

## SECTION 13- CHEMICAL SAFETY

**NOTE: Much of the information contained in this Chemical Safety section is duplicated from the “Chemical Hygiene Plan for Laboratories” in the Louisiana Tech University Laboratory Safety Manual. The CHP is to be used in conjunction with the Hazardous Communication Plan ( Section 12) when working with chemicals.**

### REGULATORY BASIS FOR RULES GOVERNING THE SAFE USE OF CHEMICALS

A number of federal, state and local regulations govern the use of these chemicals. Among them are: the OSHA regulation, “Occupational Exposure to Hazardous Chemicals in Laboratories”; “the Resource Conservation and Recovery Act in 1976, (RCRA) as an amendment to the Solid Waste Disposal Act of 1965”; “the Hazardous and Solid Waste Amendments of 1984 to RCRA; the Emergency Planning and Community Right-to-Know Act (EPCRA) as Title III of the Superfund Amendments and Reauthorization Act”; the OSHA’ Hazard Communication Standard” and the EPA approved hazardous waste program under Title 33, Part V, of the Louisiana Administrative Code. The regulations created under this plan parallel those defined under RCRA Subtitle C. Under Title 33 of the Louisiana Administrative Code, the RCRA governing authority in the state of Louisiana is the Department of Environmental Quality (DEQ).

Louisiana Tech University (U.S. EPA Identification No. LAD 981 598 543) generates a significant amount of hazardous chemical waste associated with university operation and research. According to RCRA Subtitle C, Louisiana Tech University is designated as a small- quantity-generator (SQG), producing between 100 and 1,000 kilograms of hazardous waste, and less than 1 kilogram of acutely hazardous waste, per month. Under the SQG designation, the university is allowed to store hazardous chemicals on-site for a maximum of 180 days.

**The Louisiana Tech University Safety Plan addresses these regulations and other rules governing the use of chemicals in Section 10- “Shop and Shop/Lab Safety”, Section 11- “Personal Protective Equipment”, Section 12- “Hazardous Communication Plan”, This Section (Section 13) , Appendix C- “Laboratory Safety Manual” in particular, the “Chemical Hygiene Plan” portion, and the “Responsibility and Accountability” Portion of Section 1.**

### UNIVERSAL RESPONSIBILITIES AND ACCOUNTABILITY FOR CHEMICAL SAFETY

Chemicals are used in almost all activities and Budget Units at the University and the proper storage, handling and disposal of these agents are essential to the safety of the employee, the physical facilities, and the community, as a whole.

All university personnel who use hazardous chemicals are assigned the following responsibilities:

- attendance of chemical safety and hazardous waste training seminar conducted by their Budget Unit Head,
- assisting their Budget Unit Head in the completion of an annual chemical inventory,
- assisting their Budget Unit Head in the identification of hazardous waste, minimization of hazardous waste, on-site treatment and disposal,
- properly label, collect, and store of chemicals and hazardous waste, and
- properly collect and introduce chemical waste into the Louisiana Tech University hazardous waste system.

Success of this plan will occur only through the full cooperation of all university personnel. The Environmental Health and Safety Department encourages any suggestions concerning Louisiana Tech University hazardous chemical management procedures.

**ALL THE PARTS OF THE UNIVERSITY SAFETY PLAN LISTED ABOVE AND ANY SITE-SPECIFIC RULES GOVERNING THE USE OF CHEMICALS MUST BE READ AND FOLLOWED BY ALL EMPLOYEES IN ALL BUDGET UNITS WHEN THEY WORK WITH OR AROUND ANY HAZARDOUS CHEMICALS.**

Budget Unit Heads are responsible and accountable for assuring that their employees adhere to these rules and to all other rules specified in the Safety Plan.

The Louisiana Tech University Environmental Health and Safety Department serves in an advisory capacity to Budget Unit Heads and is responsible for ensuring that all hazardous chemical wastes generated at Louisiana Tech University are disposed of in accordance with applicable regulations. Specifically, the function of the Environmental Health and Safety Department includes the following responsibilities:

- to assist faculty, staff, and students in the proper handling and cost-effective management of chemical wastes, and
- to coordinate all hazardous chemical efforts for the university. These efforts include chemical waste pickups, personnel training programs, and the coordination of chemical waste disposal through an EPA approved hazardous waste disposal contractor.

**BASIC RULES FOR WORKING WITH CHEMICALS** - (The following apply to the use of chemicals in all work settings of the University and are in addition to the General Safety Procedures for performing any tasks)

1. Know the hazards associated with all chemicals before you purchase them. The hazards are listed in the MSDS for the chemical, or, in the case of household or office chemicals, on the product label.
2. Store, handle, and dispose of all chemicals according to the MSDS or product label. (See "Chemical Disposal" part of this Section for proper disposal procedures)
3. Purchase only the amount of chemical needed for a task.
4. Wear the proper personal protective equipment when working with chemicals, that are listed in the MSDS or product label for the chemical.
5. Follow established procedures/protocols when using chemicals.
6. Minimize your exposure to all chemicals. General precautions which shall be followed for the handling and use of all chemicals include:
  - (a) Skin contact with all chemicals shall be avoided.

- (b) All employees shall wash all areas of exposed skin prior to leaving the work site.
  - (c) Never test chemicals by taste or odor. If in doubt, do not use an unlabeled chemical.
7. Separate storage areas should be provided for "incompatible chemicals" which may react and create a hazardous condition because of this reaction. The Environmental Health and Safety Department can provide an evaluation of chemicals in your laboratory and/or provide charts which list incompatible chemicals.
  8. **ALL** areas where employees, students, or visitors are exposed to harmful chemicals shall be provided with safety showers conveniently located and tested frequently, readily available, operable, and known to persons concerned. Portable eyewash stations are to be periodically inspect to make sure they are properly filled and ready to use. Change the water once a month with water of drinking purity. Test the unit's operation monthly. Documentation of the operational status of emergency showers and eyewash stations shall be kept in the Budget unit. Tests the operation of the unit, to determine sufficiency of water flow and valve operation. Observe physical condition of unit and be sure unit is kept clear of obstructions

**EXAMPLE OF AN EMERGENCY EYE WASH AND SHOWER STATION INSPECTION REPORT**

<b>BUILDING/ LOCATION</b>	<b>EYE WASH/ SHOWER</b>	<b>OPERATIVE/ INOPERATIVE</b>	<b>DESCRIPTION/ RECOMMENDATION</b>
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9. Safe storage and transport of chemicals, particularly liquid glass bottles of one liter or more, shall be provided, and incompatible chemicals shall not be stored in close proximity to each other or allowed to react accidentally. Consult the MSDSs for proper storage requirements of all chemicals.
10. All electrical outlets shall carry a grounding connection requiring a three-pronged plug. The National Electrical Code shall be followed in all installations.
11. Chemicals stored in approved refrigerators shall be sealed and labeled with the name of the material, the date it was placed in the refrigerator, and the name and phone number of the person who stored the material. Refrigerators in which any hazardous or toxic materials are stored shall bear a label located on the outside of the refrigerator door stating "No Food or Drink To Be Stored in This Refrigerator." Volatile or unstable chemicals should never be stored in domestic refrigerators.

