



Hazardous Waste Management Requirements.

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Overview.

- Regulation history.
- What is a hazardous waste?
- Generator requirements.



Regulatory history.

Resource Conservation and Recovery Act (RCRA).

- Resource Conservation and Recovery Act – 1976, effective in 1980.
- Hazardous & Solid Waste Amendments Act – 1984.
- Create cradle to grave liability.
- Provide standards for hazardous waste generators, transporters, and treatment, storage or disposal facilities (TSDFs).
- Ensure wastes that are land disposed meet either concentration based or treatment based standards.



Regulatory history.

Florida's hazardous waste laws.

- Florida Resource and Recovery Management Act-1980.
- Chapter 403, Florida Statutes (F.S.) – 1980.
- Rule 62-730, Florida Administrative Code (F.A.C.)-1982.



Memorandum of agreement.

- DEP has an agreement with EPA and is the designated agency to enforce RCRA at the state level.
 - EPA accompanies DEP on some inspections.
 - DEP has 360 days to close a case.
 - Number and type of inspections specified.



Inspection authority.

- Section 3007 of RCRA.
 - EPA Inspectors.
 - Designated representative (authorized state).
 - Florida is authorized state.
- Section 403.091, F.S.
 - Consent from owner, operator, or person in charge.
 - Inspection warrant.
- Permitted facilities.
 - Permit condition.



Waste determination.

- **What is a solid waste?**
- **What is a hazardous waste?**
 - **Characteristics.**
 - **Listings.**
- **Universal waste.**
- **Used oil.**



What is a solid waste?

Solid wastes can be discarded solids, liquids, or gases.

- Discarded is defined as:
 - Abandoned.
 - Recycled.
- Exclusions in 40 CFR 261.4(a) include:
 - Domestic sewage or is mixed with other waste and discharged to a POTW.
 - Industrial waste discharges regulated under the Clean Water Act.





What is a hazardous waste?

- Must be a solid waste as defined in 40 CFR 261.2.
- Exclusions found in 40 CFR 261.4(b).
- Characteristic.
 - Ignitability.
 - Corrosivity.
 - Reactivity.
 - Toxicity.
- Listed.
 - Non-specific sources.
 - Specific sources.
 - Commercial chemicals.





Characteristics.

I can't really tell...

- Ignitability – D001.
- Corrosivity – D002.
- Reactivity – D003.
- Toxicity – D004-D043.



Ignitability (I).

Waste code – D001.



- Liquid with a flashpoint $< 140^{\circ}$ F (60° C).
- Solid which will ignite through friction, absorption of moisture, or spontaneous combustion e.g., phosphorus.
- Ignitable compressed gas e.g., acetylene.
- Oxidizer e.g., inorganic peroxide.



Corrosivity (C).

Waste code – D002.

- Aqueous with a $\text{pH} \leq 2.0$ or ≥ 12.5 e.g., strong acids, strong bases.
- Liquid and corrodes steel > 6.35 mm/year at 55°C (130°F) e.g., ferric chloride.





Reactivity (R).

Waste code – D003.



- Normally unstable and violent change.
- Reacts violently with water.
- Potentially explosive with water.
- Generates toxic gas with water.
- Cyanide or sulfide waste generates toxic gas when pH between 2 and 12.5.
- Detonation or explodes when heated or strong initiating source.
- Forbidden explosive or Class 1.1, 1.2, or 1.3 explosive.



Toxicity (T).

Waste code – D004-D043.



- Eight metals.
 - Arsenic.
 - Barium.
 - Cadmium.
 - Chromium.
 - Lead.
 - Mercury.
 - Selenium.
 - Silver.
- 32 pesticides and organics.
- E.g., paint containing lead, spent sand blast media containing chromium.



Listed. F, K, P, U.

- F list – F001-F028: Wastes from non-specific sources, i.e., spent solvents.
- K list – K001-K172: Wastes from specific sources, i.e., spent pickle liquor.
- P (acutely toxic) or U (toxic) list: Pure chemical that is discarded, spilled, off-specification or container residue.

[40 CFR part 261 subpart D]



Universal waste.

Lamps, batteries, pesticides, mercury-containing devices, and aerosol cans.

