspecting tank systems are found in Section 6-3.8.e. of this Chapter. 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: The installation must remedy any deterioration or malfunction of equipment or structures that the inspection reveals 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.
- (6) Maintenance of inspection records: The installation must record inspections in an inspection log or summary, and keep these records for at least five 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) 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.
- (2) General requirements for ignitable, reactive, or incompatible wastes: The HWSA manager must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. 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 stored or handled, the HWSA personnel must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste. These signs must be in English and Japanese. Water reactive waste cannot be stored in the same area as flammable and combustible liquid.
- (3) All containers of ignitable or combustible wastes will be electrically grounded and/or bonded with appropriate devices when transferring contents from one container to another or at time of sampling.

6-3.4 Use and Management of Containers

- a. Container handling and storage: To protect human health and the environment, the following guidelines will apply when handling and storing hazardous waste containers.
 - (1) All hazardous waste containers must be performance oriented tested, and marked with appropriate information showing that they conform to POP standards.
 - (2) Containers holding hazardous waste will be in good condition, free from severe rusting, bulging or structural defects and meet the applicable transportation regulatory packaging requirements.

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

(4) Management of containers:

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

(b) 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.

(5) Containers holding hazardous waste will be marked with a bilingual (English and Japanese) hazardous waste marking, and a label indicating the hazard class of the waste contained (i.e., flammable, corrosive, etc.).

(6) 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.

b. Containment: Container storage areas must have a containment system meeting the following-

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

(2) The 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;

(3) Storage areas, that store containers holding only wastes that do not contain free liquids, need not have a containment system as described in Section 6-3.4.a above, 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.

c. Special requirements for ignitable or reactive waste: Areas which store containers holding ignitable or reactive waste must be located at least 16 meters (50 feet) inside the installation's boundary.

d. Special requirements for incompatible wastes

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

(2) 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.

6-3.5 Record Keeping Requirements

a. Hazardous waste log for HWSA/HWAP. Written records will be maintained to record all hazardous waste handled. HWSA/HWAP site managers will keep the following records for each type of HW at their site.

(1) Name/address of generator and the manifest number

(2) Description of the hazardous waste and hazardous waste numbers

(3) Description of the waste's physical form (liquid, solid, gas) and the process producing the waste

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- (4) Number and types of containers
 - (5) Quantity of hazardous waste (HWSA only: by weight)
 - (6) Date received (Accumulation start date for HWAP)
 - (7) Storage location
 - (8) Incoming manifest numbers (HWSA)
 - (9) Outgoing manifest numbers and date removed
- b. 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.
 - c. Inspection logs for HWSA/HWAP: Records of inspections will be maintained for a period of five years.
 - d. Manifests for HWSA/HWAP: Manifests of incoming and outgoing hazardous wastes will be retained for a period of five years except for manifests to treatment, storage, and disposal facilities in Japan, which will be kept until closure.
 - e. Waste analysis/characterization records for HWSA/HWAP will be retained until five years after closure.
 - f. Closure plan(for HWSA): 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. See also Section 6-3.7 of this Chapter, titled "Closure".
 - g. Training records: Training records on individual employees will be kept for three years after termination of employee.

6-3.6 Contingency Plan

- a. Each installation/activity will have a contingency plan to manage spills and releases of hazardous waste in accordance with the provisions of Chapter 18.
- b. Copies of contingency plan: A current copy of the installation/activity contingency plan must be:
 - (1) Maintained at the HWSA and each HWAP, and;
 - (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.
 - (3) Plans must be in both English and Japanese, as applicable.

6-3.7 Closure (only applies to HWSAs). At closure of a HWSA, all 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.

6-3.8 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.

- a. 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 Section 6-3.8.d below titled "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 Section 6-3.8.d below.
- b. Assessment of existing tank system's integrity. For each existing tank system that does not have secondary containment meeting the requirements of Section 6-3.8.d of this Section, 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.
- c. Design and 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 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.
 - (1) The "competent authority" responsible for conducting an annual assessment of existing hazardous waste storage tanks is a qualified registered professional engineer, appointed by the appropriate installation commander. Installation commanders are responsible for ensuring that their designated "competent authority" is a professional engineer currently registered by one of the 50 states in the U.S.; appointment orders are published and maintained on file; and annual written assessments of tank system integrity certified by the "competent authority" are kept on file.
 - (2) The "competent authority" responsible for conducting assessments of new tank systems to be used for storing and treating hazardous wastes are a minimum of two qualified registered professional engineers, one appointed by the appropriate installation commander, and another working for the design consulting engineers/contractors, certified either by one of the 50 states in the U.S. or Japanese national government. Installation commanders are responsible for ensuring: those designated as "competent authority" are either professional engineers currently registered in one of the 50 states in the U.S.; or are certified by Japanese national government; appointment orders are published and maintained on file; and that written assessments of tank systems and components certified by the "competent authority" are provided to the gaining installation during the project acceptance process.
- d. Containment and 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:
 - (1) Provided for all new tank systems or components, prior to their being put into service;
 - (2) Provided for those existing tank systems when the tank system annual leak test detects leakage;
 - (3) Provided for tank systems constructed before 31 Jan 95 that store or treat hazardous wastes by 1 January 1999;
 - (4) 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

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capable of detecting and collecting releases and accumulated liquid until the collected material is removed; and

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

e. General Operating Requirements

(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 above-ground 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; and

(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 six 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.

f. 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:

(1) Cessation of use and 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.

(2) Containment of visible releases to the environment: The installation must immediately conduct an inspection of the release and, based upon the inspection:

(a) Prevent further migration of the leak or spill to soils or surface water; and

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

(3) Make required notifications and reports.

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

6-3.9 Standards for the Management of Used Oil and Lead-Acid Batteries

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 follows:

(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, or heated or cooled air or other gases or fluids;

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

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

II. The heater is designed to have a maximum capacity of no more than 0.5 million BTU per hour.

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

b. Prohibitions on dust suppression or road treatment: Used oil, hazardous waste, or used oil contaminated with any hazardous waste will not be used for dust suppression or road treatment.

c. Lead-acid batteries that are to be recycled will be managed as hazardous material. Lead-acid batteries which are not recycled will be managed as hazardous waste.

6-3.10 Hazardous Waste Training

a. Application: Hazardous waste training is required for all DOD personnel (to include U.S. military, civilian and local national personnel) whose duties involve actual or potential exposure to hazardous waste, including persons performing any of the following tasks:

(1) Determining which wastes are to be hazardous wastes

(2) Completing hazardous waste record keeping requirements, (e.g., manifests, hazardous waste logs, waste analysis plans, etc.)

(3) Handling/storage of hazardous waste containers

(4) Transferring hazardous waste to or from accumulation tanks or containers

(5) Transporting hazardous waste

(6) Performing hazardous waste cleanup (non-emergency)

(7) Inspecting, managing or working at a HWAP or HWSA

(8) Collecting hazardous waste samples

(9) Conducting other hazardous waste related activities as designated by the base commanders and/or environmental coordinators

b. Training duration and deadlines. Personnel assigned to 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 3 March 1995 must work under direct supervision until they have completed appropriate training. Initial training must be at least 24 hours.