**EMERGENCY PROCEDURES WHEN A PERSON IS EXPOSED TO CHEMICALS**

All personnel should know the first aid emergency procedures for responding to chemical exposure. These are located in **SECTION 3- EMERGENCY GUIDELINES. CALL EHS AT 257- 2120 IN ADDITION TO UNIVERSITY POLICE OR 911 IF MEDICAL ATTENTION IS REQUIRED.**

[PREPLANNING FOR AND RESPONDING TO CHEMICAL SPILLS-](#) Information provided, courtesy of the LSU Department of Environmental Health and Safety

## **PURPOSE**

Chemical spills and releases vary considerably in significance. If it is possible for the person involved to clean up the spill or stop the release safely, then it is appropriate for the person to do so. If the spill exceeds the capability of the person involved to control, then leaving the area is the proper response. Notification of spill events is always required. This Standard Operating Procedure (SOP) is intended to guide the user in preparing for and responding to chemical spills, so as to minimize the severity of such incidents. This SOP does not address spills or releases of infectious agents or radioactive materials. The SOP for cleaning spills of infectious agents are found in the Laboratory Safety Section of the Safety Plan and the SOP for cleaning spills of radioactive spills are available from the University Radiation Safety Officer, who is responsible for cleaning these types of spills.

## **SCOPE:**

This procedure applies to all Louisiana Tech University personnel and students that work with chemicals. It is the intent of this guideline to provide information on the proper responses in the event of a chemical spill.

## **RESPONSIBILITIES:**

Only trained and qualified personnel shall be allowed to work with chemicals at Louisiana Tech University. Each worker is directly responsible for the safe handling of chemicals as required by his or her position. Supervisors are responsible for ensuring that personnel are trained to work safely with chemicals. All personnel who work with chemicals are responsible for reading and understanding this procedure.

## **DEFINITIONS:**

1. **SMALL SPILL-** It is critical that the user know the properties and hazards of the individual chemicals that they work with because of varying routes of exposure and occupational exposure limits. All spill response decisions must be based on the actual chemical involved. The following information is intended only as general guidance. Consult the appropriate MSDS for specific guidance. In general, a small spill is defined as a release that meets the following parameters:
  - a. Adequate supplies and PPE are readily available
  - b. Respiratory protection is not necessary to avoid over-exposure during the clean-up, and the spill is not in an unventilated or enclosed space that must be bodily entered.
  - c. The spilled material is not highly toxic, does not endanger people or property except by direct contact, and has good warning properties (e.g., does not deaden the senses; is detected by the senses at concentrations well below the exposure limits; and, exposure produces immediate, and reversible effects- not delayed or permanent effects).
  - d. The spill is not likely to spread beyond the area immediately involved.
  - e. The threat of secondary events is minimal (e.g., explosions, fires, etc.). Water reactive and air-reactive chemicals, highly flammable solvents in the presence of potential ignition sources, and strong oxidizing agents typically present increased risk for secondary events.

2. LARGE SPILL- A chemical spill event that poses an imminent danger to health, property, or the environment.
3. SPILL KIT- A self contained collection of material to be used in the event of a chemical spill.

### **SPILL KITS and/or EQUIPMENT:**

SPILL KITS - A spill kit should be assembled of the following materials and are available from the Office of Environmental Health and Safety:

1. Personal Protective Equipment
  - A. Splash Goggles
  - B. Face shield
  - C. Assortment of chemically resistant gloves
  - D. Protective outer garment (i.e., Tychem® suit, apron, lab coat, etc.) Diking Materials and Absorbents. Diatomaceous earth and vermiculite are relatively inexpensive and effective diking/absorbing agents. However, spill pillows and pads are easier to store and use. When selecting pads or pillows, select a "universal" type that is compatible with a broad range of chemicals.
2. Neutralizing Agents. Citric acid can be used to neutralize caustics. Soda ash can be used to neutralize acids. However, neutralization can often cause splashing, vigorous gas evolution, and become quite messy. They can also form salt deposits that are hard to remove from floors and other surfaces. Generally, it is much easier and neater to absorb acids and bases with compatible pillows or pads, or diatomaceous earth.
3. Disposal containers for spill cleanup residues and contaminated materials. Plastic pails or buckets equipped with lids are excellent choices. Heavy plastic bags can also be used. If heavy plastic bags are selected, have some duct tape handy to seal the bag after use.
4. Equipment. Brushes, brooms, scoops, shovels, dust pans, and other like items that may be necessary to facilitate remote handling of contaminated materials and absorbents.
5. Decontamination equipment and materials. Soap and scrub brushes will be needed for final area and equipment decontamination.
6. Fire Extinguisher properly classed for the chemical.
7. First aid kit.
8. Hazardous Material Collection Tags.
9. Special spill control materials as recommended in the Material Safety Data Sheet or as required to prevent releases from spreading to likely receptors (i.e., impervious drain blocks for floor drains, etc.

### **PRE-PLANNING PROCEDURES:**

1. Review Material Safety Data Sheets (MSDSs) to become familiar with the physical and health hazards of chemicals used and stored in the work area. Note and adhere to recommendations regarding special precautions, spill equipment, or controls.
2. Identify and document procedures and/or equipment failures that could result in releases or exposures.
3. Identify area specific features that may increase or decrease the potential for spills or exposures, as well as the response actions taken to minimize the hazards. For example, sources of ignition in an area where flammable liquids are stored are important considerations for both pre-planning to avoid an emergency and in the actions to take in response to an adverse event.

4. Identify potential receptors (i.e., floor or sewer drains, adjacent areas, other rooms on the same air supply system, etc.) and plan for actions to take to minimize releases via these receptors.
5. Identify maximum quantities of materials that could be released under various conditions (i.e., during container handling, dispensing, fire conditions, etc.).
6. Identify needed and available personal protective equipment, emergency communication devices, spill supplies, fire extinguishers, eye wash stations, emergency showers, first aid kits, and other equipment that are readily available to respond to an accident or release. Know the maximum quantity of released material for which you are adequately prepared to respond, and when outside assistance will be needed.
7. Identify building evacuation routes.
8. Identify campus service units, fire department, and hazardous materials response team notification procedures.