- Small quantity handlers.
- Large quantity handlers.
- One year accumulation limit.
- Label containers “Universal Waste-’X’” ...
- Keep containers closed.

A release of universal waste is a release of hazardous waste.



[40 CFR part 273]
[62-737, F.A.C. (Lamps)]



Used oil.

- Label containers/tanks “Used Oil”.
- Keep containers/tanks closed, unless protected from the weather.
- Containers/tanks must be provided secondary containment.
- Must use a registered used oil transporter for disposal.



[40 CFR part 279]
[62-710, F.A.C.]



Waste determinations.

- **Conduct an accurate waste determination at the point of generation.**
- **DEP recommends that the determinations be updated routinely (1-3 years) or when a process changes.**
- **Keep an eye on manufacturer chemical specifications (may affect waste stream).**

[40 CFR 262.11]



Waste determinations.

- **Waste determinations are required to be documented for small and large quantity generators.**
- **Generator knowledge counts as a determination but should be supported with facts.**
- **Sampling is the safest way to go.**

[40 CFR 262.11(f)]



Waste determinations.

- **If a waste is pending a determination it should be labeled “Hazardous Waste Pending Determination” or “Hazardous Waste Determination in Progress”.**
- **The container should also have an accumulation start date if located in the central accumulation area.**



Generator requirements.

Hazardous Waste Management Requirements.



Very small quantity generator.

40 CFR 262.14.

- Generates ≤ 100 kg (220 lbs.) of non-acute hazardous waste per calendar month.
- Generates ≤ 1 kg (2.2 lbs.) of acutely toxic hazardous waste per calendar month.
- Generates ≤ 100 kg of any residue or contaminated soil, water, or other debris resulting from a spill, into or on any land or water, of any acutely toxic hazardous waste.
- Accumulates $< 1,000$ kg (2,200 lbs.) at any time.
- No maximum accumulation time limit.



Small quantity generator.

40 CFR 262.16.

- Generates > 100 kg but $< 1,000$ kg of non-acute hazardous waste per calendar month.
- Generates ≤ 1 kg of acutely toxic hazardous waste per calendar month.
- Generates ≤ 100 kg of any residue or contaminated soil, water, or other debris resulting from a spill, into or on any land or water, of any acutely toxic hazardous waste.
- Accumulates $< 6,000$ kg (13,200 lbs.) at any time.
- Accumulates hazardous waste on site for no more than 180 days.



Large quantity generator.

40 CFR 262.17.

- Generates $\geq 1,000$ kg of non-acute hazardous waste per calendar month.
- Generates > 1 kg of acutely toxic hazardous waste per calendar month.
- Generates > 100 kg of any residue or contaminated soil, water, or other debris resulting from a spill, into or on any land or water, of any acutely toxic hazardous waste.
- No maximum accumulation amount.
- Accumulates hazardous waste on site for no more than 90 days.



Generator comparison.

	LQG	SQG	VSQG
EPA Identification Number	X	X	Good Idea!
Proper Disposal of HW	X	X	X
HW Identification	X	X	X
Uniform HW Shipping Manifest	X	X	Good Idea!
Container Management	X	X	Good Idea!
Notify Local Authorities	X	X	Good Idea!
Contingency Plan	X	X Modified	Good Idea!
Personnel Training	Annually	Sometime	Good Idea!
Emergency Equipment	X	X	Good Idea!
Keep Records	X	X	X Florida Specific



Emergency preparedness.

- **Large quantity generator requirements found in 40 CFR part 262 subpart M.**
 - **Develop and maintain a quick reference guide of the contingency plan.**
- **Small quantity generator requirements found in 40 CFR 262.16(b)(8) and (9).**
 - **Post emergency information next to telephones or in areas where hazardous waste is generated or accumulated.**



Contingency plan.

Large quantity generator.

- “The contingency plan must describe the actions facility personnel must take [...] in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous constituents to air, soil, or surface water at the facility.”

[40 CFR 262.261]



Contingency plan.

Large quantity generator.

- A hard copy should be available.
- If the contingency plan is amended, the amended plan must be submitted to local authorities.
- Emergency coordinator:
 - This should be someone who lives close to the facility, able to respond to hazardous waste emergencies.
 - Someone needs to be onsite or on call 24/7.

