

# **Universal Waste & Transit, Inc.**

## **Operation Permit Application**

Located at:  
2002 North Orient Road  
Tampa, Florida 33619  
(813) 623-5302

### **Volume 2**

- Contingency Plan

HAZARDOUS WASTE CONTINGENCY

AND

EMERGENCY RESPONSE PLAN

for

Universal Waste & Transit, Inc.  
located at  
2002 Orient Rd.  
Tampa, Florida 33619

May 1989

RECEIVED

OCT 30 1989

HAZARDOUS WASTE  
PERMITTING

VOLUME 2  
UNIVERSAL WASTE & TRANSIT, INC  
HAZARDOUS WASTE CONTINGENCY  
AND  
EMERGENCY RESPONSE PLAN  
CONTENTS

General Facility Information Introduction	Tab A
Chapter I. Organization and Communications	Tab B
Chapter II. Hazardous Waste and Emergency Procedures	Tab C
Chapter III. Emergency Equipment and Alarm System	Tab D
Chapter IV. Care for the Injured	Tab E
Chapter V. Emergency Waste Movement Coordination	Tab F
Chapter VI. Emergency Waste Movement Flood/ Hurricane Situation	Tab G
Appendix 1 - Personnel Protective Equipment	Tab H
Appendix 2 - Anticipated Response Actions - Response Index and Definitions	Tab I
Appendix 3 - Decontamination Procedure	Tab J
Attachment 1 - Space Utilization	Tab K
Attachment 2 - Discharge Log	Tab L
Attachment 3 - Escape Routes	Tab M
Attachment 4 - Common Solvent	Tab N
Attachment 5 - Incompatible Materials	Tab O
Attachment 6 - Explosives List	Tab P
Attachment 7 - Peroxides	Tab Q
Attachment 8 - Signed Contingency Plan Receipts	Tab R

Universal Waste & Transit  
HAZARDOUS WASTE CONTINGENCY/EMERGENCY PLAN

## General Facility Information

Universal Waste & Transit, Inc. intends to operate a hazardous waste storage and treatment facility at:

2002 Orient Rd. Tampa, Florida 33619

The facility is located on approximately 2 acres of land on Orient Road. The actual storage and treatment area is located within a 5,866 square foot building.

The facility is designed to minimize the potential for any environmental contamination. Waste materials are segregated by hazard class to insure that no incompatible wastes are stored together. All flammable materials are stored in a separate bay designed solely for that purpose. The building is fully sprinklered. The flammable storage area has both deluge sprinklers and a secondary foam fire suppression system. The building has both smoke and flame detectors which are continuously monitored. A lower explosion limit (LEL) system is located in the flammable area. An automatic ventilation system is activated at 20% of the LEL.

Fire extinguishers and fire hoses are located throughout the facility. Safety equipment, proximity suits, SCBA's and material handling equipment are located at the site.

The potential material on-site will include: Acids; alkalais; poisons; flammables; combustibles; and other regulated solids or liquids which do not fall into these classifications. Most will be present in small quantities or in diluted concentrations when compared to the original raw material. No radioactive or pathological materials will be located at this facility. A daily inventory of all materials stored at this facility will be readily available.

All personnel at this site will be trained in emergency response; fire fighting procedures and emergency first aid.

## Introduction

The purpose of this plan is to provide Universal Waste & Transit, Inc. employees with an organized procedure for responding to unusual occurrences or emergencies involving hazardous chemicals or wastes when such releases could cause potential harm to human health or the environment. This plan is designed to present as simply as possible the necessary steps required in an emergency.

Emergencies covered under this procedure are fires, explosions, floods, hurricanes or un-planned sudden and non-sudden release into the environment of hazardous waste including liquids, vapors and particulates.

Universal Waste & Transit, Inc.  
HAZARDOUS WASTE CONTINGENCY AND EMERGENCY PLAN  
CHAPTER I  
ORGANIZATION AND COMMUNICATIONS

## SCOPE

The purpose of this section is to establish the organizational structure which will be in force during a response to a chemical emergency and what procedures will be utilized to notify corporate officials, outside response teams, local government authorities, and State and Federal Regulatory Agencies.

## EMERGENCY RESPONSE NOTIFICATIONS

In the event of an emergency situation involving hazardous chemicals or wastes, the personnel listed below shall be responsible for coordinating the necessary response and/or cleanup.

During normal working hours (Monday - Saturday: 7:00 am to 6:00 pm) Universal Waste & Transit headquarters is to be notified immediately upon discovery of an emergency situation involving hazardous chemicals or wastes.

Universal Waste & Transit Corporate Headquarters:

2002 Orient Road

Tampa, Florida 33619

813/623-5302

Headquarters will notify, via mobile telephone or voice pager, the required Universal Waste & Transit personnel for response to the scene. Universal Waste & Transit emergency response vehicles are equipped with necessary cleanup/safety materials and first aid supplies.

After normal working hours contact the following:

Universal Waste & Transit Emergency Coordinators:

Pamela Day     Primary

401 Lakewood

Tampa, Florida 33613

813-963-0177

Sharon Roehm     Alternate

910 Pinellas Bayway

Tierra Verde, Florida 33715

813-864-2166

All Emergency Coordinators have the authority to commit corporate funds during an emergency incident.

## FIRE DEPARTMENT AND OUTSIDE CONTRACTOR NOTIFICATIONS

In any emergency situation contact the following:

1. Call Tampa Fire Department, (911). Indicate the extent and type of emergency which exists (fire, spill etc.)

2. In the event of emergencies involving chemical spills, leaks or explosions at the direction of the Universal Waste & Transit Emergency Coordinator the following spill control contractor should be notified:

- a. Westinghouse/Haztech  
813-988-5650  
7813 Professional Place  
Tampa, Florida 33610

## GOVERNMENT AGENCY NOTIFICATION

In the event of an emergency where environmental contamination is eminent, in addition to notifying the Tampa Fire Dept., the following governmental agencies will be notified by the Universal Waste & Transit Emergency Coordinator or his designated representative:

1. Florida DER Emergency      904 488 0300 (normal working hrs)  
    Response      (904) 488 1900 (nights)
2. National Response Center      1-800-424-8802
3. Florida DER  
    District Office (Tampa)      623-5561 (normal working hours)
4. U.S. Coast Guard  
    (Tampa Office Marine  
    Safety Division)      228-2189
5. Hillsborough County  
    Solid Waste Dept.      272-6655
6. Florida Marine Patrol      272-2516
7. Hillsborough County Hazmat Team      681-9927

In addition to the NRC you must contact the government official designated as the OSC. This can be accomplished by calling:  
(904) 488-1320.

These telephone numbers are correct as of May 20, 1989

The following information will be communicated to the governmental agencies contacted.

1. Name and telephone number of the reporter.
2. Name and address of the facility.
3. Time of the incident.
4. Type of incident (whether fire, explosion, or release).
5. Name of the material released.
6. Quantity of the material released.
7. Extent of injury or injuries, if any.
8. Possible hazards to human health or the environment, outside the facility.
9. Weather conditions
10. Potential for release or spill of material into surface waters.

Within 15 days of any incident the facility manager will notify, in writing, the Regional Administrator that the Contingency Plan has been implemented. All of the aforementioned items will be addressed as well as the quantity and disposition of all recovered materials resulting from the incident.

## CONTINGENCY PLAN IMPLEMENTATION

The contingency plan will be implemented whenever the emergency coordinator determines that an imminent or actual hazard exists which could threaten human health or the environment. This section provides the criteria used by the emergency coordinator in making the decision to implement the contingency plan.

### Fire or Explosion

For incidents involving a fire or explosion, the following situations will result in contingency plan implementation:

- a. A fire which could cause the release of toxic fumes.
- b. A fire which could spread and possibly ignite other materials or which could cause heat-induced explosions.
- c. A fire which could spread to off-site areas.
- d. The use of water or chemical fire suppressants which could result in contaminated runoff.
- e. The imminent danger of an explosion which could result in a safety hazard due to flying fragments or shock waves.
- f. The imminent danger of an explosion which could result in the release of toxic materials.
- g. The occurrence of any explosion.

## Unplanned Material Release

The contingency plan will be implemented for any release to the environment which results in one or more of the following conditions:

- a. A spill which could result in the release of flammable liquids or vapors, thereby causing a fire or explosion hazard.
- b. A spill which could cause the release of toxic liquids or fumes.
- c. A spill which could be contained on the site, but which could potentially result in groundwater contamination.
- d. A spill which cannot be contained on the site resulting in off-site soil, groundwater, or surface water contamination.
- e. Any flooding of the site which could result in surface water contamination.

Universal Waste & Transit, Inc.  
HAZARDOUS WASTE CONTINGENCY AND EMERGENCY PLAN  
CHAPTER II  
HAZARDOUS WASTE EMERGENCY PROCEDURES

## PURPOSE

The purpose of this section is to alert all emergency response groups, regulatory agencies and affected parties, as to the location of the hazardous waste storage areas within the facility and the procedures to be followed in response to emergencies in these areas. IT MUST BE UNDERSTOOD THAT POTENTIALLY TOXIC GASES AND VAPORS MAY BE PRESENT IN ANY FIRE INVOLVING HAZARDOUS MATERIALS.

COMMUNICATION

The following people must be notified in the event of an emergency involving hazardous waste:

1. Primary Emergency Coordinator      Pamela Day  
401 Lakewood  
Tampa, FL  
33613  
813-963-0177
  
2. Alternate Emergency Coordinator      Sharon Roehm  
910 Pinellas Bayway  
Tierra Verde, FL  
33715  
813-864-2166

All other notifications are included in Chapter I.

## EMPLOYEE RESPONSE

1. Notification to evacuate the Universal Waste & Transit facility in an emergency would be handled by one of two methods. These are:
  - a. Emergency air horns are located throughout the facility and are sounded when evacuation is necessitated.
  - b. An intercom system is also located throughout the facility and can also be used for notifying employees to evacuate the building. Verbal commands will be given should the intercom system be inoperative.
2. In the event of an emergency situation (spill, fire, explosion) the first employee to notice the emergency is to immediately sound the emergency air horns located throughout the building.
3. All employees are to don the necessary protective clothing including self contained breathing apparatus (SCBA). This equipment is located in the main storage area in safety equipment cabinets. Additional safety equipment is located in the equipment trailer. A complete outline of required safety equipment for various situations is included as Appendix 1.
4. Fire fighting or spill containment should begin immediately under the direction of the facility manager/supervisor until the Universal Waste & Transit Emergency Coordinator arrives on-site. Procedures are identified later in this chapter. Particular response actions are indicated in Appendix 2. Refer to the CHRIS Manual for additional information.