#### APPROPRIATE RESPONSE STEPS FOR A SMALL SPILL.

1. Take action to stop the release (i.e., upright containers, close valves, etc.).
2. Alert others in the immediate vicinity and notify your supervisor, if possible. Ensure that extraneous personnel remain at a safe distance until the spill is completely cleaned-up. One of these people can serve as a “monitor” and alert emergency response personnel if the spill unexpectedly results in an emergency.
3. Evaluate the risks to health, property, or the environment and confirm the “small” nature of the spill.
4. Contain the spill. This may involve increasing ventilation via fume hoods or windows if a volatile material is involved, sealing floor drains, closing doors, inactivating potential sources of ignition, etc.
5. Don appropriate personal protective equipment.
6. Control the spread of liquids. If the material is a liquid and it can spread, form a dike around the perimeter of the spill with absorbent.
7. Absorb the liquid on the interior of the dike with additional granular absorbent, spill pillows, or absorbent pads.
8. Place all absorbents into a heavy plastic bucket or bag and seal the container. Scoops, shovels, tongs, and other remote handling devices work well.
9. If the spill involves solid granular or powdered material, take care not to create dusts while scooping the material into a sealable container. So long as the material is not water-reactive, it can be misted with water to prevent dust formation.
10. Decontaminate the spill area and non-disposable equipment by thoroughly cleaning with soap and water.
11. Thoroughly wash hands, arms, face, and other potentially contaminated body parts.
12. Tag the spill residues, absorbents, and disposable equipment for collection by EHS.
13. Notify EHS of the spill so follow-up action can be initiated as necessary.

APPROPRIATE RESPONSE STEPS FOR A LARGE SPILL- In the case of imminent danger to health, property, or the environment, initiate the following action:

1. For indoor releases/spills: Leave the area and pull the fire alarm to initiate building evacuation. This will initiate notification of the La Tech Police (257-4018). Also notify your immediate supervisor and EHS (257-2120).
2. For outdoor releases/spills: Notify EHS (257-2120) and La Tech Police (257-4018). If possible to do so safely (without risk of over-exposure), take action to stop the release (i.e., shutting valves,

etc.) and prevent or minimize releases to storm sewers. Do not initiate evacuation from buildings unless otherwise advised by emergency responders.

3. Render appropriate first aid. Thoroughly wash exposed areas of the skin with soap and water.
4. Remain at a safe location near the scene and present yourself to emergency response personnel to provide information: name of the chemical released, amount, location, potential hazards of the chemical and possible secondary hazards, potential receptors, etc.
5. Follow instruction from EHS and La Tech Police.
6. Large spills and spills that occur to the environment may require reporting to regulatory authorities and other follow-up action. EHS will file necessary reports.

**POST INCIDENT REVIEW-** EHS will conduct post incident review of Level 2 or above spills in an effort to mediate the underlying causes.

[HAZMAT RESPONSE LEVELS FOR CHEMICAL SPILLS-](#) Information provided, courtesy of the LSU Department of Environmental Health and Safety

**Level 1:** Minor spill in work or lab area controlled and cleaned up by workers or lab personnel. No response by University EHS or University Police

**Level 2:** Moderate spill which causes work area personnel to be unable to control and/or clean up. Such may include accidents where large areas in the work area are impacted by debris or chemicals. Louisiana Tech University EHS will control activities with assistance from University police and perform gross cleanup. Where injuries are involved, Call 911 and University Police if needed. (Refer to NOTE under Level 3 if a serious injury is involved.)

**Level 3:** Large spill which is not a threat to the public and is contained or limited to the campus. When such spill occur, the individual shall immediately contact their supervisor and the University Police and provide as much information as possible. At a minimum, the individual should provide a description of the substance (color and texture) and any specific characteristics (odor, smoke, etc.). Such spills may require evacuation of buildings under the direction of University Police. The Louisiana Tech University Emergency Response Plan for Faculty and Staff will be activated with such spill. Hazmat will be called to assist or take control where there is need for analytical assistance, site assessment and / or manpower. Hazmat will assume role of Incident Commander with assistance from EHS and University supervision/faculty.

**NOTE:** The Louisiana State Police Right to Know Unit and the Ruston Fire Department Hazmat Unit will be contacted if there is a hazardous materials release with:

- a. the release directly causes any injury requiring hospitalization (overnight stay) or any fatality; or**
- b. the release results in a fire or explosion which could reasonably be expected to affect the public safety beyond the boundaries of the campus; or**
- c. the release exceeds the reportable quantity during any continuous 24 hour period when that reportable quantity could be reasonably expected to escape beyond the campus; or**
- d. the incident, accident or cleanup on campus could reasonably be expected to affect the public safety beyond the boundaries of the campus ( for example: evacuating its students or staff); or**

***e. We have initiated a protective action beyond the campus building or area affected (blocking public streets, etc.)***

**Level 4:** An event where a major portion of the campus is affected or the spill is a threat to the neighboring community or the environment. In this event, **The Louisiana Tech University Emergency Response Plan will be activated immediately. Individuals making the discovery should move to a safe location and then contact University Police at 257-4018. Individuals making the discovery may also contact 911 using a cell phone, 9-911 using a campus phone, then pull the fire alarm or take other appropriate emergency actions.**

**NOTE:** Containers of chemicals or chemical mixtures that may be unstable or sensitive to movement may have to be handled as a bomb. In such cases, EHS will work through University Police to have the State Police Explosives Unit respond.

## **CHEMICAL STORAGE –**

### Introduction

Ideal hazardous chemical storage would be complete isolation of each class and even isolation of some materials within a class. Practically, such isolation is not economically feasible, and it is necessary to group items so that the available space is used in the safest way. Because many compounds overlap the various classes, some doubt as to the needed storage conditions may exist. Have adequate means available to deal with spills and to safely dispose of hazardous materials.