[40 CFR 262.262]

[40 CFR 262.264]



Contingency plan.

Large quantity generator.

The plan must:

- Discuss arrangements with local fire, police, hospital, and emergency response teams.
- List names and contact information for the emergency coordinator(s).
- Include a list of all emergency equipment. This list also needs to include the location and a physical description (acid spill kit, class A fire extinguisher...).
- Include an evacuation plan.

[40 CFR 262.261]



Quick reference guide of the contingency plan.

Large quantity generator.

A quick reference guide has eight elements:

1. The names/types of hazardous waste in layman's terms and the associated hazards associated with each hazardous waste present at any one time.
2. The estimated maximum amount of each hazardous waste that may be present at any one time.
3. The identification of any hazardous wastes where exposure would require unique or special treatment by medical personnel.
4. A map of the facility showing where hazardous wastes are generated, accumulated and treated, and routes for accessing these wastes.

[40 CFR 262.262(b)(1-4)]



Quick reference guide of the contingency plan.

Large quantity generator.

5. A street map of the facility in relation to surrounding businesses, schools, and residential areas to understand how best to get to the facility and also evacuate citizens and workers.
6. The locations of water supply (e.g., fire hydrant and its flow rate).
7. The identification of on-site notification systems (e.g., a fire alarm that rings off site, smoke alarms).
8. The name of the emergency coordinator(s) and 7/24-hour emergency telephone number(s) or, in the case of a facility where an emergency coordinator is continuously on duty, the emergency telephone number for the emergency coordinator.

[40 CFR 262.262(b)(5-8)]



Quick reference guide of the contingency plan.

Large quantity generator.

EXAMPLE QUICK REFERENCE GUIDE

This example was created by EPA Region 7 to be used as a guide to assist the regulated community with compliance. It does not substitute for or replace any regulatory requirements.

Contingency plan quick reference guide

ABC FACILITY
990 SW Main Street
Anytown, Iowa 50000

Facility Contacts:

Primary Emergency Coordinator: George Washington Mobile Number (24/7): 515-555-0000
 Secondary Emergency Coordinator: Abraham Lincoln Mobile Number (24/7): 515-555-0001
 Tertiary Emergency Coordinator: Martha Washington Mobile Number (24/7): 515-555-0002

Note: ABC Facility operates 3 shift, 24/7, but the order of contact during an emergency is listed above.

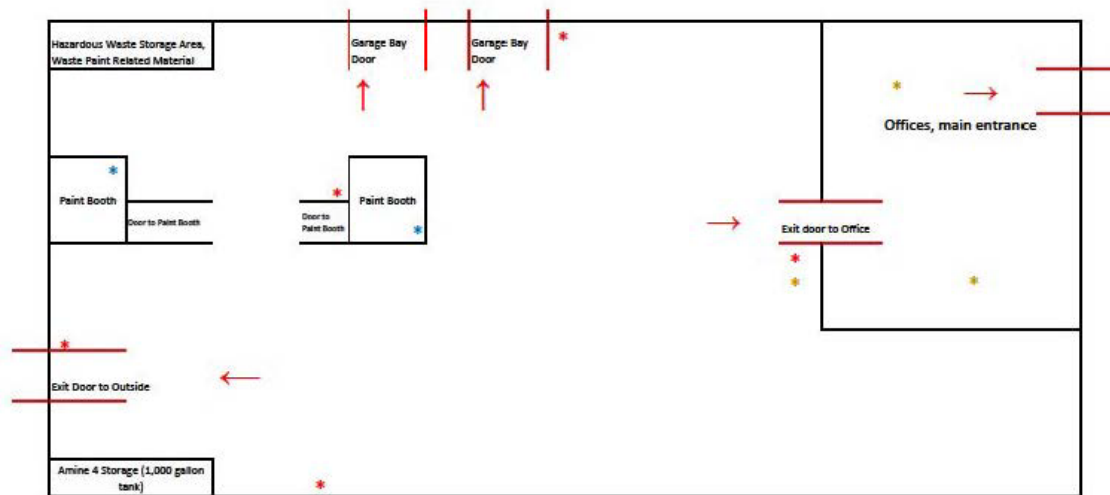
Hazardous Waste Information:

Name of Waste	Waste Codes/Hazards	Location Accumulated	Maximum Amounts Present	Response Notes	Special Notes to Hospital/Treatment personnel
Paint Related Wastes (liquid)	D001 (ignitability, flash point <140 °F); F003, F005 (Benzene, Methyl Ethyl Ketone, Toluene, Toxicity)	NW corner of Warehouse, hazardous waste storage area	Five, 55-gallon drums (2,065 pounds)	If personnel come into direct contact with material, decontamination at the hospital may be required prior to treatment.	None
Paint Related Wastes (liquid)	D001 (ignitability, flash point <140 °F); F003, F005 (Benzene, Methyl Ethyl Ketone, Toluene, Toxicity)	Two Satellite Accumulation Areas as noted with blue asterisks on the attached map.	One, 55-gallon drum (440 pounds)	If personnel come into direct contact with material, decontamination at the hospital may be required prior to treatment.	None
Off-specification 2, 4-D, a herbicide, (brand name is Amine 4) (liquid)	D016 (toxicity); Flashpoint 190 °F.	SW corner of warehouse near new product storage of Amine 4.	Off-Spec – 1 tank, 1,000 gallons New product – 1 tank (same tank as off-spec), 1,000 gallons	Use PPE to prevent contact with skin and eyes. Immediately prevent spills from entering drains and waterways. Prevent sources of ignition and open flames.	Contact Chemtrac for emergency medical treatment information at 1-800-424-9300. If in eyes, wash eyes for several minutes.



Quick reference guide of the contingency plan.

Large quantity generator.



- * Satellite Accumulation Area for Paint Related Waste Material (D001, F003, F005)
- * Fire Alarms (ring on site only, there are no fire alarms that notify off-site personnel)
- * Telephone for off-site notification of emergency

→ Indicates evacuation route out of the building.

Note 1: Hazardous waste (paint related waste) is generated and accumulated inside each of the two paint booths, and is accumulated in the hazardous waste storage area. Amine 4 can be a hazardous waste if it is off specification and it is generated and accumulated in the SW corner at the Amine 4 tank.

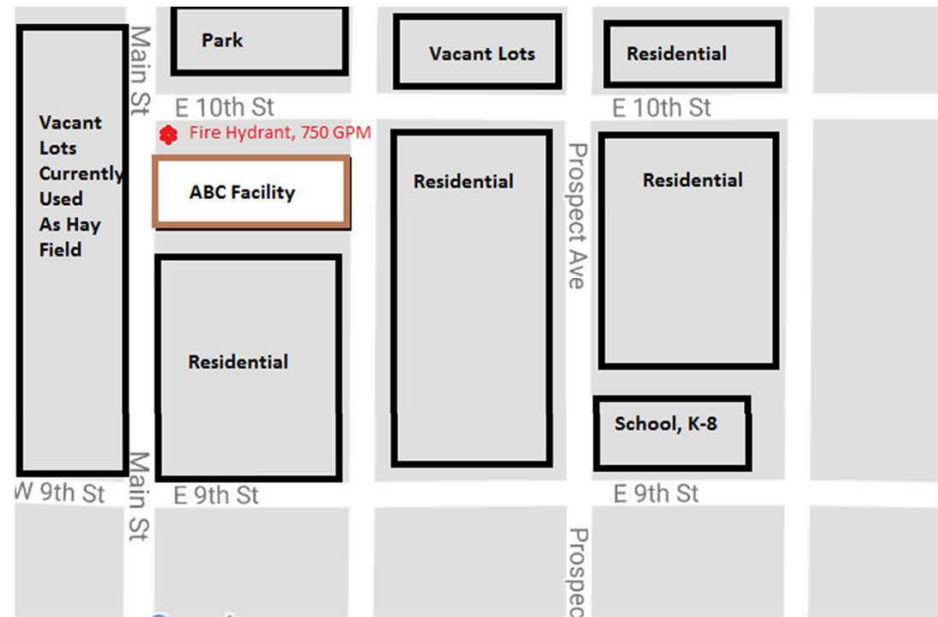
Note 2: Smoke detectors are located throughout the office and main warehouse on the ceiling, in a grid about every 25 feet. Smoke detectors are connected to an automatic sprinkler system.



Quick reference guide of the contingency plan.

Large quantity generator.