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- c. Refresher training. All personnel performing duties as described above must successfully complete annual refresher hazardous waste training. Refresher training must be at least 8 hours.
- d. Training contents and requirements. The training program must:
 - (1) Include sufficient information to enable personnel to fully comply with and carry out requirements set out in Japanese Environmental Governing Standards.
 - (2) Be conducted by qualified trainers who have completed an instructor training program in the subject, or who have comparable academic credentials and experience.
 - (3) Be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, equipment, and 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/spills; use of communications/alarm systems; body and equipment cleanup)
 - (b) Drum/container handling/storage; safe use of HW equipment
 - (c) Employee protection - Personal Protective Equipment (PPE), safety and health hazards, hazard communication, worker exposure
 - (d) Generator and HWSA personnel - record keeping, security, inspections, contingency plans, storage requirements, transportation requirements
 - (5) Provide for personnel transporting or preparing HW for transport to include:
 - (a) Awareness/familiarization training to enable the employee to recognize and identify hazardous wastes
 - (b) Function-specific training for the mode of transportation utilized
 - (c) Safety training to educate the employee on the areas of emergency response, measures to protect the employee from the hazards to which they may be exposed, and methods and procedures to avoid accidents through proper handling
- e. 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 three years after termination of duty of these personnel.

6-3.11 Hazardous Waste Disposal

- a. All DOD hazardous waste will 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 by the component chain of command and USFJ/J42E to ensure that installation contracts and disposal criteria are at least as protective as criteria used by DRMS.

- b. DOD components must ensure that wastes, generated by DOD operations and considered to be hazardous under either U.S. or Japanese law, are not disposed of in Japan unless the disposal will be conducted in accordance with the following:
- (1) When hazardous wastes cannot be disposed of in accordance with the Japanese Environmental Governing Standards within Japan, it will be either retrograded 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 Japanese Environmental Governing Standards 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 Executive Agent.
 - (2) The determination of whether particular DOD-generated hazardous waste may be disposed of in Japan will be made by the Executive Agent, in coordination with DRMO officials in this country.
 - (3) Existing hazardous waste streams will be disposed of in accordance with existing contracts. Future contracts will not be awarded until a pre-award audit evaluates proposed contractor(s) in terms of the JEGS Chapter 6 criteria. This pre-award audit will be supported with a written report and will be conducted by the installation or activity in coordination with the Executive Agent.
- c. Disposal of hazardous waste
- (1) The determination of whether hazardous wastes may be disposed of in Japan must include consideration of whether the means of treatment and/or containment technologies employed in the Japanese program, as enacted and enforced, effectively mitigate the hazards of such waste to human health and the environment, and must consider whether the Japanese program includes:
 - (a) An effective system for tracking the movement of hazardous waste to its ultimate destination.
 - (b) An effective system for granting authorization or permission to those engaged in the collection, transportation, storage, treatment, and disposal of HW.
 - (c) Appropriate standards and limitations on the methods which may be used to treat and dispose of HW.
 - (d) Standards designed to minimize the possibility of fire, explosion, or any unplanned release or migration of HW or its constituents to air, soil, surface, or groundwater.
 - (2) The Executive Agent must also be satisfied, either through reliance on the host nation regulatory system and/or provisions in the disposal contracts, that:
 - (a) All persons and facilities in the waste management process have demonstrated the appropriate level of training and reliability; and
 - (b) Effective inspections, monitoring, and record keeping have taken place.
 - (3) Contracting for HW treatment and/or disposal: Contractors for transportation or disposal of HW must be licensed by the prefectural governor or the mayor of a city. The generator of HW will inform contractors of waste characteristics and constituents prior to any transfer actions. The generator of HW will confirm the capabilities of the contractor and conclude a written contract.
 - (4) An annual audit will be conducted on the contractor facilities to verify continued compliance with regulatory and contractual requirements. This annual audit will be conducted by the installation or activity in coordination with the Environmental Executive Agent.

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- (5) The standard for hazardous-waste transfer from ship-to-shore or airplane-to-port is that no wastes originating from any country other than Japan will be accepted for disposal in Japan with the following exception: units operating/training away from Okinawa and mainland Japan where there is no Defense Reutilization and Marketing Service (DRMS) to maintain hazardous waste generated during the deployment are allowed to return same to Okinawa/Japan where it can be properly disposed of in accordance with JEGS.
- (6) DRMO Okinawa receives specially controlled industrial waste from the various military installations on Okinawa. These wastes include hazardous waste, by RCRA definition, contaminated with heavy metals such as lead, cadmium, chromium, and mercury. There are no licensed disposal facilities to properly treat these specific wastes on Okinawa. These items are shipped to mainland Japan through USG furnished ships and ground transportation for proper disposal in an effort to minimize cost to retrograde these HW to CONUS. DRMO Sagami has administrative mechanisms in place to facilitate the shipping, handling, and storage, and subsequent disposal of those wastes. These procedures include the required record-keeping and documentation to provide complete monitoring during transportation, storage and disposal surveillance.
- d. Hazardous material which meets the definition of hazardous waste, as defined in this Chapter, and is discarded, either by the generating installation because it is no longer a useful product, or by the DRMS because the hazardous material has failed the reutilization, transfer or sales cycles, will be disposed of as a hazardous waste.
- e. Japanese facilities that either treat, store, or dispose of DOD-generated waste must be evaluated and approved by appropriate governmental authorities as being in compliance with their regulatory requirements. This evaluation and approval may consist of having a valid permit by the Japanese officials for the hazardous waste which will be handled.
- f. Land disposal requirements on DOD installations: Hazardous wastes 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. Hazardous waste may be land disposed only in facilities meeting the following criteria.
- (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 0.0000001 cm/sec.
- (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.
- (3) The requirements of paragraph (1) or paragraph (2) above, may be waived for a particular land disposal facility by the 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 paragraph (1) above.
- (4) Hazardous waste and SCIW disposal. Disposal of SCIW will follow the standards presented below-
- (a) Avoid affecting human health and damage to the living environment by SCIW.
- (b) Prevent scattering and outflow of SCIW.