### Flammable Solvents

- Storage conditions: Store in areas cool enough to prevent ignition even if vapors mix with air. Locate storage area away from areas of fire hazard. Eliminate all ignition sources. Allow no smoking in flammable storage areas. Storage areas shall have on site spill cleanup materials nearby. Inspect areas for deficiencies periodically. Provide adequate ventilation to prevent vapor build-up. Isolate Flammable Solvents from (a) Oxidizers; (b) Chemicals capable of spontaneous heating; (c) Explosives; (d) Materials reacting with air or moisture to liberate heat ; (e) Ignition sources

### Corrosive Chemicals

- Storage conditions: Store in cool, dry, well-ventilated areas away from sunlight. Store only in approved containers under approved conditions. Segregate acids from bases. Fire-fighting equipment shall be on hand. Treatment agents for the neutralization of spills shall be available. Storage area shall not be subject to rapid temperature changes. Structural materials shall be non-corroding or metal covered with acid-fume resistant paint. Inspect periodically for deficiencies.
- Isolate Corrosives from (a) Toxic materials; (b) Substances that may release corrosive, toxic or flammable fumes on reaction; (c) Organic materials; (d) Flammable substances (e) Uncoated structural materials



## Toxic Chemicals

- Storage conditions: Store in cool, dry, well-ventilated areas. Store away from heat and moisture and out of sunlight. Area shall be protected from contamination by acid fumes. Toxic chemicals shall be stored away from fire hazard areas. Storage area shall not contain drain to which toxicants could be flushed. Containers shall be sealed as tightly as possible. Inspect periodically for deficiencies. Storage area shall maintain integrity in event of disaster.
- Isolate Toxicants from: (a) Acids and acid fumes; (b) Other corrosives

## Oxidizing and Reducing Substances-

- Storage conditions: Store in cool, dry, well-ventilated area out of direct sunlight. Protect from extremes of temperatures and rapid temperature changes. Containers shall be tightly sealed and good ventilation provided.
- Isolate Reactive Chemicals from: (a) Organic materials; (b) Flammable solvents; (c) Corrosives; (d) Toxicants; Heat; (e) Strong sunlight
- Many normal fire-fighting procedures are not particularly effective with oxidizers, as they provide their own oxygen for combustion.

## Water and Water-sensitive Reactive Chemicals

- Storage conditions: Store in cool, dry area conforming to requirements for storing hydrogen. Building shall be waterproof. No sprinkler system shall be in building. The building shall be located on high ground and remote from other storage areas. Inspect periodically for deficiencies. Automatic detectors for flammable gases and smoke shall be provided. Ventilate well to protect from flammable gas build-up. Eliminate all ignition sources.
- Isolate Reactive Chemicals from: (a) Reactive chemicals; (b) Fire hazards; (c) Heat; (d) Moisture

## Explosives

- Storage conditions: Store in cool, dry areas protected from shock, elevated temperatures, rapid temperature changes. Magazines shall be heavily constructed, taking advantage of natural barriers. Do not store unnecessary quantities of explosives.
- Isolate Reactive chemicals from: Water and water solutions; Moist air; Aqueous acids and bases; Flammable storage areas; Reactive chemicals
- Special Precautions:
  1. Keep containers well sealed.
  2. Store under inert, non-flammable solvent where possible.

## Reactive Chemicals

- Special organics. Store in cool, dry area away from extremes in temperature. Store away from corrosives and reactive chemicals. Provide adequate ventilation. Many of these substances fall into classes already discussed and shall be treated accordingly.
- Acid or acid fume sensitive materials. Isolate from acid storage and from areas using acid. Provide adequate ventilation. Protect structured materials by coating with acid-resistant finish.
- Compressed gases. Store in cool area out of sunlight. Store upright, chained in place. Building shall be fireproof. Care shall be taken to avoid damaging valves. Avoid drastic temperature changes and high temperatures. Do not store large quantities of compressed gases in work areas. **MORE EXTENSIVE INFORMATION ON THE STORAGE AND HANDLING OF COMPRESSED GASES IS FOUND IN THE “SHOP AND SHOP/LAB SECTION OF THE PLAN”**

## HANDLING TOXIC AND CORROSIVE CHEMICALS

Because of the special dangers involved with toxic and corrosive chemicals (both of which may be related), some advice is warranted.

- Always follow the safe handling techniques in MSDS and/or the Chemical Hygiene Plan and the SOP for use of the chemical
- Don protective gear: gloves, goggles, gas-masks, air-packs, boots, aprons, whatever necessary.
- Use fume hoods or other exhaust systems
- Wash thoroughly after using.

## INCOMPATIBLE CHEMICALS

Most chemicals are incompatible with some other chemicals. Mixing of incompatible chemicals can result in dangerous and violent reactions. The MSDS for each chemical contains a list of other chemicals that that chemical is not compatible with. NEVER STORE, MIX OR DISPOSE OF INCOMPATIBLE CHEMICAL TOGETHER.

## STORAGE OF FLAMMABLE OR COMBUSTIBLE LIQUIDS CLASSES IA IB IC

### Definitions

1. **FLAMMABLE LIQUID** shall mean a liquid having a flash point below 100°F (37.8°C), having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100°F (37.8°C), and shall be known as Class I liquid. For the purpose of this standard, Class I liquids shall be subdivided as follows:

CLASS IA--includes all liquids having flash points below 73°F (22.8°C) and having a boiling point below 100°F (37.8°C).

CLASS IB--includes all liquids having flash points below 73°F (22.8°C) and having a boiling point at or above 100°F (37.8°C).

CLASS IC--includes all liquids having flash points at or above 73°F (22.8°C) and below 100°F (37.8°C).

2. **COMBUSTIBLE LIQUID** shall mean a liquid having a flash point at or above 100°F (37.8°C).

For the purpose of this standard, combustible liquids shall be subdivided as follows:

CLASS II--includes liquids having flash points at or above 100°F (37.8°C) and below 140°F (60°C).

CLASS IIIA--includes liquids having flash points at or above 140°F (60°C) and below 200°F (93.4°C).

CLASS IIIB--includes liquids having flash points at or above 200°F (93.4°C).

3. **SAFETY CAN** shall mean an approved container of not more than five gallon capacity having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure. Storage shall be limited to that required for operation of office equipment, maintenance, demonstration, treatment, and laboratory work. All liquids in laboratories and other points of use shall meet the following storage requirements:
- a. No container for Class I or II liquids shall exceed one gallon, except safety cans, which may be of two gallon capacity.
  - b. No more than 10 gallons of Class I and II liquids combined shall be stored outside of a storage cabinet or storage room, except in Safety Cans.
  - c. No more than 25 gallons of Class I and II liquids combined shall be stored in Safety Cans outside of a storage room or storage cabinet.
  - d. No more than 60 gallons of Class IIIA liquids shall be stored outside of a storage room or storage cabinet.
  - e. Quantities of liquids in excess of those set forth in this Safety Standard shall be stored in an approved inside or outside storage room.