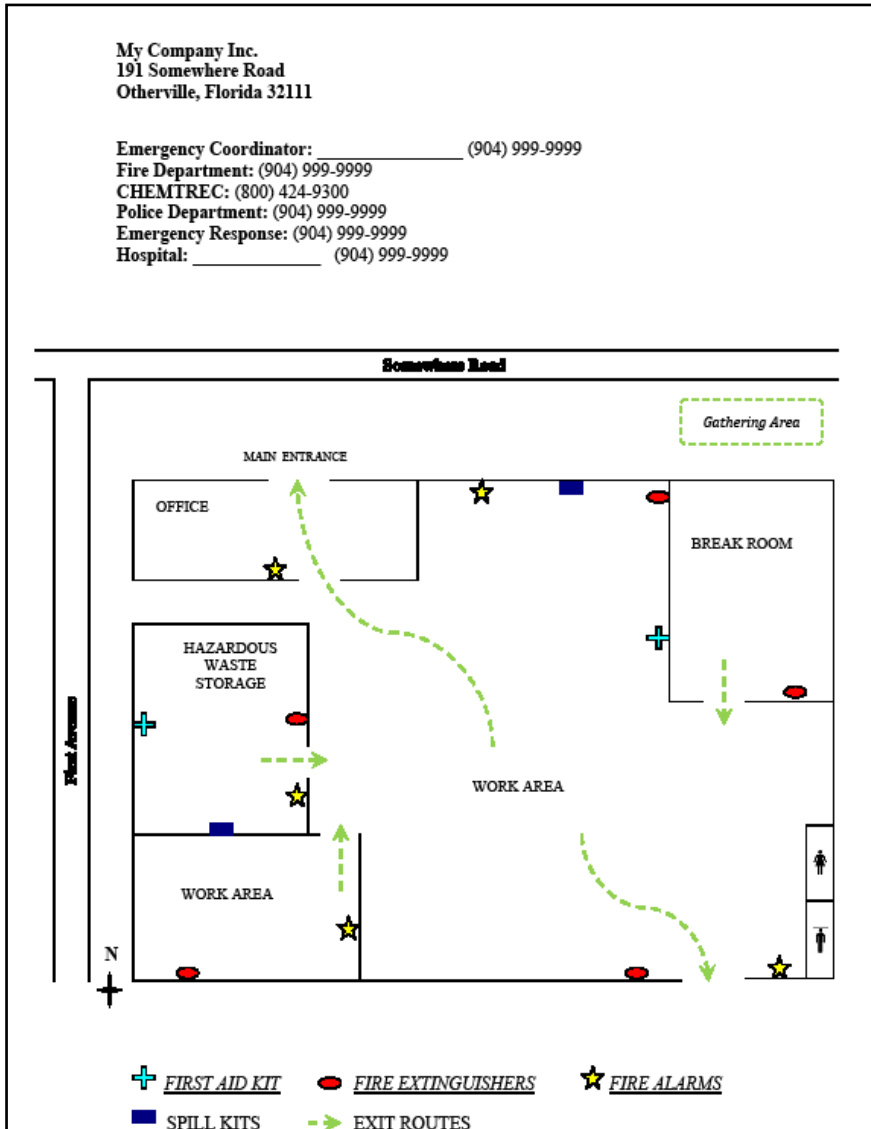
Street Map





Emergency information posting.

Small quantity generator.



- Name and emergency telephone number of the emergency coordinator.
- Location of fire extinguishers and spill control material, and, if present, fire alarm.
- Telephone number of the fire department, unless the facility has a direct alarm.

[40 CFR 262.16(b)(9)(ii)]



Training requirements.

- Large quantity generator – within six months of hire or transfer and annually thereafter.
- Small quantity generator – must ensure employees are thoroughly familiar with proper waste handling and emergency procedures.

[40 CFR 262.17(a)(7)]

[40 CFR 262.16(b)(9)(iii)]



Records retention.

- Large quantity generator – training records while employee is employed then for three years after termination, weekly inspections for three years, manifests for three years,...
- Small quantity generator – weekly inspections for three years, manifests for three years,...
- Very small quantity generator – hazardous waste disposal records for three years.



Hazardous waste container management.

Large and small quantity generators.