- (c) Take necessary measures to prevent impacts to the living environment from odor, noise and vibration at landfill.
 - (d) No underground cavity shall be used for disposal of SCIW.
 - (e) Upon completion of a landfill, the fill site will be covered with earth to prevent impacts to the living environment.
 - (f) The landfill site must be completely fenced and posted with a bilingual sign (English & Japanese) indicating that it is a site for SCIW disposal.
 - (g) Landfilling of SCIW containing heavy metals in excess of the regulatory level will only be performed at a site isolated from public water areas and groundwater.
 - (h) Landfill of other types of SCIW will be provided with necessary precautions to prevent contamination of public water areas and groundwater, if leachate from the fill site is detected with contamination from SCIW.
 - I. Before landfilling, used oils classified as SCIW will be combusted in an incinerator.
 - II. Used acid and used alkali classified as SCIW will not be land disposed.
 - (i) Sludges classified as SCIW will be incinerated or the water content will be reduced below 85 % prior to landfilling.
 - (j) Filling of water areas with organic sludges classified as SCIW will be done only after combustion by an incinerator.
 - (k) Landfill of SCIW containing decomposing materials, other than the two listed below, should be done in layers three meters thick, and in fifty centimeters (cm) layers for SCIW containing more than 40 % of decomposing materials. Each layer is covered with 50 cm of earth. These requirements do not apply to small scale landfills.
 - I. Organic sludges incinerated to below 15 % of ignition loss or solidified by concrete.
 - II. Materials treated for disposal of organic sludges and incinerated to below 15 % of ignition loss or solidified by concrete.
 - (l) SCIW containing heavy metals over the regulatory limit should be solidified in accordance with the applicable standards.
- g. Incinerator standards. This section applies to incinerators that incinerate hazardous waste, as well as boilers and industrial furnaces that burn hazardous waste for any recycling purposes.
- (1) Executive Agent's approval for on-installation incineration of hazardous waste must require the incinerator to be designed to include appropriate equipment, and 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. An approval scheme which would require an incinerator to achieve the standards set forth in either paragraph (a) or (b) below is acceptable.
 - (a) 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

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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; or

- (b) The incinerator has demonstrated, as a condition for obtaining a license, permit, or Executive Agent's 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. For example, this standard may be met by requiring the incinerator to conduct trial burn, submit a waste feed analysis and detailed engineering description of the facility, and provide any other information that may be required to enable the competent host nation authority or the Executive Agent to conclude that the incinerator will effectively destroy the principal organic hazardous constituents of each waste to be burned.
- (2) Off-installation incinerators used to dispose of hazardous waste must be licensed or permitted by a competent host nation authority and approved for use by the Executive Agent. This license, permit or approval must comply with the criteria listed below:
- (a) Effluent gas processing equipment.
 - (b) Outlet temperature of main combustion chamber higher than 1,800°F (800°C).
 - (c) Auxiliary combustion equipment for raising the oven temperature quickly and maintaining at a constant temperature.
 - (d) Equipment to regulate the air flow supply.
 - (e) Containment dike, impervious floor or ground surface for waste treatment facilities.
 - (f) The above criteria are required by Japanese laws and will be evidenced with a current, valid license from the local or prefectural government.
- h. Hazardous waste treatment. The following treatment technologies may be used to reduce the volume or hazardous characteristics of wastes. Wastes which are categorized as hazardous and which, 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 will continue to be managed as hazardous wastes under the criteria of this document, including those for disposal. The treatment technologies for the following categories of hazardous wastes are:
- (1) Organics
- (a) Incineration in accordance with the requirements of Section 6-3.11.g.
 - (b) 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.
 - (c) Biodegradation: Many organic wastes are capable of being 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.
 - (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/crystallization or chemical 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 so as 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/reduction, or by some other means which 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 non-hazardous levels of heavy metals in the residuals.

(3) Reactivity: Treatment methods which change the chemical or physical composition of a material such that it no longer exhibits the characteristic for reactivity defined in Section 6-3.11.j.(4). These methods include incineration as defined in Section 6-3.11.g. and control burning/control detonation as defined in Section 6-3.13.

(4) Corrosivity: Corrosive wastes as defined in Section 6.3.11.j.(3) 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 Section 6-3.11.h.(1) or Section 6-3.11.h.(2) to stabilize, fix or recover heavy metals, as appropriate, and in accordance with Section 6-3.11.h.(4) to neutralize any corrosives before disposal.

(6) Other specific technologies approved by the EEA.

- i. Import and export of SCIW. DRMOs will coordinate with USFJ/J42E on any specific Japanese requirements for export of HW/SCIW. HW/SCIW will not be imported into Japan by USFJ without prior coordination and specific, case-by-case written approval of the USFJ Executive Agent. Any coordination with the GOJ will be performed by USFJ/J42E through normal channels.
- j. Characteristics of hazardous wastes and lists of hazardous wastes and hazardous materials or USEPA test method.

(1) Hazardous Waste

- (a) A solid waste is a hazardous waste if it exhibits any of the characteristics identified in this Section.

- (b) A hazardous waste which is identified by a characteristic in this Section is assigned every USEPA hazardous waste number that is applicable. This number must be used in complying with the notification, record keeping, and reporting requirements of these alternate standards.

(2) Ignitability

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

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- I. It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has a flash point less than 70°C (158°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 or a Seta Flash Closed Cup Tester, using the test method specified in ASTM Standard D3278-78 or as determined by an equivalent test method.
- II. 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.
- III. It is an ignitable compressed gas as and as determined by appropriate test methods or USEPA.
- IV. It is an oxidizer.

(b) A solid waste that exhibits the characteristic of ignitability has the EPA hazardous waste number of D001.

(3) Corrosivity

- (a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:
- I. 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.
 - II. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 in) per year at a test temperature of 55°C (130°F) as determined by the test method specified in National Association of Corrosion Engineers (NACE) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA hazardous waste number of D002.

(4) Reactivity

- (a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:
- I. It is normally unstable and readily undergoes violent change without detonating.
 - II. It reacts violently with water.
 - III. It forms potentially explosive mixtures with water.
 - IV. 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.
 - V. It is a cyanide or sulfide bearing waste which, 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.
 - VI. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

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

VIII. It is a forbidden explosive.

(b) A solid waste that exhibits the characteristic of reactivity has the EPA hazardous waste number of D003.

(5) Toxicity

(a) A solid waste exhibits the characteristic of toxicity if, the extract from a representative sample of the waste contains any of the contaminants listed in Table 6-1 or 6-2 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.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA hazardous waste number specified in Table 6-1 or 6-2 which corresponds to the toxic contaminant causing it to be hazardous.

(6) Lists of hazardous wastes

(a) A solid waste is a hazardous waste if it is listed in this Section.

(b) The basis for listing the classes or types of wastes listed employed one or more of the following Hazard Codes:

Ignitable waste	(I)
Corrosive waste	(C)
Reactive waste	(R)
Toxicity characteristic waste	(E)
Acute hazardous waste	(H)
Toxic waste	(T)

(c) Each hazardous waste listed in this Section is assigned either a USEPA hazardous waste number or Japanese SCIW number. This number must be used in complying with the notification, record keeping and reporting requirements of these alternate standards.

(7) The solid wastes listed in Appendix A, annotated "F" as the first character in the USEPA number are listed hazardous wastes from non-specific sources.

(8) Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof: The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are 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 Appendix A, annotated "P" or "U" as the first character in the USEPA waste number.

(b) Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in Appendix A, annotated "P" or "U" as the first character in the USEPA waste number.

