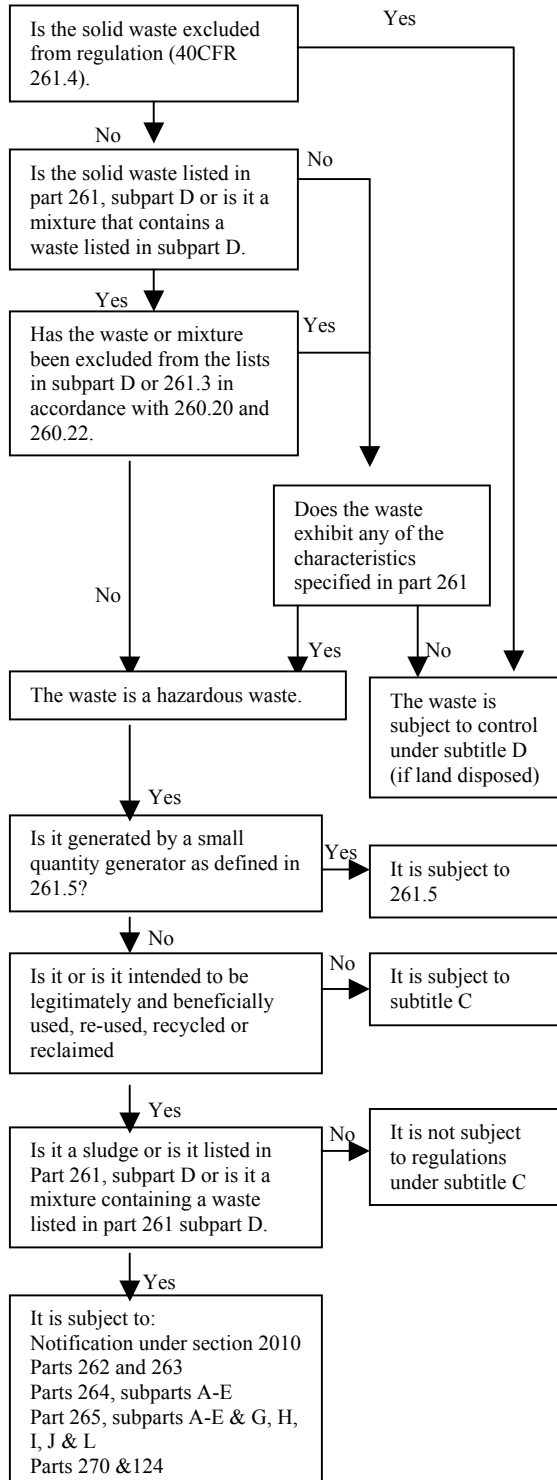


# ENVIRONMENTAL COMPLIANCE PROGRAM

## Chapter 4. Handling and Disposal of Hazardous Waste

### 4.1 Hazardous waste:

Hazardous waste is defined in section IV under definitions. The following diagram can aid in the process of determination:



### 4.2 Containment Buildings (40 CFR 265 DD)

Under the LDR (Land Disposal Restrictions), hazardous waste may not be placed on the land unless it has met certain treatment standards. Containment buildings allow for storage of hazardous waste before treating.

The containment buildings used must meet certain design criteria. It must be made of man-made materials, fully enclosed with walls, a floor, a roof and be able to withstand the movement of materials, personnel, movement of equipment and the storage of the materials. Surfaces must be chemically compatible with the waste. Any doors or windows must be placed so that there is no contact with the waste and any fugitive emissions must be controlled. Liquid wastes require a primary barrier that is sloped toward a liquid collection device, also a leak detection device should be installed to determine if the integrity of the primary barrier is compromised or not.

The sitting of the building must take into account the topography, storm drains present, tree and property boundaries. Also the type of waste may require the sitting to be 50 feet from the facility/property boundary (e.g. ignitable, reactive).

Housekeeping along with a good preventive maintenance program is essential to proper management of the site. Inspections of the waste streams, quantity, storage and the condition of the containment building should be inspected at least weekly. Signage should be posted that identifies the area as a hazardous waste storage area. The health, fire and stability hazard present should also be posted. Security of the area shall be enforced and maintained. The methods of contacting emergency response personnel, the responsible department, the site coordinator, phone number, and the proper response required if a spill or fire is present shall be posted and readily visible to employees. A means of contacting the proper personnel shall be readily available and maintained in working order.