**MAXIMUM ALLOWABLE SIZE OF CONTAINER**

CONTAINER TYPE	FLAMMABLE LIQUIDS			COMBUSTIBLE LIQUIDS	
	<u>Class IA</u>	<u>Class IB</u>	<u>Class IC</u>	<u>Class II</u>	<u>Class III</u>
Glass	1 pint	1 quart	1 gallon	1 gallon	5 gallon
Metal (other than D.O.T drums or approved plastic)	1 gallon	5 gallon	5 gallon	5 gallon	5 gallon
Safety Cans	2 gallon	5 gallon	5 gallon	5 gallon	5 gallon
Metal Drums (D.O.T. Spec.)	60 gallon	60 gallon	60 gallon	gallon 60	gallon 60

4. Flame-proof storage cabinets shall be in accordance with National Fire Protection Association (NFPA) 30, Chapter 4.
5. Quantity and classification of liquids which can be stored:
  - a. Not more than 120 gallons of Class I, Class II, or Class IIIA liquids.
  - b. Of the above total, not more than 60 gallons may be of Class I and Class II liquids.
  - c. No more than three cabinets can be located in a single room unless every group of three IS separated by 100 feet or more.
6. Tank Storage of flammable or combustible liquids, above or below ground and in any quantity, shall meet NFPA 30, chapter 2 through chapter 9 and all codes set forth by the local authority having jurisdiction .The Office of Environmental Health and Safety shall be contacted when any storage tank is being considered for campus use.

**ASBESTOS HANDLING AND DISPOSAL**

The public is often confused about asbestos. Asbestos is a mineral rock mined from the earth in much the same ways as other minerals such as iron, lead, and copper however, instead of crushing up into dust particles, asbestos divides into millions of fibers. These fibers come in three common varieties: chrysotile, amosite, and crocidolite. All three varieties exhibit substantial resistance to heat and chemicals and thus have been used for many commercial and industrial purposes. In fact, asbestos has been used in more than 3,000 products.

While the asbestos industry started in the 1870s, it became more prevalent in the U.S. in the 1940s, where it was widely used in ships during World War II. After the war, asbestos use expanded to include use for acoustical and decorative purposes, especially in buildings. Additionally, it was sprayed or trowled on steel members of buildings as a fire proofing material.

More than half of the multi-story buildings constructed during the 1950 period contain some form of asbestos material within. Accordingly, the Environmental Protection Agency (EPA) and subsequently the Louisiana Department of Environmental Quality (DEQ) have developed strict regulations regarding the use, removal, and disposal of asbestos and asbestos containing material.

Removal and disposal of asbestos and/or asbestos containing material is a very exacting process and must be done only by individuals who have been specially trained and certified to perform such tasks.

Presently, Louisiana Tech University Physical Plant has the trained and certified personnel to perform such work. Anticipated work that might involve asbestos or asbestos-containing material shall be coordinated through Physical Plant or the Environmental Health and Safety Department. The above is true even if it is only suspected that asbestos could be involved.

Removal of materials such as floor tiles, acoustical ceiling tiles, ceiling and wall plaster, insulated pipes, or removal of insulation from pipes or any sprayed or trowled on material within a building is not acceptable unless done by Physical Plant's trained and certified workers.

If a building occupant suspects asbestos problems, i.e. dust or fallen material on floors, exposed pipe insulation, etc., he or she shall report it to Physical Plant or Environmental Health and Safety Department.

The presence of asbestos-containing materials does not mean the health of building occupants is endangered. If asbestos-containing materials remain in good condition and are unlikely to be disturbed, exposure will be negligible. However, when fibers are released, they can create a potential hazard for building occupants.

Remember, indoor levels of airborne asbestos fibers are 10,000 to 100,000 times lower than levels in asbestos industry workplaces where asbestos related diseases have been well documented.

**EMPLOYEES SHOULD CONTACT THE EHS IF THEY ENCOUNTER ANY SUSPECT ASBESTOR-CONTAINING MATERIAL. UNDER NO CIRCUMSTANCES SHOULD ANY EMPLOYEE HANDLE OR DISTURB THIS MATERIAL UNLESS PROPERLY TRAINED AND WITH THE APPROVAL OF THE DIRECTOR, EHS.**

## CHEMICAL INVENTORY REDUCTION AND CHEMICAL WASTE REDUCTION RULES

### **WASTE COSTS**

The cost to dispose of hazardous chemical waste will often exceed the original purchase price of a chemical or chemical product. The Office of Environment Health, and Safety encourages waste generators to use waste reduction techniques. If followed, the techniques listed below will help reduce the volume of waste, which will have a corresponding effect on the cost of disposal. In addition to disposal costs, there are fines from regulatory agencies for not properly handling waste materials. These fines can be as much as \$10,000 per day, and are closely tied into storage and labeling guidelines.

## **PURCHASING**

Purchase chemicals to match anticipated needs. This aspect of waste and cost reduction is frequently overlooked. A substantial portion of hazardous waste generated at Louisiana Tech University consists of chemicals that are in original containers, and are unused or of questionable purity due to previous use. Projected savings from purchasing chemicals in a larger size are often offset by costs for disposal of unused portions of larger bottles, especially those with a limited shelf life. It may not be possible to exactly determine future needs, but any effort will be beneficial.

## **CHANGE PROCEDURES**

A procedure which uses a hazardous substance can often be modified to lessen the hazard or amount of waste products resulting from that procedure. In many cases, a less hazardous material can be substituted and perform as well. An example is substituting a commercial lab glass cleaner (e.g. NOCHROMIX) in place of chromic acid cleaning solution. The resulting mixture is still hazardous because of its corrosive properties, but has no toxic chromium and can therefore be neutralized. Reactive substances--those that react with water or air or are unstable--are especially troublesome disposal items. Disposal costs associated with picric acid, for example, can be as much as ten times the original purchase price.

## **UNKNOWNNS**

Unknowns are difficult and expensive to dispose. Unknowns can be prevented by good record keeping and labeling, which includes designation of constituents and percentages. If unknowns are found, the responsible department must make every effort to identify the material. If this is not possible, then the responsible department will be billed for the cost of identification or classification required for disposal of the unknown chemical, in addition to disposal costs.

## **RECYCLING**

Chemical recycling is possible if material is in unopened containers or partially used original containers and of high quality. Be careful not to obliterate any parts of labels. Chemicals and chemical products should not be given or sold to the general public or offered as surplus property. Commercial chemical products may be offered for surplus if reasonable cautions are followed.

## **SEGREGATE**

Segregate wastes as much as possible. Mixing a low-cost disposal item with a higher one makes the entire lot a higher-cost item.

## **HAZARDOUS CHEMICAL MANAGEMENT AND DISPOSAL PLAN**

Similar to the strict environmental legislation imposed on industrial corporations the university community is confronted with the regulation of emissions, discharges, and waste generation. As a result, federal and state environmental agencies are monitoring college campuses to assure compliance to the imposed regulations. Particular emphasis is being placed upon the generation, storage, and disposal of hazardous chemical waste. Consequently, to minimize potential health and environmental impacts, and to comply with current federal and state hazardous waste regulations, Louisiana Tech University has developed this Hazardous Chemical Management and Disposal Plan.