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- (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 Appendix A, annotated "P" or "U" as the first character in the USEPA waste number, unless the container is empty. Note that unless the residue is being beneficially used or reused, or legitimately recycled or reclaimed; or being accumulated, stored, transported or treated prior to such use, re-use, recycling or reclamation, the residue to be intended for discard, and thus, a hazardous waste. 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.
- (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 Appendix A, annotated "P" or "U" as the first character in the USEPA waste number, or 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 which, if it met specifications, would have the generic name listed in Appendix A, annotated "P" or "U" as the first character in the USEPA waste number of this Section. Note that the phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in ..." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of 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 material, such as a manufacturing process waste, that contains any of the substances listed in Appendix A, annotated "P" or "U" as the first character in the USEPA waste number. Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in Appendix A, annotated "P" or "U" as the first character in the USEPA waste number, such waste will be listed in Appendix A or will be identified as a hazardous waste by the characteristics set forth in this Section.
- (e) The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in Appendix A, annotated "P" as the first character in the USEPA waste number are hereby identified as acute hazardous wastes (H). Note that 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 only is listed for acute toxicity. These wastes and their corresponding USEPA hazardous waste numbers are listed in Appendix A, annotated "P" as the first character in the USEPA waste number.
- (f) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in Appendix A, are hereby identified as toxic wastes (T), unless otherwise designated. Note that for the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letter T (Toxicity), R (Reactivity), I (Ignitability), and C (Corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.

6-3.12 Criteria for "Non-Regulated" Waste

a. Non-regulated waste generators

- (1) Non-regulated waste determination. Generators will identify and characterize the wastes generated at their site using their knowledge of the materials and processes which generated the waste or through laboratory analysis of the waste. A waste profile sheet will be used to identify each waste stream.

- (2) Waste characterization. Generators will identify inherent hazardous characteristics associated with a waste in terms of physical properties (e.g. solid, liquid, contained gases), chemical properties (e.g. chemical constituents, technical or chemical name) and/or other descriptive properties. The properties defining the characteristics should be measurable by standardized and available testing protocols.
- (3) Unique Identification Number (UIN). Each generator will use its DODAAC for all record keeping, reports and manifests for non-regulated waste.

b. Pre-transport requirements

- (1) Non-regulated waste may be regulated for transportation. If so, generators will prepare non-regulated waste shipments in compliance with applicable requirements.
- (2) Manifesting. All non-regulated waste leaving the installation will be accompanied by a manifest to ensure a complete audit trail from point of origin to ultimate disposal which will include the information listed below. Japanese forms will be used when the destination is a Japanese facility; otherwise, DD Form 1348-1A will be used. The following information will be provided on the DD Form 1448-1A:
 - (a) Generator's name (HWP/HSWA unit name and site manager), address, and telephone number (block 3 on DD Form 1348-1A)
 - (b) Destination name, address, and telephone number (blocks 3 on DD Form 1348-1A)
 - (c) Description of waste (If applicable, the DOT proper shipping name, DOT hazardous class, DOT identification number from applicable transportation regulations)(block 16 on DD Form 1348-1A)
 - (d) Item nomenclature (name and general description of waste) (block 17 on DD Form 1348-1A)
 - (e) Total quantity of waste, in pounds (block 20 on DD Form 1348-1A)
 - (f) Signature and date physically received at the DRMO Store (block 22 on DD Form 1348-1A). If a proof of shipment copy is required, the last copy of the DTID will be removed, signed and marked as delivered in block 22 and given to driver (this indicates only custody of the marked as delivered in block 22 and given to the driver (this indicates only custody of the property). The official receipt/copy acknowledging accountability will be forwarded later.
 - (g) Transporter's name, address, and telephone number (remarks section on DD Form 1348-1A)

- (3) Generators will maintain an audit trail of non-regulated waste from the point of generation to disposal. Generators using DRMS disposal services will obtain a signed copy of the DD Form 1348-1A 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 DODAAC 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.

c. Waste identification. Generating activities will provide identification of incoming waste by a waste profile sheet to the destination DOD activity. Prior to accepting the waste, the destination DOD activity will take the following actions:

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

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- (2) Request a new waste profile sheet from the generator if there is reason to believe that the process generating the waste has changed or if it is a new waste stream.
 - (3) Reject shipments which do not match the accompanying waste descriptions unless the generator provides an accurate description.
- d. Use and management of containers. To protect human health and the environment, the following guidelines will apply when handling and storing non-regulated waste containers.
- (1) Containers must be in good condition, free from severe rusting, bulging, or structural defects.
 - (2) Containers, including overpack containers, must be compatible with the materials stored.
 - (3) Containers must always be closed during storage, except when it is necessary to add or remove waste.
 - (4) Containers must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.
 - (5) Containers holding non-regulated waste must have a bilingual "Non-Regulated Waste" marking and a label indicating the hazard class of the waste, if applicable.
- e. Non-regulated waste training. See the training requirements in Section 6-3.10. The Executive Agent approves and encourages training that addresses two or more requirements in one training event.
- (1) Application: Training is required for all DOD personnel (to include U.S. military, civilian, and local national personnel) whose duties involve actual or potential exposure to non-regulated waste, including persons performing any of the following tasks.
 - (a) Classifying non-regulated wastes and differentiating from regulated wastes.
 - (b) Completing manifests.
 - (c) Handling/storage of non-regulated waste containers.
 - (d) Transferring waste to or from accumulation tanks or containers.
 - (e) Transporting non-regulated waste.
 - (f) Performing waste cleanup (non-emergency).
 - (g) Collecting waste samples.
 - (h) Conducting other waste related activities as designated by the base commanders and/or environmental coordinators.
 - (2) Training duration and deadlines. Personnel assigned to duties involving actual or potential exposure to non-regulated waste must successfully complete the DOD hazard communication program (DOD 6050.5) prior to assuming those duties. Personnel assigned to such duty after 3 March 1995 must work under direct supervision until they have completed appropriate training.
 - (3) Documentation of training. Installations must document all training for each individual assigned duties involving actual or potential exposure to non-regulated waste. Updated training records on personnel assigned duties involving actual or potential exposure to non-regulated waste must be kept by the

responsible installation office and retained for at least three years after termination of duty of these personnel.

6-3.13 Control Burning/Control Detonation (CB/CD) Waste Explosives

- a. Open burning of hazardous waste is prohibited except for control burning and detonation of waste explosives. Waste Explosives include waste which has the potential to detonate and bulk military propellant which can not safely be disposed of through other modes of treatment.
- b. Installations choosing to control burn or detonate waste explosives must do so in accordance with DOD Directive 6055.9 and in a manner that does not threaten human health or the environment.
- c. Service components performing CB/CD operations will submit these operations for review and concurrence by the Environmental Executive Agent (EEA). This review is a one-time requirement unless major changes take place in operational procedures.
- d. Waste explosives consisting of small arms ammunition may be incinerated in pop furnaces in accordance with the requirements of Section 6-3.11.g.
- e. The CB/CD units must be located, designed, constructed, operated, maintained, and controlled in a manner that will ensure protection of human health and the environment. Review and concurrence by the EEA for CB/CD units will ensure such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for response to release of hazardous waste or hazardous constituents from the unit. Terms and provisions shall include those requirements of the currently issued JEGS that are appropriate for the unit being reviewed. Protection of human health and environment includes, but is not limited to:

(1) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, considering:

- (a) The volume, and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;
- (b) The hydrologic and geologic characteristics of the unit and the surrounding area;
- (c) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;
- (d) The quantity and direction of groundwater flow;
- (e) The proximity to and withdrawal rates of current and potential groundwater users;
- (f) The patterns of land use in the region;
- (g) The potential for deposition or migration of waste constituents into the subsurface of physical structures, and into the root zone of food-chain crops and other vegetation;
- (h) The potential for health risks caused by human exposure to waste constituents; and
- (i) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