A generator must comply with these requirements if temporary accumulation is designated for a containment building. The generator whether a small generator or a large generator must obtain certification from a professional engineer that the building conforms to the design standards, also the generator must

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prepare written procedures used to ensure that wastes remain in the containment for not more than 90 days. An important note is that small generators using containment buildings for storage of their wastes do not have 180 days of accumulation they must abide by the 90 day requirement unless storage is within containers or tanks within the building.

Once the useful life of the building is exceeded the generator must close in compliance with 40 CFR 265.111 and 265.114. The training and documentation required of a large generator is also required of a small generator. Conditionally exempt small quantity generators are not subject to these requirements. (see attachments A & B for Hazardous Waste state regulations)

### 4.3 Container Management

Hazardous as well as non-hazardous/non-regulated wastes require proper containment. Good practices used in the management of drums or containers require periodic inspection and careful consideration with regards to location stored, amount stored, protection afforded from the environment and containment practices that will be used for emergencies and contingencies.

Containers must be monitored for leaks, spills, overfilling, compatibility and the overall condition of drum(s) or container(s) (weekly inspections are required).

Some examples of proper containment practices are when dealing with corrosives and oxidizing agents plastic drums preferably 1H1 would be used for these liquids. In general metal drums 1A1 (steel), are used for handling most type of non-reactive wastes. When using drums to accumulate hazardous wastes, ensure that the drums are in good condition they are the proper drum for the waste (solids shall go into open top drums e.g. 1A2, liquids shall go into closed top drums e.g. 1A1), and there is a containment system that will hold 10% of the containers contents or contain the contents of the largest container/drum, whichever is greater.

Drums will remain closed during storage and only opened when adding or removing waste. The drum shall have a hazardous label placed on the side, the accumulation date marked, and the contents identified when the first drop of waste goes into the drum.

Accumulation of hazardous waste at or near any point of generation is allowed as long as you do not generate more than 55 gallons at any one time in that location. Do not fill the drums to the top, always leave approximately four (4) inches from the top, this will allow for expansion of the liquid. There are weight limits that have been established for the packaging of the drums or containers.

### Gross Weight Limit Based Upon Packing Group Designation of Contents

POP Packaging Designation	Previous DOT Spec.	PG I	PG II	PG III
UN1A1/Y1.4/100, 55 gal	17E	Not authorized	291 kg	400 kg
UN1A1/Y1.4/100, 15 gal	17E	Not authorized	79 kg	119 kg
UN1A2/Y300/S, 55 gal	17C	Not authorized	300 kg	300 kg
UN1A2/Y1.4/100, 55 gal	17C	Not authorized	291 kg	400 kg
UN1A2/Y300/S, 55 gal	17H	Not authorized	300 kg	300 kg
UN1A2/Y1.4/100, 55 gal	17H	Not authorized	291 kg	400 kg
UN1A2/Y30/S, 5 gal	17H	Not authorized	30 kg	30 kg
UN1A2/Y1.4/100, 5 gal	17H	Not authorized	26 kg	40 kg
UN1A1/X1.4/550, 55 gal (SS)	5C	291 kg	400 kg	400 kg
UN1A2/Y400/S, 85 gal	N/A	Not authorized	400 kg	400 kg
UN1H1/Y1.4/100, 15 gal	34	Not authorized	79 kg	
UN6HA1/Y1.4/100, 55 gal	6D/2SL	Not authorized	291 kg	
UN1H2/Y60/S, 30 gal	21C	Not authorized	60 kg	60 kg
UN1H2/Y30/S, 14 gal	21C	Not authorized	30 kg	30 kg
UN1A2/Y400/S, 85 gal	N/A	Not authorized	400 kg	400 kg

(see attachment C, Typical Packaging Markings)

Fill limits prescribed according to 49 CFR and safe handling limits. Any drums filled with non-hazardous materials should not exceed packaging group III limits. **1kg = 2.2 lbs**

Non-hazardous wastes (oil, oily water, pipe flush water, etc.) accumulated in containers and drums require the same care as hazardous waste.

The accumulation of non-hazardous waste in a drum that contained hazardous material is unacceptable unless a competent person has made a determination that the hazardous material has been removed.

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Containers that are being discarded in dumpsters must be empty according to 40 CFR 261.7. By definition, this means that all wastes have been removed using the practices commonly employed to remove materials from the container (e.g. pouring, pumping, or aspirating). For containers larger than 25 gallons, the ends must be removed. The container is empty if no more than 1 inch (2.5 centimeters) of residue remains on the bottom of the container or inner liner, and no more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons. No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if greater than 110 gallons in size.

A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric. (The manufacturer may pick up an empty cylinder, if not, contact Florida Air & Gas at 407-298-0020, Amerigas at 407-293-6644 or Air Liquide at 407-291-2597.)