5. The facility supervisor is to contact the Universal Waste & Transit Emergency Coordinator immediately. (Telephone numbers are listed in Chapter I).
6. In the event of a fire or explosion, the sprinkler system will be automatically activated. Both the alarm and sprinkler system are monitored on a 24-hour basis. When the alarm or sprinklers are activated, the Tampa Fire Department will be immediately notified.
7. Electric service to the building should be shut off in the event of a fire or explosion. The main electric shut off is located on the outside south wall. No additional process systems, valves, gauges or equipment are required to be monitored or shut down since no potentially dangerous processes are employed at the facility.
8. All waste handling or processing in the affected area will be stopped immediately.
9. All waste feed lines and waste processing equipment will be shut down when this can be done safely. There are no continuous treatment processes. All treatment is on a batch basis. Power outages will simply make these processes inoperable.
10. In situations immediately dangerous to life and health (IDLH) evacuation of the facility may be necessary. This decision will be made by the Emergency Coordinator or facility supervisor. If the evacuation occurs, the primary evacuation route should be used unless blocked or impassable. In that situation, the secondary evacuation route should be employed. Both routes are prominently outlined at the facility and are included with this plan.

## ENTRANCE PROCEDURES

The following procedures are to be followed by all response personnel before entering the hazardous waste storage areas in emergency situations:

1. Consult the attached facility drawing which indicates both types and locations of materials which would be stored in the area to be entered. A general description of these areas is included in the next section.
2. Assume toxic/hazardous materials present in the area. A complete inventory is kept in the office area. Keys to the office area located on a lock box at the main gate.
3. Select proper protective gear, including SCBA.
4. Consult DOT P 5800.2 Hazardous Materials Emergency Response Guide Book which is in the office area.

Remember, the primary responsibility during initial emergency response efforts is to save lives and protect the environment.

## FACILITY LOCATIONS OF HAZARDOUS WASTE

(Reference Attachment I)

1. Main Storage Room
  - a. Emergency Response/Safety Equipment
  - b. Foam Tank
  - c. General Storage area for Non-Flammable Waste
2. Secondary Storage Area (trailers)
  - a. Non-Flammable waste awaiting transport
  - b. Emergency Response/Safety Equipment
3. Processing Area
  - a. Solidification System
  - b. Emergency Response/Safety Equipment
4. Flammable Storage (explosion - proof room)
  - a. Drummed Flammable Liquids
  - b. Emergency Response/Safety Equipment
5. Office/Lab Area

## SPILL OR RELEASE RESPONSE PROCEDURES

In the event of a spill, certain procedures must be instituted immediately. The facility is designed so that the rupture of containers would result in no release of contaminants outside of the facility.

The storage area for acidic and alkaline wastes are segregated to insure that no co-mingling of these materials will result.

All flammable/combustible materials are stored in a separate bay.

Immediately contact all required individuals/agencies indicated on Page 8 of this document. These telephone numbers will be posted at all facility telephones.

Should a spill or release occur, the following steps are to be taken:

1. Don protective equipment located in safety cabinets.
2. Contact Universal Waste & Transit Emergency Coordinator by telephone.
3. The source of the spill/release will be determined and corrected.
4. Waste handling or processing in the affected area will be stopped immediately.
5. All waste feed lines and waste processing equipment will be shut down as soon as this can be done safely.
6. All non-response personnel will leave the area immediately.
7. All injured persons will be removed from the area and treated by qualified medical personnel.

8. Contain the spill with either sorbent boom, sorbent pillows, or bulk sorbent material. All sorbents and booms are stored in the spill control storage area.
9. In the event of an acid/alkaline spill use calcium carbonate to neutralize the material.
10. Once the spill has been contained, begin cleanup.
11. Contact Westinghouse/Haztech and request mobilization of portable treatment system if necessary. (Tel.# 988-5650)
12. The emergency coordinator will contact all required agencies.
13. Complete the Discharge Log shown as Attachment 2.
14. A complete list of response actions for specific chemical spills is included as Appendix 2.
15. If immediate evacuation of the building is required escape air packs are located throughout the building. Additional SCBA's and level "A" and "B" clothing are located in the emergency response area.

## FIRE FIGHTING PROCEDURES

The Universal Waste facility is equipped with both smoke and flame detectors. Both are monitored on a twenty four hour per day basis. If either are activated the sprinkler system will automatically engage. The Tampa Fire Department will be notified by the alarm monitoring company.

Also included in the monitoring system is a lower explosive limit (LEL) detector within the flammable storage area. If vapors in the flammable area exceed 20% of the lower explosive limit the ventilation system will automatically engage. If the LEL reaches 30% the sprinkler system will be activated.

Also located in the flammable area is a foam secondary fire suppression system. This will activate automatically with the sprinkler system.

Located throughout the facility are fire extinguishers for Class A, B or C fires. Located in the flammable area are Halon extinguishers. Fire hoses are located throughout the building.

In the event of a fire you should perform the following:

1. Notify other employees via the intercom system  
If evacuation is necessary sound the air horns
2. Notify the Tampa Fire Dept. (911)
3. Move all transport vehicles away from the loading or unloading areas
4. Use the extinguishers to control the fire without endangering your life.
5. The facility is designed for minimal manual fire suppression.
6. Notify necessary agencies as indicated on page 8.

## RE-ENTRY MONITORING

Before employees are allowed to return to the area, after an emergency, the on-site Emergency Coordinator will confirm that the area is safe for re-entry. This will be accomplished by physical inspection of the area, the use of detection equipment, followed by decontamination as necessary. Chemical detection equipment available to the Emergency Coordinator is as follows:

1. Chemical detector tubes - Draeger, MSA
2. Explosion meter
3. Portable hydrocarbon monitors
4. Portable gas chromatograph
5. Portable pH/specific ion meter
6. A fully equipped environmental laboratory is located nearby. Any wet chemical or instrumental analyses can be performed as required.

Items 1, 2 & 5 are located in the office area. Items 3 & 4 are available through the spill response contractor (page 7).

## DECONTAMINATION PROCEDURE

After an emergency incident, decontamination of equipment is required. All expendable items, such as sorbent, booms and so on are to be placed into 55-gallon drums, analyzed, and disposed as required by state and federal law. Non-expendable items such as tools, chemical suits and material handling equipment are to be cleaned in an appropriate solvent and placed back in their normal location. The suitable solvent will be determined by Universal Waste & Transit's senior chemist.

All tank and containerized waste will be thoroughly inspected for leaks, pressure buildup and structural integrity by the site supervisor. Any deficiencies will be immediately corrected.

Air monitoring will be performed as required to insure that the facility is safe to resume normal operations.

A complete list of all available emergency equipment is included in Chapter III. Specific decontamination solutions are included as Appendix 3.

Operations at the facility will not commence until such time as all emergency equipment has been cleaned; replaced and restored to its original location.

LOCAL AGENCY RESPONSE PLAN FAMILIARITY

The City of Tampa Fire Department, the Hillsborough County Hazmat Team, Tampa Police Department, USCG; Florida DER and an outside spill response contractor have been notified as to the operation of this facility. All agencies have been invited to inspect the site and become aware of waste locations; access; on-site emergency equipment and available fire protection items. A copy of the contingency plan has been sent to:

Tampa Fire Dept.

Hillsborough County Hazmat Team

USCG

Westinghouse/Haztech

Tampa Police Dept.

Notification will be made to Humana Hospital, Brandon and Centro Espanol Memorial Hospital relative to the materials handled, potential exposures and possible accidents which may occur.

## HAZARDOUS MATERIALS EMERGENCY RESPONSE REFERENCES

The following is a list of references available at Universal Waste & Transit corporate headquarters and at the storage facility manager's office.

1. CHRIS - Hazardous Chemical Data, Department of Transportation/U.S. Coast Guard.
2. Hazardous Materials Emergency Response Guidebook, Department of Transportation/DOT P 5800.2.
3. Merck Index
4. Handbook of Hazardous Materials, Sax
5. Florida Fire Code
6. Cancer Causing Chemicals, Sax
7. Toxic Organic Chemicals, E. Ellsworth Hackman III
8. NIOSH Registry of Toxic Effects of Chemical Substances
9. Emergency First Aid, American Red Cross

Universal Waste & Transit, Inc.  
HAZARDOUS WASTE CONTINGENCY/EMERGENCY RESPONSE PLAN  
CHAPTER III  
EMERGENCY EQUIPMENT AND ALARM SYSTEMS

## PURPOSE

This chapter describes the emergency equipment and alarm systems at the Universal Waste & Transit, Inc. facility.

## EMERGENCY EQUIPMENT LOCATED AT STORAGE AREA

All equipment listed below is stored in the spill control storage areas:

1. Fire extinguishers located throughout the building and prominently identified by signs and red markings. All are ABC extinguishers which can be used in any fire which may occur. Several halon extinguishers are located in the flammable storage area.
2. Hazorb sorbent used to absorb any chemical spill and located in bags identified by the word Hazorb.
3. Oil-Dri and sawdust used for solvent and oil spills. Located in bags identified with the words Oil-Dri or Sawdust.
4. Calcium carbonate used to neutralize acids and alkalies. Located in bags identified by the words Calcium Carbonate.
5. Spill control/sorbent booms used to contain any spill. Spill control booms in 10 foot lengths. Sorbent booms in 20 foot lengths.
6. Protective Clothing including PVC suits and polyethylene splash suits. PVC suits are rubberized suits while the splash suits are polyethylene coated paper clothing.
7. Full-face respirators, half-face respirators, air-line respirators and SCBA's for respiratory protection. Respirator description is self explanatory.