## HAZARDOUS CHEMICAL MANAGEMENT AND DISPOSAL TRAINING

Numerous regulations exist mandating training and notification programs for employees at RCRA hazardous waste management facilities. For example, under EPA regulations, all generators are required to conduct training programs to familiarize employees involved with hazardous waste operations with the proper chemical waste handling and disposal procedures. In addition, Occupational Safety and Health Administration (OSHA) standards 29 CFR 1910 and 1200 require that all employees involved in hazardous waste operations be informed of imminent hazards (29 CFR 1910). State regulations also require documented retraining on an annual basis. To comply with these requirements, Budget Unit Heads, with the assistance of, the Louisiana Tech University Environmental Health and Safety Department (EHS) provides hazardous chemical management training seminars.

Communication of the Louisiana Tech University Hazardous Chemical Management Plan procedures through training seminars has the dual purpose of informing university personnel of plan procedures and operations, while allowing feedback from university personnel.

**It is the intent of EHS that all personnel who generate hazardous chemicals attend an annual documented training seminar. EHS will only accept chemical waste from those personnel who have satisfied the annual training requirements.**

During the introductory stages of program implementation, training seminars will be presented on a Budget Unit basis. Annual retraining sessions will also be offered on a Budget Unit level. The Budget Unit will maintain and update training records on all individuals who have attended the training seminar and send copies of this documentation to EHS. If questions arise concerning training records, please contact the individual Budget Units or EHS.

## USES OF THE ANNUAL CHEMICAL INVENTORY IN HAZARDOUS CHEMICAL MANAGEMENT AND DISPOSAL

The annual chemical inventories that are prepared by individual Budget Unit Heads and submitted to EHS enables the Environmental Health and Safety Department to perform the following functions:

- to isolate particularly hazardous chemicals,
- to identify substances that warrant specific disposal procedures,
- to identify excess and unused chemicals, and
- to maintain a perpetual inventory of departmental chemicals.

**IDENTIFYING AND DISPOSING OF CHEMICALS AND CHEMICAL WASTE FROM OFFICES AND OTHER LIMITED USE AREAS-** Section, Courtesy of Linfield College

Virtually all University employees use some chemical-containing products in their jobs. In offices and many other areas of the University, these products are the same as those found in homes. **Most of these chemical-containing products do carry with them, some risk, and the user MUST follow the handling and disposal requirements that are listed on the product labels.**

Environmental regulations allow homeowners greater leeway in **disposal** of materials than in the workplace environment. **What people are used to legally throwing away at home may not be legal to do at work.**

**Aerosol Cans**

All aerosol cans are considered hazardous waste until completely empty and punctured. Cans can be picked up as with other hazardous wastes by EHS.

**Office Products**

In the past, correction fluid ("white-out"), duplicating fluid, glues, and various thinners for these products were extensively used in offices. With the advent of word processing systems and photocopiers, the use of these solvent-based products has decreased. Containers that are not completely dry are typically hazardous waste when disposed. In addition, toner fluid (for copiers and printers) may be hazardous, depending on constituents. Inks used for stamp pads or certain pens are typically hazardous. These should be disposed of as hazardous waste.

**Cleaning Products**

Many cleaning products in concentrated form have a high or low enough pH to qualify as hazardous waste. when getting rid of old or outdated stocks. In addition, many cleaning products contain solvents which may be classified as hazardous waste when disposed. Most diluted product can be disposed on in a sanitary drain. **CONSULT THE MSDS OR PRODUCT LABEL FOR DISPOSAL INFORMATION.**

**Rags**

Rags which are to be used for solvent-based purposes should be purchased, when possible, through a laundering service which includes laundering the rags. If this is not feasible, rags with flammable solvents or hazardous constituents should be collected in flammable rag containers and disposed as hazardous waste.

**IDENTIFYING AND DISPOSING OF CHEMICALS AND CHEMICAL WASTE FROM VEHICLE MAINTENANCE SHOP , PAINT SHOP, AND OTHER AREA WHICH USE CHEMICALS SIMILAR TO THOSE USED IN THESE AREAS**

Lubricants, gasoline, solvents used for cleaning and paint in liquid form must be stored, handled, and disposed of as all other hazardous chemicals.



## IDENTIFYING HAZARDOUS WASTE

All personnel generating chemical waste must determine if the waste is hazardous by considering the characteristics and chemical composition of the waste. If a university member has any question as to the classification of a particular chemical waste, the substance shall be retained for evaluation by the Louisiana Tech University Environmental Health and Safety Department.

A current listing of all hazardous wastes can be found in 40 CFR 261, which classifies waste under two categories:

1. Category I wastes include known chemicals and process streams whose hazardous nature has been prescribed by prior determination. Wastes listed in this section will fall under one of the following classifications:
  - nonspecific source wastes (F-wastes, 40 CFR 261.31), . specific source wastes (K-wastes, 40 CFR 261.32), or
  - commercial chemical products (acutely toxic P-wastes and toxic U-wastes, 40 CFR 261.32(e) and (t), respectively).
2. Category II wastes include wastes designated as hazardous based on classical analytical procedures. The four hazardous waste categories for these wastes include ignitability, corrosivity, reactivity, and toxicity.

If a waste is listed under Category I, or it exhibits anyone of the characteristics listed under Category II, it must be handled through the Louisiana Tech University hazardous waste disposal system. In addition, if an unknown material cannot be identified by either prior knowledge of the process which produced it, or by a proper label, it must be analyzed. **THE COST OF ANALYSIS IS THE RESPONSIBILITY OF THE DEPARTMENT GENERATING THE WASTE.**

Any mixture of a hazardous waste and a solid waste is deemed hazardous if the hazardous waste is a listed waste (Category I) or if the mixture exhibits any of the four characteristics designating a Category II waste.

### Characteristic of Ignitability

The EPA chose the characteristic of ignitability to identify wastes that could potentially ignite during storage, transport, or disposal. A "solid" waste (a term including solid, semi-solid, liquid, or contained gaseous materials) that exhibits the characteristic of ignitability, but is not listed as a hazardous waste under 40 CFR 261 (i.e., a Category I waste), has an EPA hazardous waste number of D001. A waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties (40 CFR 261.21):

- it is a liquid that has a flash point less than 60°C (140°F),
- it is a non-liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes, and when ignited, burns so vigorously and persistently that it creates a hazard, or
- it is an ignitable compressed gas or oxidizer (49 CFR 173).