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- (2) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents on surface waters, wetlands, or surface soils, considering:
 - (a) The volume, and physical and chemical characteristics of the waste in the unit;
 - (b) The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;
 - (c) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
 - (d) The patterns of precipitation in the region;
 - (e) The quantity, quality, and direction of groundwater flow;
 - (f) The proximity of the unit to surface water;
 - (g) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;
 - (h) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;
 - (i) The patterns of land use in the region;
 - (j) The potential for health risks caused by human exposure to waste constituents; and
 - (k) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.
- (3) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:
 - (a) The volume, and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;
 - (b) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;
 - (c) The operating characteristics of the unit;
 - (d) The atmospheric, meteorologic, and topographic characteristics of the unit and surrounding area;
 - (e) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;
 - (f) The potential for health risks caused by human exposure to waste constituents; and
 - (g) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.
- f. Control burning and detonation is permitted as part of a training exercise. Excess material from the training exercise can be burned or detonated when it follows DOD Directive 6055.9, and does not threaten human health and the environment.

**TABLE 6-1
MAXIMUM CONCENTRATION OF CONTAMINANTS
FOR THE TOXICITY CHARACTERISTIC**

USEPA HW¹	Contaminant	CAS²	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	1.0 for used acid or used alkali 0.3 for all other wastes*
D005	Barium	7440-39-3	100.0
D006	Cadmium	7440-43-2	1.0 for used acid or used alkali 0.3 for all other wastes*
D007	Chromium	7440-47-3	5.0 for used acid or used alkali 1.5 for all other wastes*
D016	2,4-D	94-75-7	10.0
D012	Endrin	72-20-8	0.02
D008	Lead	7439-92-1	1.0 for used acid or used alkali 0.3 for all other wastes*
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.05 for used acid or used alkali 0.005 for all other wastes* Standard for organic (alkyl) mercury is not detected
D014	Methoxychlor	72-43-5	10.0
D010	Selenium	7782-49-2	1.0 for used acid/alkali 0.3 for all other wastes*
D011	Silver	7440-22-4	5.0
D015	Toxaphene	8001-35-2	0.5
D017	2,4,5-TP (Silvex)	93-72-1	1.0

Japan HW³	Contaminant	CAS	Regulatory Level (mg/L)
J001	Organophosphorous Compounds		1.0
J002	Cyanide		1.0
J003	Dichloromethane		2 for used acid or alkali 0.2 for all other wastes*
J004	<i>cis</i> -1,2-Dichloroethylene		4 for used acid or alkali 0.4 for all other wastes*
J005	1,1,1-Trichloroethane		30 for used acid or alkali 3 for all other wastes*

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J006	1,1,2 Trichloroethane		0.6 for used acid or alkali 0.06 for all other wastes*
J007	1,3-Dichloropropene		0.2 for used acid or alkali 0.02 for all other wastes*
J008	Thiram		0.6 for used acid or alkali 0.06 for all other wastes*
J009	Simazine		0.3 for used acid or alkali 0.03 for all other wastes*
J010	Binthiocarb		0.2 for used acid or alkali 0.02 for all other wastes*
J011	Asbestos		See Chapter 15

Notes:

1. USEPA Hazardous Waste Number.
2. Chemical Abstracts Service Number.
3. Japanese Hazardous Waste Code.

*Regulatory limits derived from Japanese requirements

TABLE 6-2 MAXIMUM CONCENTRATION OF CONTAMINANTS FOR NON-WASTEWATER			
USEPA HW¹	Contaminant	CAS²	Regulatory Level (mg/kg)
D018	Benzene	71-43-2	1.0 for used acid/alkali 0.1 for all other wastes*
D019	Carbon tetrachloride	56-23-5	0.2 for used acid/alkali 0.02 for all other wastes*
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100
D022	Chloroform	67-66-3	6.0
D023	o-Cresol	95-48-7	200
D024	m-Cresol	108-39-4	200
D025	p-Cresol	106-44-5	200
D026	Cresol		200
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.4 for used acid/alkali 0.04 for all other wastes*
D029	1,1-Dichloroethylene	75-35-4	2.0 for used acid/alkali 0.2 for all other wastes*
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
D039	Tetrachloroethylene	127-18-4	1 for used acid/alkali 0.1 for all other waste*
D040	Trichloroethylene	79-01-6	3 for used acid/alkali 0.3 for all other waste*
D041	2,4,5-Trichlorophenol	95-95-4	400.0

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D042	2,4,6-Trichlorophenol	88-06-2	2.0
D043	Vinyl Chloride	75-01-4	0.2

Notes:

1. USEPA Hazardous Waste Number.

2. Chemical Abstracts Service Number.

*Regulatory limits derived from Japanese requirements

**TABLE 6-3
LISTED HAZARDOUS WASTES FROM NON-SPECIFIC SOURCES**

USEPA Waste ¹	Hazardous Waste	Hazard Code
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 spend 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 ten 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)
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T) ²
F004	The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten 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 ten 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 zincaluminum 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)
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)

Notes:

1. USEPA Hazardous Waste Number.
2. (I,T) should be used to specify mixtures containing ignitable and toxic constituents.

**TABLE 6-4
REGULATORY LEVEL OF HAZARDOUS SUBSTANCES IN HAZARDOUS WASTES**

Category for HW Disposal Only	Landfill*	Dumping* (other than Ocean Dumping)		Ocean Dumping*			Offshore Incineration *
		material	sludge (mg/L)	bottom soil (mg/L)	waste acid and waste alkali (mg/L)	soluble sludge (mg/kg)	
Organic (alkyl) Mercury	ND	ND	ND	ND	ND	ND	ND
Mercury (Hg)	0.005	0.005	0.005	2	0.05	0.005	2
Cadmium (Cd)	0.3	0.1	0.1	5	1	0.1	5
Lead (Pb)	3	1	1	50	10	1	50
Organophosphorous Compounds	1	1	1	5	1	1	-
Hexavalent Chromium (Cr(VI))	1.5	0.5	0.5	25	5	0.5	25
Arsenic (As)	1.5	0.5	0.5	25	5	0.5	25
Cyanide	1	1	1	5	1	1	5
Polychlorinated Biphenyl (PCB)	0.003	0.003	0.003	0.15	0.03	0.003	0.15
Organochlorine Compounds	-	-	-	40	8	40	40
Copper (Cu)	-	3	-	70	15	3	70
Zinc (Zn)	-	5	-	450	90	5	450
Fluoride	-	15	-	1000	200	15	40
Trichloroethylene (TCE)	0.3	-	0.3	15	3	0.3	15
Tetrachloroethylene (PCE)	0.1	-	0.1	5	1	0.1	5
Testing Method	Leachate	Leachate	Content	Content	Content	Leachate	Content

Notes:

ND: Not Detected

* Regulatory limits derived from Japanese requirements

**TABLE 6-5
LIST OF SPECIALLY CONTROLLED INDUSTRIAL WASTES (SCIW)**

Types	Sources (Facilities)	Applicability and Maximum Limits
1. Waste Oil (Ignitable Petroleum Waste)		Gasoline, kerosene and Diesel oil industrial Waste
2. Waste Acid		pH less than 2.0
3. Waste Alkali		pH greater than 12.5
4. Infectious Industrial Waste	Hospital Clinic Laboratory Health center for elder Facilities dealing with infectious pathogen Midwife centers Governmental, academic and corporation R&D centers related to medicine, dentistry, pharmacy and veterinary.	Infectious waste (wastes which contain or is suspected to contain infectious pathogen) ; also sludge, waste oil, waste acid, waste alkali, waste plastic, rubbers waste metal, waste glass or waste.
5. Waste PCBs		Waste PCBs and PCB contaminated waste oil
6. PCB Contaminated Substances		(PCB coated) Paper trash or PCB stained or impregnated waste plastics or metals
7. Designated Sewerage Sludge		Alkyl mercury trace Mercury 0.005mg/L Cadmium 0.3mg/L Lead 0.3mg/L Organic Phosphorous 1mg/L Chromium (VI) 1.5mg/L Arsenic 0.3mg/L Cyanogen 1mg/L PCB 0.003mg/L Trichloroethylene 0.3mg/L Tetrachloroethylene 0.1mg/L
Substances Treated for Disposal (Waste Acid or Waste Alkali)		Alkyl mercury trace Mercury 0.05 mg/L Cadmium 1 mg/L Lead 1 mg/L Organic Phosphorous 1 mg/L Chromium (VI) 5 mg/L Arsenic 1 mg/L Cyanogen 1 mg/L PCB 0.03 mg/L Trichloroethylene 3 mg/L Tetrachloroethylene 1 mg/L
Substances Treated for Disposal (Other than Waste Acids or Waste Alkali)		Alkyl mercury trace Mercury 0.005 mg/L Cadmium 0.3 mg/L Lead 0.3 mg/L Organic Phosphorous 1 mg/L Chromium (VI) 1.5 mg/L Arsenic 0.3mg/L Cyanogen 1 mg/L PCB 0.003 mg/L Trichloroethylene 0.3 mg/L Tetrachloroethylene 0.1 mg/L

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8. Slag		Alkyl mercury trace Mercury 0.005 mg/L Cadmium 0.3 mg/L Lead 0.3 mg/L Chrome (VI) 1.5 mg/L Arsenic 0.3 mg/L
Substances Treated for Disposal (Waste Acid or Waste Alkali)		Alkyl mercury trace Mercury 0.05 mg/L Cadmium 1 mg/L Lead 1 mg/L Chrome (VI) 5 mg/L Arsenic 0.3 mg/L
Substances Treated for Disposal (Waste Acid or Waste Alkali)		Alkyl mercury trace Mercury 0.005 mg/L Cadmium 0.3 mg/L Lead 0.3 mg/L Chrome (VI) 1.5 mg/L Arsenic 0.3 mg/L
9. Waste Asbestos (Dispersing Substances)	Asbestos construction material removal operation Specified particulate matter facility	Sprayed asbestos, asbestos insulating material, diatomaceous earth, perlite insulating material, insulating material which might cause asbestos to scatter by vibration, air currents and contact, asbestos removal equipment Substances collected by a dust collector facility at a specified dust facility, equipment used at the specified particulate matter facility
10. Soot and Smoke (Mercury)	(Air Law Annexed Table 1) 03 Metal refining calciner 05 metal smelting furnace 10 inorganic chemical reactive furnace 11 drying oven.	Alkyl mercury trace Mercury 0.005 mg/L
Substances Treated for Disposal	(Waste acids and waste alkalis) (other than above)	Alkyl mercury trace Mercury 0.05 mg/L Alkyl mercury trace Mercury 0.005 mg/L
11. Soot and Smoke (Cadmium)	(Air Law Annexed Table 1) 03. metal refining calciner 05 metal smelting furnace 09 charcoal oven 10 inorganic industrial reaction oven 11 drying oven 12 electric iron manufacturing oven 14 copper calciner 15 cadmium carbon drying facility 21 oven reaction facility 23 oven reaction facility	Cadmium 0.3 mg/L
Ash or Soot (Cadmium)	Waste plastic incineration facility	
Substances Treated for Disposal	(waste acids and waste alkalis) (other than above)	Cadmium 1 mg/L Cadmium 0.3 mg/L

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12. Soot (Lead)	(Air Law Annexed Table 1) 05 metal smelting oven 09 charcoal incinerator 10 inorganic chemical reaction incinerator 11 drying oven 12 electric iron manufacturing 14 copper calciner 24 lead smelting oven 25 lead storage battery smelting oven 26 lead carbon smelting oven	Lead 0.3 mg/L
Ash or Soot (Lead)	Waste plastic incineration facility	
Substances Treated for Disposal	(Waste acids and alkalis) (other than above)	Lead 1 mg/L Lead 0.3 mg/L
13. Soot (Chromium VI)	(Air Law Annexed Table 1) 03 metal calciner 10 inorganic chemical reaction oven 11 drying oven 12 electric iron manufacturing oven	Chromium (VI) 1.5 mg/L
Ash or Soot and Smoke Chrome(VI)	Waste plastic incineration facility Industrial waste incineration facility	
Substances Treated for Disposal	(Waste acids and waste alkalis) (other than above)	Chromium (VI) 5 mg/L Chromium (VI) 1.5 mg/L
14. Soot and Smoke (Arsenic)	(Air Law Annexed Table 1) 03 metal calciner 09 kiln product 10 inorganic chemical reaction oven 11 drying oven 14 copper calciner 24 lead smelting oven	Arsenic 0.3 mg/L
Ash or Soot (Arsenic)	Industrial waste incineration facility	
Substances Treated for Disposal	(Waste acids and alkalis) (other than above)	Arsenic 1 mg/L Arsenic 0.3 mg/L
15. Waste Oil (Trichloroethylene)	(Water Law, Annexed Table 1) 19-a dying facility such as cloth 19-b chemical liquid penetration facility such as a cotton mill 23-2 developing solution facility such as newspapers 41-c perfume extracting facility 47-d medical industry mixing facility 50 sample manufacturing facility using trichloroethylene 51-e lubricating oil cleaning facility for the oil industry 66 electroplating facility 67 laundry facility 71-2-f laundry facility for science and technology research centers trichloroethylene service treatment facility	
Substances Treated for Disposal	(Waste oil)	Waste solvents (limited to trichloroethylene)
	(Waste acids and alkalis) (other than above)	Trichloroethylene 3 mg/L Trichloroethylene 0.3 mg/L