8. Gloves, boots, faceshields, goggles and hard hats to be used as protective equipment. These items are self descriptive.
9. Plug and Dike sealant used to seal leaking drums and tanks. Located in five gallon buckets marked Plug & Dike.
10. Air powered pumps with hose for removal of liquids or water. Identified by lack of electrical connection.
11. Two inch Patay pump for removal of any flammable liquids and a manual floor pump.
12. Drum pumps for removal of any containerized liquids. Pump capable of fitting inside of a drum bung.
13. Compressed air cylinders to be used in conjunction with air supplied respirators. Cylinders marked with the words Breathing Air.
14. Shovel, brooms, buckets, mops, tools, bung wrenches, ect. No description necessary.
15. Telephones located on the north and south walls of the main storage area and in the office area.

16. Empty 55-gallon DOT 17H and 17E containers.

17. Empty 85 and 110-gallon overpack drums for  
recontainerizing damaged or leaking 55-gallon drums.  
No description necessary.

Empty drums, oil dri, vermiculite and sorbent boom are located in the raw materials storage trailer. The fire extinguishers are on the walls and identified by red markings and the sign " Fire Extinguisher".

## COMMUNICATIONS AND ALARM SYSTEMS

1. Aerosol can horns are located throughout the hazardous waste storage area. In case of a spill, explosion, or other emergency, these can be used to alert all employees that evacuation is necessary.
2. An intercom system for verbal notification is located throughout the building. Non-evacuation commands are to be given over the intercom.
3. Emergency showers are located in the processing and storage areas. Eye wash systems are located throughout the building.
4. Flame and smoke detectors are located in the flammable storage area. Lower explosive limit monitors are located in the flammable storage area and smoke detectors are available in the general storage area.

Universal Waste & Transit, Inc.

HAZARDOUS WASTE CONTINGENCY AND EMERGENCY PLAN

CHAPTER IV

CARE FOR THE INJURED

## SCOPE AND POLICY

The objective is to provide first aid or immediate care for a person who has been injured, or has been suddenly taken ill, in the event of an emergency.

All employees of Universal Waste & Transit, Inc. shall have been trained in standard first aid and cardiopulmonary resuscitation programs offered and presented by the American Red Cross.

First aid kits will be located in the safety equipment lockers and in the office area.

## PLAN

In the event of an emergency, the Universal Waste & Transit facility manager shall be in charge until the arrival of the Emergency Coordinator.

All injured shall be taken to Humana Hospital or Centro Espanol Hospital by the local life squad. This hospital will have been notified as to the type of injuries which may result at our facility.

The nearest life squad is the City of Tampa. They can be contacted by dialing 911.

Contact Humana Hospital at 681-6551 or Centro Espanol Hospital at 879-1550. Inform them of the extent of the emergency and what injuries to expect.

Implement emergency first aid as required.

Universal Waste & Transit, Inc.

HAZARDOUS WASTE CONTINGENCY AND EMERGENCY PLAN

CHAPTER V

EMERGENCY WASTE MOVEMENT COORDINATION

### EMERGENCY WASTE MOVEMENT COORDINATION

In the event of an emergency situation, where the movement of waste materials is required on a short-term basis, the following procedures are to be employed:

1. Contact Pamela Day at (813) 963-0177  
Sharon Roehm at (813) 864-2166
2. Contact all Universal Waste & Transit drivers. All trucks are kept at the site.
3. Contact additional transportation firms if required:  
- A.R. Paquette (904) 736-1978
4. All containers would temporarily be held on storage trailers in compliance with the Florida transfer facility regulations.
5. Contact Florida DER, Emergency Response Group, to inform them of the emergency waste movement. The number for Florida DER, Emergency Response is (904) 488-1900. Contact Florida DER District Office in Tampa at 623-5561 and notify them of same.

6. After all notifications have been performed, begin placing all drums onto the storage trailers in the following order:
  - Reactives
  - Corrosives
  - Oxidizers
  - Flammable Solids
  - Poisons
  - Flammable Liquids
  - ORM-E
  - Consumer Commodities
7. Upon arrival of the drivers or contractor vehicles begin moving the various trailers to a secondary approved location. Keep accurate records as to the quantity of material placed on each and their hazard class. Continue this operation until all drums have been removed.
8. Complete all shipping documents as required.

Universal Waste & Transit, Inc.

HAZARDOUS WASTE CONTINGENCY AND EMERGENCY PLAN

CHAPTER VI

EMERGENCY WASTE MOVEMENT - FLOOD OR HURRICANE SITUATION

## EMERGENCY WASTE MOVEMENT - FLOOD OR HURRICANE SITUATION

The facility is not located within the 100 year flood plain.

In the event of an unexpected or rapid rise of flood waters or hurricane situations certain actions must be taken immediately.

1. Contact the Universal Waste & Transit Emergency Coordinator or her alternate immediately.
2. Contact DER Emergency Response and the District Office in Tampa  
Telephone numbers for these groups are indicated in Chapter I.
3. Contact all Universal Waste & Transit drivers and the contract transportation firm listed in Chapter V.
4. If rising waters are sufficient to warrant concern (possible entry into the facility) the Universal Waste & Transit Emergency Coordinator or his alternate will contact Westinghouse/Haztech for mobilization of the portable water treatment system.
5. If rising waters pose a potential hazard the following should be performed immediately:
  - a. Immediately implement the "Emergency Waste Movement Plan" detailed in Chapter V.
  - b. All personnel are to remain at the facility.

Universal Waste & Transit will stay apprised of all potential flood or hurricane situations by monitoring existing weather related agencies.

Federal Aviation Administration	223-2358
National Weather Service	645-2506
U.S. Coast Guard	228-2189

Universal Waste & Transit will also monitor all weather

bulletins through radio transmissions. This should give sufficient warning of any potentially approaching flood or hurricane.

## APPENDIX 1

### PERSONNEL PROTECTIVE EQUIPMENT

In order to adequately protect yourself from hazardous exposures, personnel protective equipment must be employed. Appendix 1 indicates various hazardous situations and the personnel protective equipment which is required.

#### PERSONNEL PROTECTIVE EQUIPMENT REQUIRED FOR HAZARDOUS SITUATIONS

##### Level A Protection

#### HAZARD INVOLVED

- Situations immediately dangerous to life and health.
- Oxygen deficient atmospheres.
- Unknown hazardous materials.
- Chemicals which can be absorbed through the skin.
- Materials which cannot be removed with an air purifying respirator.

#### REQUIRED PERSONNEL PROTECTION EQUIPMENT

- Self-contained breathing apparatus (SCBA) or air line respirator with SCBA escape air system.
- Full Body Encapsulation Suit

ALL listed personal protective equipment is required for any hazard situation indicated.

## PERSONNEL PROTECTIVE EQUIPMENT REQUIRED FOR HAZARDOUS SITUATIONS

### Level B Protection

#### HAZARD INVOLVED

- Oxygen deficient atmosphere where chemical composition of the material is known and falls into the classification of an irritant.

#### REQUIRED PERSONNEL PROTECTION EQUIPMENT

- Self contained breathing apparatus or air line respirator with SCBA for emergency use.
- PVC splash suit with hood.
- Neoprene/nitrile/butyl rubber arm length gloves.
- Steel toed rubber boots.

All listed personal protective equipment is required for any hazard situation indicated.

## PERSONNEL PROTECTIVE EQUIPMENT REQUIRED FOR HAZARDOUS SITUATIONS

### Level C Protection

#### HAZARD INVOLVED

- Situations not immediately dangerous to life and health.
- Sufficient oxygen present to support life.
- Irritant or corrosive chemicals.
- Contaminated soils.
- Liquid/solvents not immediately dangerous to life and health.

#### REQUIRED PERSONNEL PROTECTION EQUIPMENT

- Full face mask with air purifying (cartridge) respirator.  
Or, half face (cartridge) respirator with goggles and face shield.
- PVC splash suit.
- Protective gloves (type dependent on chemical being handled).
- Steel toed rubber boots.

All listed protective equipment is required for any hazard situation indicated.

## PERSONNEL PROTECTIVE EQUIPMENT REQUIRED FOR HAZARDOUS SITUATIONS

### Level D Protection

#### HAZARD INVOLVED

- Situations which contain no immediate hazard, but where there is the potential for accidental release of a hazardous substance.

#### REQUIRED PERSONNEL PROTECTION EQUIPMENT

- Half face air purifying (cartridge) respirator.
- Safety goggles.
- Disposable coveralls.
- Surgical rubber gloves or suitable hand protection.
- Rubber boots.

All listed personnel protective equipment is required for any hazard situation indicated.

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Acetaldehyde	X	X	X	X				1,2
Acetic Acid						X		1,2
Acetic Anhydride						X		1,2
Acetone	X	X						1,3,4
Acetonitrile	X	X		X		X		1,2
Acetophenone				X			X	2,9
Acetyl Bromide	X		X	X		X		1,2,3,8,11,18
Acetyl Chloride	X	X	X			X		1,2,3,5,8,11,
Acetylene	X	X	X					1,4,6,20
Acrolein	X	X	X	X	X	X		1,2,5,6
Acrylamide	X			X	X	X		1,2
Acrylonitrile	X	X	X	X	X	X	X	1,2,5,12,19
Aldrin	X			X	X	X	X	1,2,9,12
Alkyl Benzene Sulfonic Acids	X							2,18
Allyl Alcohol	X	X		X				1,2,3,5,12
Allyl Chloride	X	X		X				1,2,5,12
Aluminum Chloride				X		X		1,2,5,8,11,18
Aluminum Fluoride								1,12
Aluminum Nitrate	X	X				X		1,2
Ammonia, anhydrous	X		X	X				1,2,5,11,20

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
Ammonium Bifluoride	X			X	X			1,2,18
Ammonium Chloride				X				1,2
Ammonium Dichromate	X	X		X	X	X		1,2,3,7,8,12,21
Ammonium Fluoride	X				X	X		1,2,18
Ammonium Hydroxide**	X		X	X				1,2
Ammonium Molybdate	X			X	X			7,12
Ammonium Nitrate	X	X		X		X		
Ammonium Oxalate	X			X	X			1,2
Ammonium Pentaborate	X				X			1,2
Ammonium Perchlorate	X	X		X		X		2,7
Ammonium Sulfide	X	X	X	X	X	X		1,2,5,6,8,12
Ammonium Thiocyanate	X			X	X			1,2
Amyl Acetate	X	X				X	X	1,2
iso-Amyl Nitritelfonic Acids	X	X	X		X	X	?	1,2,3,5,6,8,12,1
n-Amyl Alcohol	X	X				X	X	1,3
n-Amyl Nitrate	X	X			X	X	?	1,2,12,21
n-Amyltrichlorosilane	X		X			X		1,2,8,11,12,18,1
Aniline	X				X	X	X	1,2,12,19
Antimony Pentachloride	X		X	X	X	X		1,2,8,18

\*\*Dilute and disperse only when other corrective methods cannot be used.