For residues identified under 40 CFR 261.31, 261.32 or 261.33 (e), hazardous waste from non-specific sources (F listed wastes), hazardous waste from specific sources (K listed wastes), and discarded commercial chemical products, off-specification commercial chemical products or chemical intermediates (P & U listed wastes), the container is empty if the container or inner liner has been triple rinsed using a solvent capable of removing the product or has been cleaned by another method shown to achieve equivalent removal.

#### 4.4 Hazardous Waste Container Prep

It is essential that containers are properly prepared prior to shipping off site. It is important that each hazardous waste container is suitable for shipping. This can be accomplished by visually observing the physical condition of the container (Is the container damaged? Are tops and bungs secure?), if the container is not suitable for shipment then transfer the contents into another container (see 4.3 container management).

Affix the proper identification labels. Each container shall be numbered and recorded in a hazardous waste log. Affix the profile numbers to the top of each container (a profile number is

given to a particular waste stream). A D.O.T. hazardous waste shipping label must be affixed to the side of the container, each label shall be completed with the following:

- Proper D.O.T. shipping name of waste
- Class, ID# and packaging group
- EPA ID#
- Manifest #
- Accumulation start date
- Name of Shipper
- Address of Shipper, City, State, Zip-code

Affix to the side of the container a D.O.T UN Class identification label to Identify the hazard (see attachment D).

If possible containers should be palletized for ease of loading. Containers should be stored in a secure area or a hazardous waste storage area while awaiting shipment. **Follow the storage time limits.**

#### 4.5 Inspection Plan

An inspection plan will provide a documented daily, weekly and or monthly schedule and report of satellite, 90 day or 180 day accumulation areas. The purpose of the inspection plan is to prevent operator errors and/or releases that may lead to an exposure or threat of exposure to an employee or the environment. In this plan is also provided a mechanism to audit the facility, a review process of the overall condition of the storage facility and a review process of programs and procedures and a means to correct problem areas. The inspection schedule provides specific frequencies for inspecting waste storage, safety and emergency equipment, security devices and monitoring equipment.

If there are any satellite areas of accumulation they will also have written inspection schedules maintained and available for review upon request.

Deficiencies that are detected during inspections or during operations will be addressed immediately and recorded in an inspection log.

Undocumented wastes, containers or drums found without proper labeling or markings will

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be reported immediately to the designated environmental coordinator.

Inspection records will be updated and filed in the environmental coordinators office. Weekly, monthly and semi-annual reports will include date, name of inspector, observations, and corrective actions taken or a corrective actions timetable drafted to show compliance (or efforts to support compliance).

Weekly inspections will record conditions of drums or containers, proper labeling, security of the containers, incompatible segregation, containment and diking, accumulation dates, aisle space, alarms, emergency equipment, housekeeping, and any spills present. Also a check of any unauthorized containers in the area, placards and warning signs posted, contingency plans and their availability and any decontamination procedures and available supplies.

Monthly inspections should review the weekly inspections, track waste accumulation and aid in preparing for the shipment and disposal of the wastes.

Semi-annual inspections should be performed on a predetermined scheduled, such as, January and July. This inspection should focus on the review of the weekly and monthly inspections, the status of any corrective actions taken or proposed, and a review of manifests, documents, correspondence and training.

(see attachment E for weekly, monthly, etc.)

## **4.6 Sampling & Analysis Plan**

Any procedure that will result in the generation of a hazardous waste product not previously established or introduced within the organization must be approved through management.

The generation, storage, transportation and disposal must comply with federal, state and local laws pertaining to environmental protection.

Generators must know the characteristics of any hazardous waste handled. The characteristics and properties of each hazardous waste handled is necessary for the proper storage, treatment, transportation and disposal.

At a minimum generator knowledge may suffice (SDS may be used) if the source is known and the generator has complete control and security over the waste produced. Otherwise, an analysis must be obtained to determine the storage, treatment, transportation and disposal of the waste in accordance with 40 CFR 264.13 & 268 and 49 CFR 172.

A representative sample of the waste stream must be taken in accordance with the EPA sampling protocol and equivalent ASTM sampling protocols. A desired objective of sampling and analysis is the greater emphasis on waste characteristics and the control over generator certification. Frequency of analysis will be based on waste production. Wastes of known origin and source control/security will require analysis every 2 years for quality control. Unknown generation with little to no control/security will require analysis prior to pickup. Analysis of wastes will also be based on any changes in process or control.