- Kept closed except when adding or removing waste.
- Good condition, no leaks or damage.
- Labeled with the words “Hazardous Waste”.
- Marked with an accumulation start date (central accumulation area).
- Marked with an indication of the hazards of the contents:
 - The words “Toxic”, “Ignitable”, etc.
 - DOT placard (EXCEPT Class 9).
 - OSHA pictogram.
 - NFPA diamond.



HAZARDOUS WASTE	
STATE AND FEDERAL LAW PROHIBITS IMPROPER DISPOSAL	
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.	
GENERATOR INFORMATION:	
NAME _____	PHONE _____
ADDRESS _____	STATE _____ ZIP _____
CITY _____	
EPA IDENTIFICATION NO. / MANIFEST TRACKING NO. _____	
EPA WASTE NO. _____	CA. ACCUMULATION START DATE _____
CONTENTS COMPOSITION:	
PHYSICAL STATE: <input type="checkbox"/> SOLID <input type="checkbox"/> LIQUID	HAZARDOUS PROPERTIES: <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> TOXIC <input type="checkbox"/> CORROSIVE <input type="checkbox"/> REACTIVITY <input type="checkbox"/> OTHER _____
[] U.S.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX	
HANDLE WITH CARE!	



Weekly inspections.

Large and small quantity generators.

- Federal regulations require weekly inspections to be conducted in the central accumulation area(s), Florida regulations require the inspections to be documented.
- Inspections must be conducted once each calendar week.

[62-730.160(3), F.A.C]



Weekly inspections.

Large and small quantity generators.

At a minimum, this documentation shall include:

- The date and time of the inspection.
- The legibly printed name of the inspector.
- The number of containers.
- The condition of the containers.
- A notation of the observations made.
- The date and nature of any repairs or other remedial actions.

WEEKLY INSPECTION LOG		
Inspector: _____ Clearly Print Name	Date: _____	Time: _____
Accumulation Area Inspected: _____	Number of Containers: _____	
Are all containers in good condition?	Yes ___	No ___
Is there any evidence of leaks or spills?	Yes ___	No ___
Are all containers labeled "Hazardous Waste"?	Yes ___	No ___
Are all containers marked with an accumulation start date?	Yes ___	No ___
Are all containers closed?	Yes ___	No ___
Is there adequate aisle space between rows of drums?	Yes ___	No ___
Is spill control equipment available?	Yes ___	No ___
Observations: _____ _____ _____		
(If containers in poor condition or leaks/spills were found, please note action taken in area below)		
<u>Repairs or Remedial Action</u>		<u>Date</u>
_____		_____ (Ctrl) ▾
_____		_____
_____		_____



Accumulation areas.

Large and small quantity generators.

Satellite accumulation area.



Central accumulation area.





Satellite accumulation area.

Large and small quantity generators – 40 CFR 262.15.

A generator may accumulate as much as 55 gallons of non-acute hazardous waste and/or either one quart of liquid acutely toxic hazardous waste or 1 kg of solid acutely toxic hazardous waste in containers at or near any point of generation where wastes initially accumulate which is under the control of the operator of the process generating the waste.



Satellite accumulation area.

Large and small quantity generators – 40 CFR 262.15.

- Upon accumulation of greater than 55 gallons of non-acute hazardous waste and/or one quart of liquid acutely toxic hazardous waste or 1 kg of solid acutely toxic hazardous waste, the generator must:
 - Remove the excess from the satellite accumulation area within three consecutive calendar days to either:
 - A central accumulation area, or.
 - An on-site permitted treatment, storage, or disposal facility, or.
 - An off-site designated facility.
 - Mark the container(s) holding the excess accumulation of hazardous waste with the date the excess amount began accumulating.



Central accumulation area. Large and small quantity generators.

Large and small quantity generators:

- Waste must be compatible with the container.
- Containers must be in good condition
- Weekly inspections must be conducted.
- Adequate aisle spacing.

Large quantity generator:

- Reactive and/or ignitable waste must not be within 50 feet of property line.
- “No Smoking” sign, if applicable.
- Comply with subparts AA, BB, CC of 40 CFR part 265.



[40 CFR 262.17(a)]
[40 CFR 262.16(b)]
[62-730.160(4), F.A.C.]



THANK YOU

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