### Characteristic of Corrosivity

The EPA chose the characteristic of corrosivity because wastes with low or high pH react dangerously with other wastes. A solid waste that exhibits the characteristic of corrosivity, but is not listed as a hazardous waste under 40 CFR 261 (i.e., a Category I waste), has an EPA hazardous waste number of D002. A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has the following property (40 CFR 261.22):

- it is an aqueous solution (i.e., dissolved in water) with a pH less than or equal to 2 or greater than or equal to 12.5.

### Characteristic of Reactivity

The characteristic of reactivity was chosen due to the potential for explosion during transportation, storage, or disposal. A solid waste that exhibits the characteristic of reactivity but is not listed as a hazardous waste under 40 CFR 261 (i.e., a Category I waste), has an EPA hazardous waste number of D003. A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties (40 CFR 261.23):

- it is normally unstable and readily undergoes violent change without detonating,
- it forms potentially explosive mixtures with water,
- when mixed with water, it generates toxic gases in a quantity sufficient to present danger to human health or the environment,
- it contains cyanide or sulfide which, when exposed to pH conditions between 2.0 and 12.5, can generate toxic gases,
- it is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

### Characteristic of Toxicity

A solid waste exhibits the characteristic of toxicity if the extract from a representative sample of the waste contains any of the contaminants listed in Table 1 at a concentration greater than the regulatory limit. EPA hazardous waste numbers D004 through D043 correspond to the toxic contaminant causing the sample to be hazardous.

The EPA has selected the Toxicity Characteristic Leaching Procedure (TCLP) as the method for determining the characteristic of toxicity. The procedure (reference 40 CFR 261, Appendix II) is designed to identify wastes likely to leach hazardous concentrations of particular toxic constituents into the ground water as a result of improper management (U.S. Env. . . , 1989a). The TCLP is a complicated analytical procedure costing between \$750 and \$1000 per test (Wray, 1992) and is seldom performed in the university environment.

## MINIMIZING HAZARDOUS WASTE

Waste generation at the source has become the primary goal of the University. Consequently, waste minimization is an integral part of the Louisiana Tech University Hazardous Chemical Management Plan. Waste minimization is defined as:

“any source reduction or recycling activity that results in either reduction of total volume of hazardous waste or reduction of toxicity of hazardous waste, or both, as long as that reduction is consistent with the general goal of minimizing present and future threats to human health and the environment “

The most effective means to reduce or eliminate the need for and cost of hazardous waste disposal is to limit or eliminate the processes that generate the waste. The following reduction options (i.e., reducing the quantity of hazardous chemicals used) are recommended to reduce the generation of hazardous wastes:

- Use alternate chemicals which do not require treatment as hazardous waste when discarded (e.g., using alcohol or digital thermometers in place of mercury thermometers).
- Adopt prudent purchasing practices (i.e., order only what is needed). For some hazardous chemicals, disposal costs are frequently more than the original purchase price. Bulk purchases of hazardous chemicals offer no savings if the unused stock is given up for disposal (Stillman, 1991).
- Maintain a current chemical inventory to prevent the purchase of hazardous chemicals that may already be in stock.
- Reduce the size of laboratory experiments to decrease the amount of waste produced.

Recycling of unused chemicals can also reduce the amount of hazardous waste requiring disposal. The following recycling practices can significantly reduce the generation of hazardous wastes:

- Determine if surplus or unused hazardous chemicals can be used by another person or department.
- Look internally before purchasing additional chemicals.

Upon completion of the proposed Environmental Health and Safety complex, the purchase, distribution, and recycling of on-campus chemicals will be controlled through a centralized stockroom. Until that time, each individual utilizing hazardous chemicals is responsible for initiating the practices listed above. The Louisiana Tech University Environmental Health and Safety Department welcomes any questions or recommendations pertaining to hazardous waste minimization.

## ON-SITE TREATMENT AND DISPOSAL OF HAZARDOUS CHEMICAL WASTE

In addition to reduction and recycling, on-site treatment reduces the amount of hazardous waste requiring disposal. Many chemical wastes which are unable to be used by other departments (i.e., non-recyclable), can be detoxified within the laboratory by qualified users, then discharged to the sanitary sewer. For example, neutralization of pure acids and bases, followed by disposal to the sanitary sewer system, is the simplest form of on-site treatment

Unfortunately, detoxification procedures are beyond the ability of most university departments. For this reason, the Louisiana Tech University Environmental Health and Safety Department prohibits the implementation of detoxification procedures without prior EHS Departmental consent.

## LABELING, COLLECTING AND STORING HAZARDOUS CHEMICAL WASTE

Each Budget Unit generating hazardous chemical waste must create a dedicated "satellite accumulation area." Besides providing a controlled storage location for hazardous chemicals, satellite accumulation eliminates the case-by-case pickup of wastes needing disposal. Setup of each accumulation area will be done by the Budget Unit Head and coordinated with the Environmental Health and Safety Department according to departmental waste stream activities.

Numerous requirements exist for containers located in satellite accumulation sites, to include container labeling, Storage, and collection procedures.

### Container Requirements

To standardize the containerization of hazardous chemical waste, specific hazardous waste storage containers are available through state contract. The following specification identifies the characteristics ~ of these containers:

- 1-gallon storage containers
  - a. Rigid high density polyethylene construction
  - b. Rectangular with screw-on cap and molded handle (i.e., F-style)
  - c. For Storage of corrosive liquids
  - d. White or clear color
- 5-gallon storage containers
  - a. Rigid high density polyethylene construction
  - b. Precision molded in one piece
  - c. For storage of corrosive liquids
  - d. Shall include non-corroding all-plastic swing handle (retractable) in top head and a bottom hand grip
  - e. Shall be stackable
  - f. Shall include 2.5 inch screw cap with a 0.75 inch combination thread . 11.5 inch diameter by 14.5 inch height (i.e., cylindrical)
  - g. White or clear color

Hazardous chemical waste containers must conform to the following requirements to enable pickup by the Environmental Health and Safety Department:

- All containers must be kept in the designated accumulation area as registered with the Louisiana Tech University Environmental Health and Safety Department.
- All containers shall remain closed at all times, except when adding waste. This will prevent release of the waste if the container was to fall on its side.
- All containers should be compatible with its contents (e.g., acid should not be stored in metal containers). Hazardous chemical waste must not be placed in unwashed containers.
- All containers shall be in good condition (i.e., no apparent structural defects, leakage, etc.) with a clean outer surface.
- All containers shall be less than or equal to 5-gallon capacity, filled to no more than 90 percent capacity, to promote safety during transport.