A listing of waste streams in the following format will aid in audits and inspection compliance:

1. Generator & Location
2. Waste description or process (activity)
3. Waste profile number
4. Proper shipping name, hazard class, packaging group
5. UN number
6. EPA waste number
7. Container type
8. Analysis completed (yes/no), type

## **4.7 Segregation**

Under the 49CFR 177.848 for the transportation and storage of chemicals the following general segregation and separation is required:

- In general Explosives 1.1 through 1.6 may not be stored with Flammable gases 2.1 through Corrosive liquids 8
- Also Class 8 Corrosive liquids may not be loaded above, adjacent to Class 4, Flammable or Class 5, Oxidizing materials

Further separation and segregation transportation related requirements can be found in 49CFR 177.848.

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Under various other laws, the adoption of an “A Group” and “B Group” materials have been established identifying potential incompatible waste storage or mixing of both these groups. However there are exceptions, but it will not be explained here. The following is a limited list:

Group 1-A      Alkaline cleaner  
                    Caustic wastewater  
                    Spent Caustic  
                    Lime wastewater

Group 1-B      Acid sludge  
                    Battery Acid  
                    Chemical cleaners  
                    Spent sulfuric acid

Potential consequences: Heat Generation, violent reaction

Group 2-A      Aluminum  
                    Magnesium  
                    Lithium  
                    Sodium

Group 2-B      Any waste in group 1-A or 1-B

Potential consequences: Fire or explosion, generation of flammable hydrogen gas

Group 5-A      Spent cyanide  
                    and sulfide solutions

Group 5-B      Group 1-B wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas

## 4.8 Land Disposal Restrictions

The reasoning for the land disposal restrictions (LDR) is to ensure that hazardous waste if land disposed does not pose a threat to human health and the environment. The LDR has three major components: hazardous waste disposal; dilution and storage.

Before a waste can be land disposed, treatment standards specific to that waste material must be met. EPA bases treatment standards on the performance of the best demonstrated available technology (BDAT). For small quantity generators (SQGs) and large quantity generators a determination of the treatment technology specified by EPA and documentation (hold for 5 years) of the LDR forms is a requirement for all

hazardous waste prior to transportation and disposal (dilution is prohibited as a technology).

## 4.9 Training Plan

All employees involved with transporting, receiving hazardous materials, or working with hazardous wastes will be trained as described in the matrix.

New employees should receive training no later than 30 days after being hired. If required to work with hazardous materials or wastes the new employee must be under constant supervision of a trained employee during or until training is completed.

Training programs must be reviewed at least annually or when there are major changes in regulatory compliance requirements or in a change in the management of the materials/wastes or type of materials/wastes. (Training records, documentation and job descriptions should be maintained for 30 years after separation of the employee.)

A combination of classroom instruction, possible seminars, OJT and functional work can be used. The program should consist of the elements of the contingency and emergency plans, the SPCC (if required), hazardous material incident response plans, operation of communications and alarm systems, responses to possible fires or explosions, response to potential spills, facility shutdown and security and facility reactivation after adverse weather, spills or releases.

Subjects that should be covered are: identification and labeling of hazardous materials and wastes; PPE; use of emergency equipment and sampling equipment; 1<sup>st</sup> aid and CPR; container repair; spill prevention and response; spill containment; and risk analysis and assessment.

*Spill prevention and response should cover any SPCC, preparedness and prevention plans, reviews of any previous spills, spill mock ups, D.O.T. emergency response guidebook use and familiarization, disaster preparedness, incident response and support procedures.*

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<b>Training</b>	<b>Length (hrs)</b>	<b>Audience</b>
HazCom Initial - Refresher -	2 ½	All Employees that handle, transport or use chemicals
RCRA	16	Employees that handle the waste
1910.120 Level 1 – Level 2 – Level 3 – Level 4 – IC –	2-4 8 +24 +24 32	Designated employees or employees that are required to respond to waste incidents
HAZWOPER Initial – Refresher –	40 8	Responders
SPCC	1-2	Responders
Preparedness & Prevention Plans	½	Responders
Incident Response	4	Level 3 & 4 Responders
Contingency & Emergency Response	4	Level 3 & 4 Responders
Competent Person Confined Space	8	Designated employees
State and Local Emergency Plans	1-2	Level 3 & 4 Responders
CPR & 1 <sup>st</sup> Aid	8	Responders
Respirator Protection	1-2	Responders & designated employees
Drum, container repair & containment	1-2	Level 3 & 4 Responders
Extinguisher	1	All employees
General Safety	2	All employees
Construction Safety	2	All employees
DOT	4	Employees that handle the waste