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<p>16. Waste Oil (Tetrachloroethylene)</p>	<p>(Water Law, Annexed Table 1) 19-a dyeing facility such as cloth 19-b chemical liquid penetration facility such as a cotton mill 23-2 developing solution facility such as newspapers 41-c perfume extracting facility 47-d medical industry mixing facility 50 sample manufacturing facility using trichloroethylene 51-e lubricating oil cleaning facility for the oil industry 66 electroplating facility 67 laundry facility 71-2-f laundry facility for science and technology research centers trichloroethylene service treatment facility</p>	
<p>Substances Treated for Disposal</p>	<p>(Waste oil)</p>	<p>Waste solvents (limited to tetrachloroethylene)</p>
	<p>(Waste acids and alkalis) (other than above)</p>	<p>Tetrachloroethylene 1 mg/L Tetrachloroethylene 0.1 mg/L</p>
<p>17. Sludge, Waste Acids and Waste Alkalis (Mercury)</p>	<p>(Water Pollution Control Law) 25 Mercury electrolysis caustic soda manufacturing 26-a non-organic cosmetic manufacturing cleaning facilities 26-b non-organic cosmetic filtering facilities 26-c non-organic cosmetic waste gas cleaning facility 27-d non-organic chemical product filtering facility 27-e non-organic chemical product centrifuge facility 27-f non-organic chemical product waste gas cleaning facility 27-g non-organic chemical wet soot and dust facility 28 carbide acetylene induction vinyl chloride monomer cleaning facility 46-a organic chemical production water cleaning facility 46-b organic chemical production filtering facility 46-c organic chemical production waste gas cleaning facility 47-d medical product filtering facility 47-e medical product separating facility 47-f medical product mixing facility 47-g medical product waste gas cleaning facility 63-h metal product mercury refining facility 63-i metal product manufacturing mercury refining facility 63-j metal product waste gas cleaning facility 71-2-a science technology center research facilities acetylene refining facility</p>	<p>(Sludge) Alkyl mercury trace Mercury 0.005mg/L (Waste acids and Alkalis) Alkyl mercury trace Mercury 0.05mg/L</p>
<p>Substances Treated for Disposal</p>	<p>(Waste acids and alkalis) (other than above)</p>	<p>Alkyl mercury trace Mercury 0.05mg/L Alkyl mercury trace Mercury 0.005mg/L</p>

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<p>18. Sludge, Waste Acid or Waste Alkali (Cadmium)</p>	<p>(Water Law, Annexed Table 1) 26-a non-organic cosmetic production cleaning facility 26-b non-organic cosmetic production filtering facility 26-c non-organic cosmetic production (cadmium type) centrifuge machine 26-d non-organic cosmetic production waste gas cleaning facility 27-a non-organic chemical production filtering facility 27-b non-organic chemical product centrifuge machine 27-c non-organic chemical production waste gas cleaning facility 27-d non-organic chemical production wet-dust collecting facility 37-a petrochemical acetaldehyde distillation facility 37-b petrochemical gas cleaning facility 43 photo sensitizer cleaning facility 46-a organic chemical products cleaning facility 46-b organic chemical product filtering facility 46-c organic chemical product organic gas cleaning facility 50 cadmium sample manufacturing facility 53 glass product manufacturing, 58 kiln raw material refining industry 62-a non-iron and metal production waste gas cleaning facility</p>	<p>(Sludge) Cadmium 0.3mg/L (Waste acids and waste alkalis) Cadmium 1mg/L</p>
	<p>62-b non-iron and metal production wet-dust collection facility 63-c metal product manufacturing cadmium electrode facility 63-d metal product waste gas cleaning facility 65 acid and alkali surface treatment facility 66 electroplating facility 68 photo developing cleaning facility 71-2-a science and technology research center cleaning facility</p>	
<p>Substances Treated for Disposal</p>	<p>(Waste acids and waste alkalis) (other than above)</p>	<p>Cadmium 1 mg/L Cadmium 0.3 mg/L</p>
<p>19. Sludge, Waste Acid or Waste Alkali (Lead)</p>	<p>(Water Law, Annexed Table 1) 26-a non-organic cosmetic production cleaning facility, 26-b non-organic cosmetic production filtering facility, 26-c non-organic cosmetic production (cadmium type) centrifuge machine, 26-d non-organic cosmetic production waste gas cleaning facility 27-a non-organic chemical production filtering facility 27-b non-organic chemical product centrifuge machine 27-c non-organic chemical production waste gas cleaning facility 27-d non-organic chemical production wet-dust collecting facility 46-a organic chemical product water cleaning facility 46-b organic chemical product filtering facility 46-c organic chemical product waste gas cleaning facility</p>	<p>(Sludge) Lead 0.3 mg/L (waste acid and alkali) Lead 1 mg/L</p>
	<p>47-c medical product filtering facility, 47-d medical product separating facility, 47-e medical product mixing facility, 47-f medical product waste gas cleaning facility, 49 agrochemical mixing facility, 50 lead sample manufacturing facility, 53 glass product manufacturing, 58 kiln raw material refining industry, 62-a non-iron and metal product electrolysis facility, 62-b non-iron and metal waste gas cleaning facility,</p>	

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	62-c non-iron and metal dust collecting facility, 63-a metal product cadmium electrode facility, 63-b metal product gas cleaning facility, 65 acid and alkali surface treatment facility, 66 electroplating facility 71-2 science and technology center cleaning facility, Trinitroresorcin lead manufacturing facility	
Substances Treated for Disposal	(Waste acid and waste alkali) (other than above)	Lead 1 mg/L Lead 0.3 mg/L
20. Sludge, Waste Acid and Waste Alkali (Organic Phosphorous Compounds)	(Water Law, Annexed Table 1) 46-a organic chemical product water cleaning facility 46-b organic chemical product filtering facility 46-c organic chemical product waste gas cleaning facility 49 agrochemical product mixing facility 50 organic phosphorous sample manufacturing facility 71-2-a science and technology research center cleaning facility	(Sludge) Organic Phosphorous 1 mg/L (Waste acid and Waste alkali) Organic Phosphorous 1 mg/L
Substances Treated for Disposal	(Waste acids and waste alkalis) (other than above)	Organic Phosphorous 1 mg/L Organic Phosphorous 1 mg/L
21. Sludge, Waste Acid and Waste Alkali (Chromium (VI) Compounds)	(Water Law, Annexed Table 1) 19-d cotton mill dyeing facility 22-b timber and drug treatment chemical liquid penetration facility 26-a non-organic cosmetic manufacturing cleaning facility 26-b non-organic cosmetic manufacturing filtering facility 26-c non-organic cosmetic manufacturing waste gas cleaning facility 27a non-organic chemical product filtering facility 27-b non-organic chemical product centrifuge machine 27-c non-organic chemical product waste gas cleaning facility 27-d non-organic chemical product wet-dust collection facility 32 organic cosmetic manufacturing 46-a organic chemical product water cleaning facility 46-b organic chemical product filtering facility 46-c organic chemical product waste gas cleaning facility 47-a medical product filtering facility 47-b medical product separating facility 47-c medical product mixing facility 47-d medical product waste gas cleaning facility 50 6-chrome sample manufacturing facility 63-a metal product electrolysis cleaning facility 63-b metal product waste gas cleaning facility	(Sludge) Chromium (VI) 1.5 mg/L (Waste acids and Waste alkalis) Chromium (VI) 5 mg/L
	65 acid and alkali surface treating facility 66 electroplating facility 71-2 science and technology research center cleaning facility	
Disposal Facility Treatment Substances	(Waste acids and waste alkalis) (other than above)	Chrome (VI) 5 mg/L Chrome (VI) 1.5 mg/L