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
Antimony Trioxide	X							1,2
Arsenic Acid	X			X	X	X		1,2,18
Arsenic Trichloride	X		X	X	X	X		1,2,5,8,18
Arsenic Trioxide	X			X	X	X		1,2
Barium Chlorate	X	X	X	X	X			1,2,7
Barium Nitrate	X	X		X	X			1,2,7
Barium Perchlorate	X	X	X	X	X			1,2,7
Benzaldehyde	X			X			X	1,2
Benzene	X	X		X		X	X	1,2,4,15
Benzophenone							X	2
Benzoyl Chloride	X			X		X	X	1,2,5,11,12
Beryllium, metallic	X	X						1,2,21
Beryllium Nitrate	X	X		X	X	X		1,2,18,21
Beryllium Oxide	X	X		X	X	X		1,2,21
Boron Trichloride	X		X			X		1,2,5,8,11,18
Bromine	X		X	X	X	X		1,2,5,8
Butadiene, inhibited	X	X	X			X		1,2,4,6,20
Butane	X	X	X			X		1,2,4,6,20
1,4-Butanediol				X	X			2
n-Butyl Acetate	X	X					X	1,2,19

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
n-Butyl Alcohol	X	X						3
Butylamine	X	X	X	X	X	X		1,2,5,6
Butylene Oxide	X	X	X	X	X	X		1,2,3,4,5,6,
tert-Butyl Hydroperoxide	X	X		X		X		1,2,7
N-Butyl Mercaptan	X	X	X			X	?	1,2,5,6,12
Butyraldehyde	X	X		X			X	1,2
Cadmium Nitrate	X	X		X	X	X		1,2,3,7
Calcium Carbide	X	X	X	X				2,10,11
Calcium Chlorate	X	X	X	X	X			1,2,7
Calcium Chromate	X			X	X			1,2
Calcium Cyanide	X		X	X	X	X		1,2,5,21
Calcium Hypochlorite	X			X		X		1,2
Calcium, metallic	X	X	X					2,8,10,21
Carbon Bisulfide	X	X	X	X	X	X		1,2,5,6,12
Carbon Monoxide	X	X	X					1,5,6,14,20,
Carbon Tetrachloride	X			X			X	1,2,5
Caustic Soda Solution	X			X	X	X		2,8
Chlordane	X				X	X	X	1,2,9,12
Chlorine	X		X	X	X	X		1,2,5,8,11,2
Chlorine Trifluoride	X		X	X	X	X		1,2,5,7,8,11

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Chlorobenzene	X	X		X			X	1,2,12
Chloroform	X			X		X	X	1,2,12
Chloromethyl Methyl Ether	X	X	X	X	X	X	?	1,2,3,5,6,7,18
Chloropicrin, liquid	X		X	X	X	X		1,2,5,8,21
Chlorosulfonic Acid	X		X	X	X	X		1,2,5,8,11
Chromyl Chloride	X		X	X	X	X		1,2,5,6,7,11
Collodion	X	X	X			X	?	1,5,6,12
Copper Nitrate	X	X			X	X		1,2,3,7
Cresols	X			X	X	X	X	1,2,12
Crotonaldehyde	X	X		X				1,2
Cumene Hydroperoxide	X	X			X	X	X	1,2,3,8,12,21
Cyanogen	X	X	X	X	X	X		1,2,5,6,12,20
Cyanogen Bromide	X		X	X	X	X		1,2,5,12
Cyanogen Chloride	X		X	X	X	X		1,2,5,12,20
Cyclohexane	X	X		X		X	X	1,2,4
Cyclohexanone				X			X	1,2,19
Cyclohexylamine				X	X		X	1,2,19
Cyclopentane	X	X	X			X	?	1,2,4,6,14
Cyclopropane	X	X	X				X	1,2,4,6,14,20

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
DDD	X			X	X		X	1,2
DDT	X	X		X	X	X	X	2,9
Decaborane	X	X		X	X	X	X	1,2,4,15
Diazinon	X			X	X	X		1,2,3,9,12
Dibenzoyl Peroxide	X	X		X	X			1,2,7
Dichlorobenzene				X			X	2,12
Dichlorodifluoromethane (Freon 22)	X							1
1,2-Dichloroethylene	X	X	X			X		1,2,3,5,6,9,12
Dichloromethane	X			X		X	X	1,2,12
2,4-Dichlorophenoxy Acetic Acid	X			X	X		X	1,2
Dichloropropane	X	X		X			X	1,2,12
Diethylzinc	X	X	X					1,2,8,10,21
Dimethylamine	X	X	X	X				1,2,3,20
Dimethyldichlorosilane	X	X	X			X		1,2,3,5,6,8,11
Dimethylformamide	X	X	X	X	X	X		1,2
1,1-Dimethylhydrazine	X	X	X	X	X	X		1,2,5,12
Dimethyl Sulfate	X		X	X	X	X		1,2,8,12
Dimethyl Sulfide	X	X	X	X		X	?	1,2,5,6,12,19
Dimethylzinc	X	X	X				X	1,2,6,8,10,21

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
2,4-Dinitroaniline	X		X	X			X	1,2,12
Dinitrobenzene	X	X		X	X		X	1,2,3,21
2,4-Dinitrophenol	X			X			X	1,2,12
2,4-Dinitrotoluene	X	X		X	X		X	1,2,3,21
1,4-Dioxane	X	X		X				1,2,3
Endrin	X			X	X		X	1,2,12
Ethyl Acetate or methane	X	X		X			X	1,2
Ethyl Acrylate	X	X		X			X	1,2,19
Ethyl Alcohol	X	X						3
Ethylaluminum Dichloride	X	X	X			X		1,2,3,5,6,8,11,18,21
Ethylamine	X	X	X	X	X	X		1,2,5,6,8,11
Ethylbenzene	X	X		X			X	1,2,19
Ethyl Chloroformate	X	X	X	X	X	X		1,2,3,8,12
Ethyl dichlorosilane	X	X	X			X		1,2,3,5,6,8,18,21
Ethylene	X	X	X					1,2,4,6,20
Ethylene Glycol								None
Ethylene Glycol Monoethyl Ether				X				2
Ethylene Glycol Monomethyl Ether				X				2

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Ethyl Formate	X	X	X	X	X	X		1,2,3,5,6
Ethyleneimine	X	X	X	X	X			1,2,5
Ethylene Oxide	X	X	X					1,2,6,20
Ethyl Ether	X	X	X			X		1,2,4,6,14
Ethyl Mercaptan	X	X	X	X		X	?	1,2,5,6,12,19
Ferric Nitrate	X	X				X		1,2,3,7
Fluorine	X		X	X	X	X		1,2,5,8,20
Fluosulfonic Acid	X		X			X		1,2,5,8,11,18
Formaldehyde Solution	X			X	X			1,2
Formic Acid	X							1,2,8
Fumaric Acid								1,2
Furfural	X			X	X			1,2
Furfuryl Alcohol	X			X	X			1,2
Heptachlor	X			X	X	X	X	1,2,21
Heptane	X	X	X			X	X	1,2,4,15
Heptanol		X					X	
Hexane	X	X	X			X	X	1,2,4,15
Hydrazine	X	X	X	X	X	X		1,2,5,6
Hydrochloric Acid	X		X	X	X	X		1,2,8
Hydrofluoric Acid	X		X	X	X	X		1,2,8,20

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
Hydrogen Bromide	X		X			X		1,2,5,8,18,2
Hydrogen Chloride	X		X	X	X	X		1,2,5,8,11,20
Hydrogen Cyanide	X	X	X	X	X	X		1,2,5,11,20
Hydrogen Peroxide	X		X	X		X		1,2,7
Hydrogen Sulfide	X	X	X	X	X	X		1,5,20
Hydroquinonete	X			X	X			1,2
Isobutane	X	X	X			X		1,4,6,14,20
Isobutyl Acetated	X	X					X	1,2
Isobutyl Alcohol	X	X		X			X	1,2,3
Isobutylamine	X	X	X	X	X	X		1,2,5,6,8
Isobutyronitrile	X	X	X			X	?	1,2,5,6,12
Isopentane	X	X	X			X	X	1,2,4
Isopropyl Alcohol	X	X						1
Isopropylamine	X	X	X	X	X	X		1,2,5,6,12
Isopropyl Mercaptan	X	X	X	X	X	X		1,2,5,6,12
Isovaleraldehyde	X	X	X		X	X	?	1,2,4,5,6,14
Lauroyl Peroxide	X	X	X		X	X	X	2,7,17,21
Lauryl Mercaptan	X			X			X	1,2,12
Lead Nitrate	X	X		X	X	X		1,2,7
Lead Tetracetate	X	X		X	X	X		1,2,3,7,8

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Lead Thiocyanate	X			X	X		1,2	
Liquified Natural Gas	X	X	X					1,2,4,6,14,20
Liquified Petroleum Gas	X	X	X					1,2,4,6,14,20
Lithium Aluminum Hydride	X	X	X	X	X	X		2,8,10,11
Lithium Hydride	X	X	X					1,2,3,5,6,7,8,11,16,21
Lithium, metallic	X	X	X					1,2,3,5,6,7,8,11,16,21
Magnesium		X						21
Magnesium Perchlorate	X	X	X		X	X		1,2,7,21
Malathion	X			X	X	X	X	1,2,9,12
Mercuric Nitrate	X	X		X	X	X		1,2,3,7,21
Mercury	X						X	2,13
Mesityl Oxide	X	X		X	X	X	?	1,2,3,4,8,14,
Methaneylamine	X	X	X					1,2,4,6,14,20
Methoxychlor	X			X		X	X	1,2
Methyl Acetate	X	X	X	X	X	X		1,2,3,5,6
Methyl Acrylate	X	X	X	X	X			1,2
Methyl Alcohol	X	X						1,2,3
Methylamine	X	X	X	X	X	X		1,2,3,5,6,8,1
ethyl Bromide	X		X	X				1,2,5,12,20