#### Container Labeling Requirements

Accurate labeling of hazardous waste containers is essential to enable the efficient and safe collection of containers by EHS Department representatives. In addition to identifying the container contents, the label identifies the disposal method required after collection. Containers that have lost their labels must be treated as unknowns requiring analytical testing at the expense of the responsible department. The following labeling instructions apply for each hazardous waste container located at a satellite accumulation area:

- A properly filled out "hazardous waste identification tag" (available through the Environmental Health and Safety Department) must be securely attached before introducing waste into the container. The tag must remain clearly visible at all times and shall include the following information:
  - person responsible for contents (i.e., person most familiar with the waste), . telephone, building name, and office number of responsible person,
  - complete chemical name (chemical formulas, abbreviations, or trade names are prohibited), and
  - volume percent total (i.e., the percentage of each chemical type stored in the container).
- If only one type of waste is stored in a container, the volume percent total will be 100 percent. This will be the most common collection method for most satellite accumulation areas. In contrast, collection of multiple compatible wastes in the same container will require modification of the volume percent. Waste tags for collecting multiple compatible wastes may be completed in pencil to allow for additions.
- Labels should be clearly printed using indelible ink pen (i.e., no pencils, markers, or cursive writing), except for compatible waste collection, as described above.
- If a waste is accidentally deposited into the wrong container, note the chemical composition of the added waste, the approximate volume of the added material, and the date it was deposited in the container.

### Container Storage and Collection Requirements

The following requirements apply to each satellite accumulation area:

- To minimize the amount of hazardous chemical waste stored at a satellite accumulation area, it is requested that a hazardous chemical pickup be scheduled monthly. A Request for Disposal form shall be completed and submitted to the EHS Department a minimum of 2 weeks prior to this deadline. Completion instructions are included on the second page of the form.
- No more than 55 gallons of hazardous waste or one quart of acutely hazardous waste shall be stored at a satellite accumulation area. A Request for Disposal form shall be submitted to the Environmental Health and Safety Department before the amount of waste reaches this level. Identification of acutely hazardous wastes will be established by the Environmental Health and Safety Department during the initial satellite accumulation site setup.
- The storage areas must be secured to prevent inadvertent access (i.e., locked when unattended). This will prevent inadvertent use of designated containers by other areas.
- Wastes must be compatible with other wastes and hazardous materials in the same area. Incompatible wastes such as strong acids and strong bases must be separated.
- Each satellite accumulation area must be checked weekly by the individual responsible for that site. The inspector shall check for container deterioration, leaks, compatibility with contents, and proper labeling.

Adherence to these requirements will promote the safe storage of hazardous chemical waste, and satisfy state hazardous waste regulations. The State of Louisiana Department of Environmental Quality has the right to inspect any satellite accumulation area on campus at any time. If such an inspection were to occur, violation of any of these requirements would result in substantial fines to the university, as a direct consequence of departmental inaction.

### Introducing Waste Into the Louisiana Tech University Hazardous Waste System

Once a waste container approaches 90 percent of its volume, a chemical pickup should be requested by submitting a Request for Disposal form to the EHS Department at Campus Box 22. A sample Request for Disposal form and instructions are included in the "Forms" section. A waste pickup cannot be scheduled until an acceptable Request for Disposal form is submitted.

In addition to the departmental name and contact, the following waste information is required on the form:

- complete unabbreviated chemical name of the waste,
- physical state of the waste (i.e., solid, liquid, or gas),
- pH, if the waste is an aqueous liquid (i.e., dissolved in water),
- number, size, and type of containers,
- volume or weight in container,
- total weight of each waste in pounds, and
- signature of the responsible faculty or staff member.

Prior to a waste pickup, verify:

- that the form is completed in accordance with departmental instructions,
- that the location of the waste is listed as a satellite accumulation area in Environmental Health and Safety records, and
- that the individual signing the form has been trained or retrained within the previous twelve months.

If any of the conditions are not met, the EHS Department will contact the responsible faculty or staff member, or return the form to that individual with a note explaining the problem

Environmental Health and Safety representatives will pick up the waste within two weeks of receiving a correctly completed Request for Disposal form. Prior to this date, the responsible faculty or staff member shall assure that the hazardous waste identification tag has been completely filled out, as described in the section titled "container labeling requirements." The information included on the Request for Disposal form should include all information listed on the hazardous waste identification tag.

#### Special Notes to University Personnel Producing Hazardous Wastes

- **When in doubt, call the Environmental Health and Safety Department:** Situations undoubtedly arise which are not covered in this manual. When this occurs, immediately contact the Environmental Health and Safety Department at 257-2120.
- **Penalties for the illegal disposal of hazardous chemical waste:** Currently, the solid waste and sewer systems at Louisiana Tech University are routinely monitored for hazardous waste constituents. Federal and state regulatory agencies are authorized to seek civil or criminal penalties for illegal disposal of hazardous chemical waste. Individuals guilty of such violations can be brought to court and face mandatory penalties as well as imprisonment.
- **Satellite accumulation considerations:** Although waste may be accumulated at a satellite accumulation site until the total waste accumulation reaches 55 gallons, it is recommended to request a monthly waste pickup, as a minimum. A regular monthly pick-up schedule will enhance safety by minimizing the quantity of waste on-site at any time.
- **Plan ahead for waste pickups:** In addition to accuracy, it is equally important to submit timely Request for Disposal forms. This will prevent exceeding the Storage limit and promote safety at the satellite accumulation site.
- **Label your waste completely:** Environmental Health and Safety Department representatives sent to pickup hazardous chemical waste rely on the neatness and accuracy of the information included on the hazardous waste identification tag and the Request for Disposal form. It is up to the responsible faculty or staff member to complete these items as carefully and conscientiously as possible. The incorrect or illegible labeling of any substance could result in injury to Environmental Health and Safety personnel.
- **Guidelines for completing the Request for Disposal form:** Instructions for completing the Request for Disposal form can be found in the Guidelines For Waste Disposal, which appear on the back of each form. The Environmental Health and Safety Department prefers that the forms

not be copied and that a supply of blank forms be obtained from our office. However, if the forms are duplicated by individual departments, it is important that both the front and the back of the form are copied (Env. Health. . . , 1991).

- **Disposal of empty chemical containers:** Empty containers of waste, commercial products or ~ chemicals can be disposed of in the dumpsters if no free standing liquid remains in the containers and all disposal requirements noted on the label are complied with. Pesticide containers must be triple rinsed and perforated on both ends prior to disposal.
- **Disposal of medical waste:** Management of medical waste at Louisiana Tech University is regulated by the Louisiana Tech University Exposure Control Plan for Bloodborne Pathogens, under the direction of the Louisiana Tech University Environmental Health and Safety Department.

#### Emergency Response to Hazardous Waste Spills

**The response to a hazardous waste spill is the same as with any other chemical spill (See instructions in this Section)**