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<p>22. Sludge, Waste Acid and Waste Alkali (Arsenic)</p>	<p>(Water Law, Annexed Table 1) 22 timber and drug treatment chemical liquid penetration facility 24 chemical fertilizer manufacturing, 27-a non-organic chemical product filtering system 27-b non-organic chemical product centrifuge machine 27-c non-organic chemical product waste gas cleaning facility 27-d non-organic chemical product wet-dust collection facility 47-b medical product filtering facility. 47-c medical product separating facility 47-d medical product mixing facility 47-e medical product waste gas cleaning facility 49 agrochemical manufacturing mixing facility 50 arsenic sample manufacturing facility 62-a non-iron and metal reverse facility 62-b non-iron and metal electrolysis facility 62-c non-iron and metal waste gas cleaning facility 62-d non-iron and metal wet-dust collection facility 65 acid and alkali surface treatment facility 66-2 hotel bath facility 71-2-a science and technology research center cleaning facility</p>	<p>(Sludge) Arsenic 0.3 mg/L (waste acids and waste alkalis) Arsenic 1 mg/L</p>
<p>Substances Treated for Disposal</p>	<p>(Waste acids and waste alkalis) (other than above)</p>	<p>Arsenic 1 mg/L Arsenic 0.3 mg/L</p>
<p>23. Sludge, Waste Acid and Waste Alkali (Cyanogens)</p>	<p>(Water Law, Annexed Table 1) 26-a non-organic cosmetic manufacturing cleaning facility 26-b non-organic cosmetic manufacturing filtering facility 26-c nor-organic cosmetic manufacturing waste gas cleaning facility 27-a non-organic chemical product filtering facility 27-b non-organic chemical product centrifuge machine 27-c non-organic chemical product (cyanide) reaction facility 27-d non-organic chemical product waste gas cleaning facility 28 carbide wet acetylene gas facility 32-a organic cosmetic manufacturing filtering facility 32-b organic cosmetic manufacturing water cleaning facility 32-c organic cosmetic manufacturing centrifuge machine 32-d organic cosmetic manufacturing waste gas cleaning facility 33-b synthetic resin manufacturing water cleaning facility 33-c synthetic resin manufacturing centrifuge machine 33-d synthetic resin manufacturing waste gas cleaning machine 34-c synthetic rubber manufacturing water cleaning facility 34-d synthetic rubber manufacturing concentrated latex facility</p>	<p>(Sludge) Cyanogen 1 mg/L (Waste acids and Waste alkalis) Cyanogen 1 mg/L</p>
	<p>34-e synthetic rubber manufacturing sedimentation facility 37-d petrochemical-rapid cooling facility for acrylic nitrite 37-e petrochemical reaction facility for methyl methacrylic monomer 46-a organic chemical product water cleaning facility</p>	

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	<p>46-b organic chemical product filtering system 46-c organic chemical product waste gas facility 47-b medical product filtering facility 47-c medical product separating facility 47-d medical product mixing facility 47-e medical product waste gas cleaning facility 50 cyanogen compound sample manufacturing facility 61-a steel industry coke and gas/liquid separators 63-a metal product hardening facility 63-b metal product electrolysis cleaning facility 64 gas supply industry 66 electroplating facility 68 film developing cleaning facility 71-2 science and technology research centers</p>	
Substances Treated for Disposal	(Waste acids and waste alkali) (other than above)	Cyanogen 1 mg/L Cyanogen 1 mg/L
24. Sludge, Waste Acid and Waste Alkali (PCBs)	(Water Law, Annexed Table 1) 23-a pulp manufacturing raw material bath facility 23-b pulp manufacturing distillation facility 23-c pulp manufacturing distillation waste liquid concentrating facility 23-d pulp manufacturing chip cleaning facility 23-e pulp manufacturing bleaching facility 23-f pulp manufacturing paper machine facility 23-g pulp manufacturing wet fabric press board facility 23-h pulp manufacturing waste gas cleaning facility 71-2-a science and technology research center cleaning facility.	(Sludge) PCBs 0.003 mg/L (Waste acids and waste alkalis) PCBs 0.03 mg/L
Substances Treated for Disposal	(Waste acids and waste alkalizes) (other than above)	PCBs 0.03 mg/L PCBs 0.003 mg/L
25. Sludge, Waste Acid and Waste Alkali (Trichloroethylene)	(Water Law, Annexed chapter 1) 19-f cotton mill dyeing facility 19-g cotton mill chemical liquid penetration facility 23-2 paper companies, etc. 31 methane induction (freon gas) manufacturing cleaning facility 32 organic cosmetic manufacturing facility 33-e synthetic resin (the fluorine resin) manufacturing gas cooling cleaning facility and distillation facility 37-a petrochemical cleaning facility 37-b petrochemical separation facility 37-c petrochemical filtration facility 37-d petrochemical waste gas cleaning facility 41 perfume extracting facility 46-a organic chemical product water cleaning facility 46-b organic chemical product filtration facility 46-c organic chemical product waste gas cleaning facility 47-d medical product mixing facility 50 trichloroethylene sample manufacturing facility 51-e oil refining manufacture lubricating oil cleaning facility 65 electroplating facility 67 laundry facility 71-2-a science and technology research center cleaning facility oil product distillation facility waste oil distillation facility trichloroethylene surface treatment facility	(Sludge) Trichloroethylene 0.3 mg/L (waste acids and waste alkalis) Trichloroethylene 3 mg/L

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Substances Treated for Disposal	(Waste acids and waste alkalis) (other than above)	Trichloroethylene 3 mg/L Trichloroethylene 0.3 mg/L
26. Sludge, Waste Acid and Waste Alkali (Tetrachloroethylene)	(Water Law, Annexed Table 1) 19-e cotton mill dyeing facility 19-f cotton mill chemical liquid infiltration system 23-2 newspaper industry 31-c methane inducing identification (fluorine gas manufacturing) cleaning facilities 32 organic cosmetic manufacturing 33-e synthetic resins (fluorine resins) gas cooling cleaning facility and distillation facility 34-a synthetic rubber filtration facility 34-b synthetic rubber dehydration facility 34-c synthetic rubber water cleaning facility 34-d synthetic rubber manufacturing latex facility 37-a petrochemical cleaning facility 37-b petrochemical separation facility 37-c petrochemical filtrating system 37-d petrochemical waste gas cleaning facility 41-b perfume extracting facility 46-a organic chemical product water cleaning facility 46-b organic chemical product filtering facility 46-c organic chemical product waste gas cleaning facility 47 medical product mixing facility 50 tetrachloroethylene sample manufacturing facility 66 electroplating facility 67 laundry facility 71-2-a science and research center cleaning facility	(Sludge) Tetrachloroethylene 0.1 mg/L (Waste acids and waste alkalis) Tetrachloroethylene 1 mg/L
	oil product distillation facility waste oil distillation facility tetrachloroethylene surface treatment facility	
Substances Treated for Disposal	(Waste acids and waste alkalis) (other than above)	Tetrachloroethylene 1 mg/L Tetrachloroethylene 0.1 mg/L