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Methyl Chloride	X	X	X	X				1,2,5,12,20
Methyl Chloroformate	X	X	X	X	X	X		1,2,3,8,12,18
Methylcyclopentane	X	X	X			X	?	1,2,4,6,14
Methyldichlorosilane	X	X	X			X		1,2,3,5,6,8,11,18,21
Methyl Ethyl Ketone	X	X		X				1,2
Methyl Formate	X	X	X	X		X		1,2,3,5,6,12
Methylhydrazine	X	X	X	X	X	X		1,2,3,5,6,8,21
Methyl Isobutyl Ketone				X			X	1,2,19
Methyl Mercaptan	X	X	X	X		X		1,2,3,4,5,6,20
Methyl Methacrylate	X	X	X	X	X	X		1,2
Methyl Vinyl Ketone	X	X	X	X	X	X		1,2,3,5,6,8,21
Nickel Carbonyl	X	X	X	X	X	X		1,2,3,5,6,8,9,12
Nickel Nitrate	X	X			X	X		1,2,7
Nicotine	X			X	X	X		1,2,12
Nitric Acid	X		X	X	X	X		1,2,5,7,8
Nitrobenzene	X			X	X	X		2,12
Nitrogen, liquified	X							2,20
Nitrogen Tetroxide	X		X	X	X	X		1,2,5,8,20
Nitromethane	X	X		X				1,3

### ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

[illegible]

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Phosphorus, red	X	X		X				2,12
Phosphorus Tribromide	X		X			X		1,2,5,8,11,18
Phosphorus Trichloride	X		X	X	X	X		1,2,5,11,18
Phosphorus, white	X	X	X	X				1,2,5,12
Polychlorinated Biphenyl	X			X	X		X	2
Polyphosphoric Acid	X							2,8
Potassium Arsenate	X			X	X			1,21 -
Potassium Chlorate	X	X		X	X	X		1,2,7,21
Potassium Chromate	X	X		X	X	X		1,2,7,8,21
Potassium Hydroxide	X							1,2,8
Potassium, metallic	X	X						2,7,16
Potassium Peroxide	X	X	X					1,2,7,8,11,21
Propane	X	X	X					1,2,4,6,14,20
Propionaldehyde	X	X		X				1,2
Propylene Oxide	X	X	X					1,2,3
Propyleneimine, inhibited	X	X	X	X	X	X		1,2,5,6,8,12
Propyl Alcohol	X	X						1,3
Pyridine	X	X	X	X				1,2,3,5
Resorcinol	X			X	X			1,2
Silicon Tetrachloride	X		X			X		1,2,5,11,18

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
Sodium	X	X	X					2,6,10,12,16
Sodium Amide	X	X						1,2,5,8,11
Sodium Azide	X			X	X	X		1,2,21
Sodium Borohydride	X	X						1,2,6,10
Sodium Chromate	X	X		X	X	X		1,2,7,8,21
Sodium Cyanide	X			X	X			1,2,5
Sodium Hydride	X	X	X					2,6,10,11
Sodium Hydroxide	X			X	X	X		2,8
Sodium Methylate	X	X						1,2,3,4,8,11,14
Sodium Nitrite	X	X		X	X	X		1,2
Styrene	X	X		X		X	X	1,2
Sulfuric Acid	X							2,8
Sulfur Dioxide	X		X	X	X	X		1,2,5,8,11,20
Sulfuryl Chloride	X		X	X		X		1,2,5,8,11,18
Tetrachloroethane	X				X	X		1,2
Tetraethyl Lead	X		X	X	X	X		1,2,5,12
Tetrahydrofuran	X	X						1,2
Thiophosgene	X		X	X	X	X		1,2,5,8,10,12,1
Thorium Nitrate	X	X	X	X	X	X		1,2,3,7,18,21
Titanium Tetrachloride	X		X					1,2,8,11,18

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/Information
Toluene	X	X		X			X	1,2,4,15
Toluene 2,4-Diisocyanate	X			X	X			1,2,12
o-Toluidine	X	X		X	X	X		1,2,12,19
Trichloroethaneide	X						X	1,2,12
Trichloroethylene	X			X	X		X	1,2,12
Trichlorosilane	X	X	X					1,2,3,5,6,8,18,21
Triethylamine	X	X		X				1,2
Trifluorochloroethylene	X	X	X					1,2,5,6,12,20
Trimethylamine	X	X	X					1,2,5,20
Triethylaluminum	X	X	X					1,2,5,6,8,10,
Uranyl Nitrate	X	X	X	X	X	X		1,2,3,7,18,21
Urea								
Valeraldehyde	X	X						1,2
Vanadium Oxytrichloride	X			X	X	X		1,2,5,8,11,18
Vanadium Pentoxide	X				X			1,2
Vinyl Acetate	X	X	X	X				1,2
Vinyl Chloride	X	X	X	X				1,2,12,20
Vinyl Fluoride, inhibited	X	X	X					1,2,6,12,20
Vinyl Methyl Ether, inhibited	X	X	X			X		1,2,4,5,6,12,2

## APPENDIX 2

## ANTICIPATED RESPONSE ACTIONS FOR CERTAIN COMPOUNDS

	Restrict Access	Restrict Ignition	Evacuate	Restrict Human Use	Restrict Farm Use	Restrict Industrial Use	Contain	Reference Key to Special Precautions/ Information
Vinyltrichlorosilane	X	X	X	X		X	X	1,2,3,5,8,18,20
Xylene	X	X		X	X		X	1,2,4,15
Zinc Arsenate	X			X	X	X		1,2,21
Zinc Borate	X							1,2

# REFERENCE KEY TO RESPONSE INDEX

1. Avoid inhalation. Vapors or dust are irritating or toxic.
2. Avoid direct contact. Contact with skin or eyes can cause irritation or burns.
3. No ignition hazard once material is dissolved, reacted, or covered with water.
4. Burning may be prohibited by anti-air pollution laws and regulations.
5. Poisonous gas or vapor danger. Substance is highly volatile.
6. Flammable or explosive gas or vapor danger. Substance is highly volatile.
7. Powerful oxidant - explosion and/or fire hazard in the presence of organic matter.
8. Highly corrosive, particularly to eyes and skin.
9. Sorbs strongly on bottom sediments. Substance is not at all soluble or reactive.
10. Reacts with water to form explosive or flammable gas or vapor.
11. Water reactive compound which reacts vigorously or violently. Disperse or neutralize contaminated waters after reaction subsides.
12. Burning not recommended; fire difficult to control and/or poisonous gas is formed.
13. Cover with organic sulfur-containing compounds or free sulfur.
14. Clean burning.
15. Sooty burning.
16. DO NOT ADD water to chemical; AFTER the chemical has reacted with water, the resulting alkaline solution can be diluted.
17. Floating solids.
18. Strong acid formed in water.
19. First try to contain and skim; THEN dilute and disperse what has dissolved in water.
20. Chemical shipped as gas or liquified compressed gas; depending on atmospheric conditions, a large portion of the hazard will be dissipated with no action necessary.

# REFERENCE KEY TO RESPONSE INDEX

21. Has unusual fire or toxicity hazards. See the hazardous chemical data sheets for chemical.
22. May float or sink as insoluble substance or dissolve like miscible substance. See the hazardous chemical data sheets for chemical.

## RESPONSE DEFINITIONS

### A. CAUTIONARY RESPONSES

1. Restrict Access - This response is invoked when appreciable danger arises from a flammable or toxic spill, and the general public (spectators) should be kept from the spill area. Access is restricted if ignition is considered possible (restrict ignition), or if evacuation is recommended.
2. Restrict Ignition - This response is invoked when chemicals are involved which develop flammable vapors.
3. Evacuate - This response is invoked when there is a very real danger that a highly flammable or toxic spill may spread, or develop a detrimental reaction with water. This category includes flammable chemicals and extremely toxic chemicals, e.g., poisonous gases.
4. Restrict Human Use - This response is invoked when mostly soluble substances or those which are exceptionally toxic are involved in a spill. The primary danger is that of ingesting the chemicals in drinking water.
5. Restrict Farm Use - This response is invoked when a toxic chemical contaminant is spilled in water used for irrigation or animals.
6. Restrict Industrial Use - This response is invoked when the spill contains chemicals which could corrode machinery, or if the possibility of ignition from highly flammable organics is developed. Those chemicals which upon heating could release poisonous gases could also cause this response to be invoked; as could those which might form an insulating film on internal boiler surfaces.

### B. CORRECTIVE RESPONSES

It is possible that several responses may be appropriate for a particular chemical spill. On-site conditions will dictate which responses are required. Also, a chemical could exist in more than one physical form and, thus, require several ameliorative responses. In cases where multiple responses are checked, "dilute and disperse" should be the last response implemented.

1. Dilute and Disperse - This response is invoked to handle spills primarily involving dissolved species which are dangerous in a concentrated state. The situation can be ameliorated by water jets, propellers, or similar means of agitation, spreading and mixing.
2. Contain - This response is invoked to contain spills involving insoluble species which form surface slicks. Slicks having vapors of very low flammability may be contained near ships, piers, etc., but highly flammable materials should only be confined in areas which are remote from ignition sources. Explosion-proof equipment should be employed. Corrosivity with respect to materials should also be considered.

## RESPONSE DEFINITIONS (Continued)

### B. CORRECTIVE RESPONSES

3. Skim - This response is invoked to handle insoluble species which float and form surface slicks. Corrosivity with respect to hoses and pumps should be considered.
4. Pump - This response is invoked to handle insoluble species which sink (particularly liquids or finely divided solids), but which may be pumped directly from the spill. Again, corrosivity should be considered.
5. Dredge - This response is invoked to handle insoluble species which sink (solids and some liquids).
6. Burn - This response is invoked to handle highly flammable floating chemicals. Even though there is an ignition danger, the "contain" category is checked. Containment may have to be accomplished by air barriers, berders, or expendable booms since few booms are fire-resistant.
7. Neutralize - This response is invoked to handle acids, bases, oxidants, or reductants. Calcium hypochlorite or caustic soda is often used in neutralization. This response action is largely confined to still or confined to non-flowing waters.
8. Absorption - This response is invoked to handle chemical species which can be absorbed or adsorbed. These species which form surface slicks (float) and include: oil-like chemicals, solvents, toxic compounds (e.g., pesticides and halogenated hydrocarbons). Treatment by ion exchange is also possible for miscible chemicals. Materials for sorption include hay, paper, styrofoam, plastic, glass beads, charcoal, and ion exchange resins.
9. Other Treatments - This response is invoked to handle oils and other floating materials by specialized methods. These treatments include the use of emulsifiers, dispersants, sinking agents, coagulants, and flocculants. Biological degradation is also included in this category.
10. Clean Shore Line - This response is invoked to handle insolubles (especially oils) with high surface tensions.
11. Salvage Waterfowl - This response is invoked when it is deemed feasible to salvage waterfowl that have been exposed to an oil discharge.

### APPENDIX 3

#### DECONTAMINATION PROCEDURES

##### Inorganic/Organic Acids

Prepare mixture of 10% sodium carbonate and 10% trisodium phosphate in water, clean items/area with mop or cloth. Wear protective equipment.

##### Alkalai (Caustics)

Prepare mixture of 5% acetic acid (vinegar) in water - clean items/area with mop or cloth. Wear protective equipment.

##### Oils and PCB

Methylene chloride or isooctane applied directly to the contaminated area. Remove solvent and contaminant with sorbent or absorbent cloths. Wear protective equipment.

##### Alkalai and Alkaline Earth

##### Metals (Sodium, Potassium, Phosphorus)

Cover immediately with dry soda ash (sodium-carbonate) and remove with broom and shovel. Keep dry - do not contact with water. Wear protective equipment.

##### Solvents

Cover with absorbent material as quickly as possible. Remove with broom and shovel - wear protective equipment.



NO.	DATE	REVISIONS	BY	PROJECT NO.	DATE
				DESIGNED BY	
				DRAWN BY <i>R. B. DOLLE</i>	
				CHECKED BY	
				ENGINEER <i>R. B. DOLLE</i>	
				REGISTRATION NO.	DATE

*DRUM LAYOUT #*

UNIVERSAL WASTE & TRANSIT  
*EVACUATION ROUTE*

SCALE

SHEET NO.

FILE NO.

ATTACHMENT 2

UNIVERSAL WASTE & TRANSIT, INC.

9th AVENUE AND ORIENT RD.

TAMPA, FL

Discharge Log

Date	Inspection Area	Material Discharged	Response Action
	<u>Drums</u>	ORM-E _____	
		Poison _____	
		Corrosive _____	
		Flammable Liquid _____	
		Flammable Solid _____	
		Oxidizer _____	
		PCB _____	
		Reactive _____	
		Aerosols _____	

Treatment

Areas Solidification Area \_\_\_\_\_

Agencies Notified:

_____ Fire Department.	223-4211
_____ Life Squad	223-4211
_____ Police Department	223-4211
_____ Florida DER	904/488-1900
_____ UW&T Emergency	864-4076
_____ Coast Guard	1/228-2189
_____ Nat'l Response Ctr	1/800/424/880
_____ Tampa Sewer Dist.	254-1805

Discharge Identified By: \_\_\_\_\_

NAME

DATE

TIME

# Chart of Common Solvents

SOLVENT	Permissible Limit	Health Hazard	First Aid	Personal Protection	Recommended Glove Material	Disposal Method Suggested
ACETONE	1000 ppm* or 5000 mg/m <sup>3</sup> **	Irritation of eyes, nose, throat; head- aches, dizziness, dermatitis	A	Proper clothing & eye- wear; emergency shower provisions; frequent washing & change of clothes	Polyethylene (1 1/4 mils thick)	Incineration
ANILINE	5 ppm* or 10 mg/m <sup>3</sup> **	Irritation of eyes; anoxia; cyanosis	A	Respirator & skin pro- tection (butyl rubber suit) in areas of high vapor concentration; daily change of clothes; eyewear; emergency shower pro- visions & frequent wash-ups	Polyethylene (1 1/4 mils thick) or Latex (28 mils thick)	Incineration (w/provisions for NO <sub>x</sub> removal from flue gases)
BENZENE	(No standard set, either air or water)	Skin irritant	A	Proper clothing & eye- wear; wash promptly w/soap & water when wet or contaminated	Neoprene Latex (28 mils thick)	Incineration
CARBON TETRACHLORIDE	10 ppm* or 50 mg/m <sup>3</sup> **	Removes skin covering, which could lead to a dry, scaly dermatitis	A	Proper clothing eye- wear; wash up promptly when skin is wet or contaminated; frequent change of clothes	Nitrile (15 mils thick)	Incineration, after mixing w/ another combustible fuel
CHLOROFORM	50 ppm* or 340 mg/m <sup>3</sup> **	Skin burns/poor di- gestion; dizziness; liver & kidney damage	A	(Same as above: Carbon Tetrachloride)	Natural Rubber (18 mils thick)	Incineration, after mixing w/ another combustible fuel
CYCLOHEXANE	300 ppm* or 1050 mg/m <sup>3</sup> **	Dry, scaly, fissured dermatitis; possible conjunctivitis from vapor exposure	A	Proper clothing & eye- wear; wash & remove clothing immediately when wet/contami- nated	Nitrile (15 mils thick)	Incineration
ETHYLENE DICHLORIDE	50 ppm* with a max peak of 100 ppm in any 3-hr. period	Dry, scaly, fissured dermatitis; vapors may cause eye damage	A	(Same as above: Cyclohexane)	Nitrile (15 mils thick)	Incineration, after mixing w/ another combustible fuel
FORMALDEHYDE	No standard yet; EPA suggests 41.4 ug/l based on health effects	Irritation to respira- tory tract and eyes; possible dermatitis via prolonged exposure	A	Adequate ventilation & proper clothing; bar- rier creams; face masks when vapors are a factor; eyewear; wash at once if skin is wet/contaminated; emergency shower pro- visions	N/A*	Incineration (may also be recovered from waste waters)
FURON	N/A*	Irritant to eyes & res- piratory passages; dermatitis or skin rashes. High concentrations; dizziness, lack of co- ordination &/or asphyxiation	A	Nonporous gloves, aprons, and goggles; well-ventilated work- places	N/A*	N/A*
METHYL ALCOHOL	300 ppm* or 100 mg/m <sup>3</sup> **	Mild dermatitis; pro- longed effect might be optic nerve damage or blindness; headaches, nausea, dizziness	A	Appropriate clothing and eyewear; wash promptly when skin is wet; remove clothing at once if wet or con- taminated	N/A*	Incineration

## LEGEND

\* = parts per million (ppm) of air averaged over an eight-hour work shift.

\*\* = milligrams (mg) per cubic meter of air (m<sup>3</sup>).

A = refer to First Aid section on page 75 and consult your Material Safety Data Sheet.

\* = data not available to include on chart (N/A)

CAUTION (1): Never give fluids by mouth to an unconscious person. Seek immediate emergency medical attention.

CAUTION (2): Facts may change. This chart is not designed to be used for technical guidance. Refer to your Material Safety Data Sheets for more accurate and up-to-date information.

# Chart of Common Solvents

SOLVENT	Exposure Limit	Health Effects	Protective Action	Protective Equipment	Spill Control	Disposal Method
METHYL ETHYL KETONE (MEK)	300 ppm* or 500 mg/m <sup>3</sup> ; STEL: 500 ppm; IDLH: 1,000 ppm	Irritation of eyes & nose; headaches; dizziness; vomiting	A	Proper clothing & eyewear to prevent contact; remove clothing if wet or contaminated; provide E-eyewash	Natural rubber (18 mils thick)	Incineration
METHYLENE CHLORIDE	100 ppm* over 8-hour shift on average; max peak: 1,000 ppm	Severe dermatitis; eye & lung irritation; skin burns; headache; dizziness; stupor; tingling in limbs	A	Proper clothing & eyewear to prevent contact; remove clothing & wash if wet or contaminated	Polyethylene, neoprene or polyvinyl alcohol	Incineration, after mixing with another combustible fuel
PERMOL	5 ppm* or 10 mg/m <sup>3</sup> as a time-weight average	No skin pain but a whitening & poisoning; severe eye burn or blindness; weakness; sweating; headache; prolonged exp; death	A	Impervious protective clothing & goggles (or liquid, full-faced mask w/protective clothing, gloves, boots for vapor; emerg. showers & eyewash	Natural rubber (18 mils thick) or Polyethylene (1 1/4 mils thick)	Incineration
PYRIDINE	5 ppm* or 10 mg/m <sup>3</sup> ; STEL: 10 ppm or 30 mg/m <sup>3</sup> ; IDLH level: 300 ppm	Irritation to eyes & lungs; narcosis; headache, dizziness, lacrimation, nervousness, nausea, vomiting	A	Proper clothing & eyewear to prevent contact; wash when skin is wet or contaminated; emergency showers & eyewash	Polyethylene (1 1/4 mils thick)	Controlled incineration (nitrogen oxides are removed from the effluent gas)
TETRAHYDROFURAN (THF)	300 ppm* or 500 mg/m <sup>3</sup> ; STEL: 350 ppm; IDLH: 20,000 ppm	Irritation of eyes & lungs; nausea, dizziness, headache; kidney/liver damage	A	Proper clothing & eyewear to prevent contact; remove clothing & wash if wet/contaminated to avoid flammability	Nitrile (15 mils thick)	Controlled incineration w/scrubbing for collection of lead oxides for recycle or landfill
TOLUENE	300 ppm* as an 8-hr. TWA; ceiling level: 300 ppm; NIOSH TWA: 100 ppm	Skin, eye & lung irritant; dry dermatitis; headache, dizziness, fatigue, incoordination, collapse	A	Proper clothing & eyewear to prevent contact; remove clothing & wash if wet/contaminated to avoid flammability	Nitrile (15 mils thick)	Incineration
1,1,1-TRICHLOROETHANE	350 ppm* or 1,000 mg/m <sup>3</sup> ; ACGIH: 400 ppm; IDLH: 1,000 ppm	Irritating to eyes on contact; severe dermatitis; dizziness, incoordination; drowsiness; slowness	A	Clothing, not rubber, and eyewear to prevent contact; remove clothing & wash when wet or contaminated	Polyethylene, neoprene or polyvinyl alcohol	Incineration, after mixing with another combustible fuel, to prevent phosgene
TRICHLOROETHYLENE	100 ppm* or 333 mg/m <sup>3</sup> as an 8-hr. TWA; ceiling: 300 ppm	Irritation of eyes, nose, throat; dermatitis; headache, dizziness, tremors, nausea; fatigue; latent's	A	Clothing, not rubber, and eyewear to prevent contact; remove clothing & wash when wet or contaminated	Polyethylene, neoprene or polyvinyl alcohol	Incineration, after mixing with another combustible fuel, to prevent phosgene
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (TCE)	1,000 ppm* or 7,000 mg/m <sup>3</sup> ; STEL: 1,250 ppm; IDLH: 4,500 ppm	Throat irritation; dermatitis; drowsiness	A	Clothing, not rubber, and eyewear to prevent contact; remove clothing & wash when wet or contaminated	N/A*	Incineration, after mixing with another combustible fuel, to prevent phosgene
XYLENE	100 ppm* or 435 mg/m <sup>3</sup> for all isomers; NIOSH: 100 ppm/300 max	Irritation of eyes, nose, throat; dermatitis; dizziness, drowsiness, staggering, liver/kidney damage	A	Proper clothing & eyewear to avoid contact; wash skin when wet; remove clothing when wet to avoid flammability hazard	Nitrile (18 mils thick)	Incineration

## Footnote

\* = parts per million (ppm) of air averaged out over an eight-hour work shift, or a milligram (mg) per cubic meter of air (m<sup>3</sup>).

A = refer to Part A section on page 76 and consult your Material Safety Data Sheet.

+ = data not available to include on sheet 01/10

CAUTION: Never give credit by mouth to an unconscious person. Get immediate emergency medical attention.

CAUTION: Use facts may change. This sheet is not designed to be used for technical problems. Refer to your Material Safety Data Sheet for more accurate and up-to-date information.



# SAFETY IN THE LABORATORY

## INCOMPATIBLE MATERIALS

Certain combinations of chemicals are remarkably explosive, poisonous or hazardous in some other way, and these are generally avoided as a matter of course. There are many others that are perhaps equally dangerous but do not come to mind as readily. The following list, although not complete, may serve as a memory-refresher. Stop and think for a moment before starting any work, especially if one hazardous chemical is involved.

### DO NOT CONTACT

Alkali metals, such as calcium, potassium and sodium with water, carbon dioxide, carbon tetrachloride, and other chlorinated hydrocarbons.

Acetic Acid with chromic acid, nitric acid, hydroxyl-containing compounds, ethylene glycol, perchloric acid, peroxides and permanganates.

Acetone with concentrated sulphuric and nitric acid mixtures.

Acetylene with copper (tubing), fluorine, bromine, chlorine, iodine, silver, mercury or their compounds.

Ammonia, Anhydrous with mercury, halogens, calcium hypochlorite or hydrogen fluoride.

Ammonium Nitrate with acids, metal powders, flammable fluids, chlorates, nitrates, sulphur and finely divided organics or other combustibles.

Aniline with nitric acid, hydrogen peroxide or other strong oxidizing agents.

Bromine with ammonia, acetylene, butadiene, butane, hydrogen, sodium carbide, turpentine, or finely divided metals.

Chlorates with ammonium salts, acids, metal powders, sulfur, carbon, finely divided organics or other combustibles.

Chromic Acid with acetic acid, naphthalene, camphor, alcohol, glycerine, turpentine and other flammable liquids.

Chlorine with ammonia, acetylene, butadiene, benzene and other petroleum fractions, hydrogen, sodium carbides, turpentine and finely divided powdered metals.

Cyanides with acids.

Hydrogen Peroxide with copper, chromium, iron, most metals or their respective salts, flammable fluids and other combustible materials, aniline and nitro-methane.

Hydrogen Sulfide with nitric acid, oxidizing gases.

Hydrocarbons, generally, with fluorine, chlorine, bromine, chromic acid or sodium peroxide.

Iodine with acetylene or ammonia.

Mercury with acetylene, fulminic acid, hydrogen.

Nitric Acid with acetic, chromic and hydrocyanic acids, aniline, carbon, hydrogen sulfide, flammable fluids or gases and substances which are readily nitrated.

Oxygen with oils, grease, hydrogen, flammable liquids, solids and gases.

Oxalic Acid with silver or mercury.

Perchloric Acid with acetic anhydride, bismuth and its alloys, alcohol, paper, wood and other organic materials.

Phosphorous Pentoxide with water.

Potassium Permanganate with glycerine, ethylene glycol, benzaldehyde, sulfuric acid.

Sodium Peroxide with any oxidizable substances, for instance: methanol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerine, ethylene glycol, ethyl acetate, furfural, etc.

Sulfuric Acid with chlorates, perchlorates, permanganates and water.

The list is intended to also include any and all mixtures containing any of the materials in the list. Materials constituting blasting agents are marked by an asterisk. While the list is comprehensive, it is *not* all inclusive. The fact that an explosive material may not be on the list does not mean that it is not within the coverage of the law if it otherwise meets the statutory definitions in Section 841 of Title 18, United States Code. Explosive materials are listed alphabetically by their common names followed by chemical names and synonyms in brackets. This revised list supersedes the List of Explosive Materials dated August 8, 1980 (45 FR 52976).

## List of Explosive Materials

## A

Acetylides of heavy metals.  
Aluminum containing polymeric propellant.  
Aluminum ophorite explosive.  
Amatex.  
Amatol.  
Ammonal.  
Ammonium nitrate explosive mixtures (cap sensitive).  
\*Ammonium nitrate explosive mixtures (non cap sensitive).  
Aromatic nitro-compound explosive mixtures.  
Ammonium perchlorate having particle size less than 15 microns.  
Ammonium perchlorate composite propellant.  
Ammonium picrate [picrate of ammonia, Explosive D].  
Ammonium salt lattice with isomorphously substituted inorganic salts.  
\*ANFO [ammonium nitrate-fuel oil].

## B

Baratol.  
Baronol.  
BEAF [1,2-bis (2,2-difluoro-2-nitroacetoxyethane)].  
Black powder.  
Black powder based explosive mixtures.  
\*Blasting agents, nitro-carbo-nitrates, including non cap sensitive slurry and water-gel explosives.  
Blasting caps.  
Blasting gelatin.  
Blasting powder.  
BTNEC [bis (trinitroethyl) carbonate].  
BTNEN [bis (trinitroethyl) nitramine].  
BTTN [1,2,4 butanetriol trinitrate].  
Butyl tetryl.

## C

Calcium nitrate explosive mixture.  
Cellulose hexanitrate explosive mixture.  
Chlorate explosive mixtures.  
Composition A and variations.  
Composition B and variations.  
Composition C and variations.  
Copper acetylide.  
Cyanuric triazide.

Cyclotrimethylenetrinitramine [RDX].  
Cyclotetramethylenetetranitramine [HMX].  
Cyclotol.

## D

DATB [diaminotrinitrobenzene].  
DDNP [diazodinitrophenol].  
DEGDN [diethyleneglycol dinitrate].  
Detonating cord.  
Detonators.  
Dimethylol dimethyl methane dinitrate composition.  
Dinitroethyleneurea.  
Dinitroglycerine [Glycerol dinitrate].  
Dinitrophenol.  
Dinitrophenolates.  
Dinitrophenyl hydrazine.  
Dinitroresorcinol.  
Dinitrotoluene-sodium nitrate explosive mixtures.  
DIPAM.  
Dipicryl sulfone.  
Dipicrylamine.  
DNBP [dinitropentano nitrile].  
DNPA [2,2-dinitropropyl acrylate].  
Dynamite.

## E

EDNA.  
Ednatol.  
EDNP [ethyl 4,4-dinitropentanoate].  
Erythritol tetranitrate explosives.  
Esters of nitro-substituted alcohols.  
EGDN [ethylene glycol dinitrate].  
Ethyl-tetryl.  
Explosive conitrates.  
Explosive getatins.  
Explosive mixtures containing oxygen releasing inorganic salts and hydrocarbons.  
Explosive mixtures containing oxygen releasing inorganic salts and nitro bodies.  
Explosive mixtures containing oxygen releasing inorganic salts and water insoluble fuels.  
Explosive mixtures containing oxygen releasing inorganic salts and water soluble fuels.  
Explosive mixtures containing sensitized nitromethane.  
Explosive mixtures containing tetranitromethane (nitro form).  
Explosive nitro compounds of aromatic hydrocarbons.  
Explosive organic nitrate mixtures.  
Explosive liquids.  
Explosive powders.

## F

Fulminate of mercury.  
Fulminate of silver.  
Fulminating gold.  
Fulminating mercury.  
Fulminating platinum.  
Fulminating silver.

## G

Gelatinized nitrocellulose.  
Gem-dinitro aliphatic explosive mixtures.  
Guanyl nitrosamino guanyl tetrazene.

Guanyl nitrosamino guanylidene hydrazine.  
Guncotton.

## H

Heavy metal azides.  
Hexanite.  
Hexanitrodiphenylamine.  
Hexanitrosilbene.  
Hexogene or octogene and a nitrated N-methylaniline.  
Hexolites.  
HMX [cyclo-1,3,5,7-tetramethylene-2,4,6,8-tetranitramine; Octogen].  
Hydrazinium nitrate/hydrazine/aluminum explosive system.  
Hydrazoic acid.

## I

Igniter cord.  
Igniters.

## K

KDNBF [potassium dinitrobenzofuroxane].

## L

Lead azide.  
Lead mannite.  
Lead mononitroresorcinolate.  
Lead picrate.  
Lead salts, explosive.  
Lead styphnate [styphnate of lead, lead trinitroresorcinolate].  
Liquid nitrated polyol and trimethylolethane.  
Liquid oxygen explosives.

## M

Magnesium ophorite explosives.  
Mannitol hexanitrate.  
MDNP [methyl 4,4-dinitropentanoate].  
Mercuric fulminate.  
Mercury oxalate.  
Mercury tartrate.  
Minol-2 [40% TNT, 40% ammonium nitrate, 20% aluminum].  
Mononitrotoluene-nitroglycerin mixture.  
Monopropellants.

## N

NIBTN [nitroisobutametrol trinitrate].  
Nitrate sensitized with gelled nitroparaffin.  
Nitrated carbohydrate explosive.  
Nitrated glucoside explosive.  
Nitrated polyhydric alcohol explosives.  
Nitrates of soda explosive mixtures.  
Nitric acid and a nitro aromatic compound explosive.  
Nitric acid and carboxylic fuel explosive.  
Nitric acid explosive mixtures.  
Nitro aromatic explosive mixtures.  
Nitro compounds of furane explosive mixtures.  
Nitrocellulose explosive.  
Nitroderivative of urea explosive mixture.  
Nitrogelatin explosive.  
Nitrogen trichloride.  
Nitrogen tri-iodide.  
Nitroglycerine [NG, RNC, nitro, glyceryl trinitrate, trinitroglycerine].

0

Organic amine nitrates.  
Organic nitramines.

P

**R**

**S**

**T**

U

Urea nitrate.

W

Water bearing explosives having salts of oxidizing acids and nitrogen bases, sulfates, or sulfamates (cap sensitive).

x

Xanthomonas hydrophilic colloid  
explosive mixture.

**FOR FURTHER INFORMATION CONTACT:**

Explosives Technology Branch, Bureau  
of Alcohol, Tobacco and Firearms, 1200  
Pennsylvania Avenue, NW, Washington,  
DC 20226 (202-566-7087).

Signed: August 24, 1981.

G. R. Dickerson,  
Director.

[FR Doc. 81-25398 Filed 8-31-81; 8:43 am]  
BILLING CODE 4810-31-M

## PEROXIDES

### I. Recognition:

The presence of one of the compounds in Table I is a warning that peroxides can form and a hazard may exist. The readiness with which any of the peroxidizable structures form peroxide is highly dependent on the bonded (attached) chemical groups. For example, an ether with an attached alkyl group is much more hazardous than an ether with an attached aromatic group. Also as the attached hydrocarbon group increases in size the possibility of peroxide formation decreases. Ten or more carbon atoms at a peroxidizable site usually are low risk systems.

The most hazardous compounds - Those that form peroxides without being concentrated, which can accumulate a hazardous level of peroxides simply on storage after exposure to air - are in list A. Compounds forming peroxides that are hazardous only when concentrated, such as distillation or evaporation-are in list B. List C is made up of vinyl monomers that may form peroxides that can initiate explosive polymerization of the bulk monomers, (quantities greater than 500 grams).

### II. Detection of Peroxides

The iodide test is based on the oxidation of iodide to iodine in the presence of peroxides.

Method: Add 0.5-1.0 ml of the material to be tested to an equal volume of glacial acetic acid to which has been added 0.1 g of sodium iodide or potassium iodide crystals. A yellow color indicates a low concentration of peroxide in the sample; a brown color indicates a high concentration. A blank determination should be made. Always prepare the iodide-acetic acid mixture at the time the test is made, because air oxidation slowly turns the blank to a brown color.

### III. Storage and Handling

All peroxidizable compounds should be stored away from heat and light. Sunlight is an especially good promoter of peroxidation. When handling, use explosive handling procedures, remove to a remote area where it can be safely destroyed, preferably by burning. It is of the utmost importance that

## III. Storage and Handling (continued)

the container not be opened. The act of opening the container could detonate peroxide crystals around the container cap or other closure. Containers which show signs of iron oxide or copper oxide should be handled with extra precaution since many metal oxides promote peroxide formation.

## IV. Removal of Peroxides

Peroxide impurities in water-insoluble solvents (ether, hydrocarbons, etc.) are easily removed by shaking with a concentrated solution of ferrous salt solution can be prepared either from 60 g of ferrous sulfate, 6 ml of concentrated sulfuric acid, and 110 ml of water, or from 100 g of ferrous sulfate, 42 ml of concentrated hydrochloric acid, and 85 ml of water.

Among the many other methods reported for peroxide removal are treatment with amines, aqueous sodium metabisulfite and stannous chloride, sodium hydroxide, and cerous hydroxide.

TABLE I

## Common Compounds That Form Peroxides During Storage

List A—Red Label (Three Months) Peroxide Hazard on Storage	List B—Yellow Label (Twelve Months) Peroxide Hazard on Concentration	List C—Yellow Label (Twelve Months) Hazard Due to Peroxide Initiation of Polymerization*
Isopropyl ether	Ethyl ether	Styrene
Divinyl acetylene	Tetrahydrofuran	Butadiene
Vinylidene chloride	Dioxane	Tetrafluoroethylene
Potassium metal	Acetal	Chlorotrifluoroethylene
Sodium amide	Methyl i-butyl ketone	Vinyl acetylene
	Ethylene glycol di- methyl ether (glyme)	Vinyl acetate
	Vinyl ethers	Vinyl chloride
	Dicyclopentadiene	Vinyl pyridine
	Diacetylene	Chlorobutadiene (Chloroprene)
	Methyl acetylene	
	Cumene	
	Tetrahydronaphthalene	
	Cyclohexene	
	Methylcyclopentane	

\*When stored as a liquid, the peroxide-forming potential increases and certain of these monomers (especially butadiene, chloroprene, and tetrafluoroethylene) should then be considered as List A compounds.

COMPOUNDS PRONE TO FORM PEROXIDES

1. Ethers - C-1 through C-5
2. Olefins, chloroolefins, fluoroolefins
3. Vinyl esthers & ethers
4. Dienes
5. Vinylacetylenes
6. Alkylacetylenes
7. Alkanes & cycloalkanes with tertiary H atoms

Formation of peroxides is generally brought about by three processes - storage, concentration and polymerization. Heat and light promote peroxidation during storage. The following lists group chemicals by the type of peroxidation anticipated:

COMMON COMPOUNDS THAT FORM PEROXIDES DURING STORAGE

List A - Red Label (Three Months) Peroxide Hazard on Storage	List B - Yellow Label (Twelve Months) Peroxide Hazard on Concentration	List C - Yellow Label (Twelve Months) Hazard Due to Peroxide Initiation of Polymerization*
Isopropyl ether	Ethyl ether	Styrene
Divinyl acetylene	Tetrahydrofuran	Butadiene
Vinylidene chloride	Dioxane	Tetrafluoroethylene
Potassium metal	Acetal	Chlorotrifluoro-
Sodium amide	Methyl i-butyl ketone	ethylene
	Ethylene glycol di-	Vinyl acetylene
	methyl ether (glyme)	Vinyl acetate
	Vinyl ethers	Vinyl chloride
	Dicyclopentadiene	Vinyl pyridine
	Diocetylene	Chlorobutadiene
	Methyl acetylene	(Chloroprene)
	Cumene	
	Tetrahydronaphthalene	
	Cyclohexene	
	Methylcyclopentane	

\*When stored as a liquid, the peroxide-forming potential increases and certain of these monomers (especially butadiene, chloroprene, and tetrafluoroethylene) should then be considered as List A compounds.

June 13, 1989

Humana Hospital  
119 Oakfield Drive  
Brandon Florida

This is to certify that the Humana Hospital has received a  
copy of the following:

Universal Waste & Transit, Inc. Contingency Plan

Universal Waste & Transit, Inc. Site Plan

Universal Waste & Transit, Inc. Container Storage Plan

  
name

Assoc. Dir. Reception  
title

Humana Hospital Brandon  
agency

6/27/89  
date

June 13, 1989

Tampa Fire Department  
3210 S 78th St.  
Tampa, Florida 33619

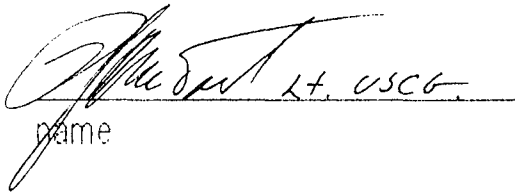
*U.S.C.G. Marine Safety Office*

This is to certify that the ~~Tampa Fire Department~~ has received a copy of  
the following:

Universal Waste & Transit, Inc. Contingency Plan

Universal Waste & Transit, Inc. Site Plan

Universal Waste & Transit, Inc. Container Storage Plan

  
name

\_\_\_\_\_  
title

\_\_\_\_\_  
agency

\_\_\_\_\_  
date

June 13, 1989

Westinghouse/HazTech  
7820 Professional Place  
Tampa, Florida 33637

This is to certify that the Westinghouse/HazTech has received a copy of  
the following:

**Universal Waste & Transit, Inc. Contingency Plan**

**Universal Waste & Transit, Inc. Site Plan**

**Universal Waste & Transit, Inc. Container Storage Plan**

Dwight D. Clark  
name

Branch Secretary  
title

(U) HAZTECH, INC.  
agency

6/15/89  
date

June 13, 1989

Centro Español Memorial Hospital  
4801 N Howard Avenue  
Tampa, Florida 33603

This is to certify that the Centro Español Memorial Hospital has received a  
copy of the following:

Universal Waste & Transit, Inc. Contingency Plan

Universal Waste & Transit, Inc. Site Plan

Universal Waste & Transit, Inc. Container Storage Plan

Patricia H. Mitchell by Marilyn Blanchard  
name

Administrated by Exec. Secretary  
title

Centro Español Memorial Hospital  
agency

June 15, 1989  
date

June 13, 1989

Hillsborough County Hazardous Materials Response Team  
3210 S 78th St.  
Tampa, Florida 33619

This is to certify that the Hillsborough County Hazardous Materials  
Response Team has received a copy of the following:

**Universal Waste & Transit, Inc. Contingency Plan**

**Universal Waste & Transit, Inc. Site Plan**

**Universal Waste & Transit, Inc. Container Storage Plan**

MARSHANA GRIFFIN  
name

W. C. K. TYP. II  
title

Env. Mgmt. Hcb.  
agency

6/13/89  
date

June 13, 1989

This is to certify that the Tampa Fire Department has received a copy of the following:

Universal Waste & Transit, Inc. Contingency Plan

Universal Waste & Transit, Inc. Site Plan

Universal Waste & Transit, Inc. Container Storage Plan

Marshanna Goff  
name

Clt. Typ. II  
title

Tampa Fire Dept. Hldg.  
agency

6/15/89  
date

June 13, 1989

Tampa Police Department  
1710 N Tampa St.  
Tampa, Florida 33602

This is to certify that the Tampa Police Department has received a copy of  
the following:

Universal Waste & Transit, Inc. Contingency Plan

Universal Waste & Transit, Inc. Site Plan

Universal Waste & Transit, Inc. Container Storage Plan

B.A. Majewski  
name

POLICE OFFICER  
title

TAMPA P.D.  
agency

15 JUN 89  
date