

VII. Environmental Programs

The Environmental Section of EHS encompasses many duties and several specific programs which manage the environmental impact of University activities. Strictly regulated by the Louisiana Department of Environmental Quality (LADEQ) and closely scrutinized by local inspectors, the campus community, and the general public; the Environmental Section must maintain compliance with local, state, and federal laws concerning environmental protection. Established programs that help maintain compliance are the Hazardous Waste Program, the Management of Asbestos Containing Material, Emergency Response and Water Quality. These programs manage hazardous activities and situations to minimize the impact on campus life.

A. Hazardous Waste Management Guidelines

The University is required to manage hazardous wastes in a safe and environmentally sound manner by federal, state, and local regulations. A generator of hazardous waste is responsible for following University guidelines concerning management and disposal of hazardous waste within a laboratory, shop or service area.

Title 33, Part V of the Louisiana Administrative Code is the state response to the federal Resource Conservation and Recovery Act (RCRA) which governs how hazardous waste will be handled and disposed of by generators. Under this code the Baton Rouge Campus is classified as a “large quantity generator” of hazardous waste. As a large quantity generator, LSU must strictly comply with the following requirements. All employees who generate hazardous waste in the course of their duties must:

I. Determine if the Material Is A “Hazardous Waste”

A waste or unwanted chemical must be managed as a hazardous waste if it exhibits hazardous characteristics or is specifically listed in federal or state regulations.

a. Characteristics of Hazardous Waste

On the basis of criteria set forth by the Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LADEQ), chemical waste is considered hazardous if it exhibits any of the following characteristics:

1. Ignitability(D001)
 - a. Liquids, other than aqueous solutions containing less than 24% alcohol by volume, that have a flash point below 60° C (140° F).
 - b. Non-liquids that are capable of causing fire by friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burn vigorously and persistently to create a hazard.
 - c. Flammable compressed gases.

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- d. Oxidizers such as chlorates, permanganates, inorganic peroxides, or nitrates that yield oxygen readily to stimulate the combustion of organic matter.
2. Corrosivity(D002)
- a. Aqueous solutions that have a pH equal to or less than 2 or equal to or greater than 12.5. However, wastes with pH ranges 2-6 and 11-12.5 are also managed as hazardous waste because of sewer discharge regulations and SARA Title III requirements.
 - b. Liquids capable of corroding SAE 1020 steel at a rate greater than 6.35 mm/year at 55° C.
3. Reactivity(D003)
- a. Substances that react with water violently or produce toxic gases or explosive mixtures.
 - b. Substances that are unstable.
 - c. Explosives.
 - d. Substances that contain cyanide or sulfide that generate toxic gases when exposed to a pH in the range between 2 and 12.5.
4. Toxicity
- a. A solid waste containing the contaminants listed in the following table at or above the maximum concentration listed when tested by TCLP.

EPA Waste Number	Contaminant	Max Concentration (mg/L)
D004	Arsenic	5
D005	Barium	100
D006	Cadmium	1
D007	Chromium	5
D008	Lead	5
D009	Mercury	0.2
D010	Selenium	1
D011	Silver	5
D012	Endrin	0.02
D013	Lindane	0.4

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D014	Methoxychlor	10
D015	Toxaphene	0.5
D016	2,4-D	10
D017	2,4,5-TP (Silvex)	1
D018	Benzene	0.5
D019	Carbon tetrachloride	0.5
D020	Chlordane	0.03
D021	Chlorobenzene	100
D022	Chloroform	6
D023	Cresol, o-	200
D024	Cresol, m-	200
D025	Cresol, p-	200
D026	Cresol	200
D027	Dichlorobenzene, 1,4-	7.5
D028	Dichloroethane, 1,2-	0.5
D029	Dichloroethylene, 1,1-	0.7
D030	Dinitrotoluene, 2,4-	0.13
D031	Heptachlor (and its epoxide)	0.008
D032	Hexachlorobenzene	0.13
D033	Hexachlorobutadiene	0.5
D034	Hexachloroethane	3
D035	Methyl ethyl ketone	200
D036	Nitrobenzene	2
D037	Pentachlorophenol	100
D038	Pyridine	5
D039	Tetrachloroethylene	0.7
D040	Trichloroethylene	0.5
D041	2,4,5-Trichlorophenol	400

D042	2,4,6-Trichlorophenol	2
D043	Vinyl chloride	0.2

b. Listed Hazardous Waste

EPA and LADEQ regulations also list approximately 450 commercial or off-specification chemicals, waste streams, or their spill residues which must be handled as hazardous wastes due to their acute or chronic toxicity.

For a list of these chemicals see Appendix

c. Other Criteria

EHS has chosen to manage as hazardous waste certain chemicals which may not technically be considered hazardous waste under the hazardous waste regulations. Such chemicals have sufficient mutagenic, teratogenic, carcinogenic, or reproductive hazards that they warrant such special handling (e.g., ethidium bromide). In general, waste streams containing greater than 1 ppm of these wastes should be sent through the Hazardous Waste Program.

II. Properly Label Waste Containers

- a. Label each bottle with the words “Hazardous Waste,” and the exact contents of the bottle (include percentages and water content). Labels are available from EHS and can be found on our web site.
- b. Indicate the accumulation start date.
- c. Include your name, department, phone number, room(lab), and building.

III. Keep Waste in Compatible Containers and Closed at All Times

- a. Containers and lids must be compatible with the waste chemicals stored in them.
- b. Keep waste containers closed at all times except when adding or removing waste.

IV. Store and Containerize Incompatible Waste Separately

A compatibility chart is located in the appendix.

V. Use Pollution Prevention Techniques to Reduce the Amount of Hazardous Waste Generated

- a. Use microscale techniques, nonhazardous chemical substitutes, or process modification to reduce the amount of waste generated.
- b. Contact your peers, professional organizations, or vendors to learn about the latest pollution prevention techniques.
- c. Share unused chemicals within your department. Do not dispose of hazardous waste by evaporation, sewer or trash

- d. Train your employees and students in pollution prevention techniques.
- e. Use the Chemical Redistribution Program to recycle or reuse unused chemicals.

VI. Waste Collection Procedures

The following procedure shall be followed in order for your waste to be collected by EHS in a prompt, effective and safe manner.

- a. Waste must be labeled and containerized properly.
- b. Waste pickup requests must be submitted using the Online Request, the link will be found on the LSU EHS website.
- c. The Hazardous Material Transfer form will be signed by the generator of the waste. Records will be retained electronically.

B. Hazardous Waste Management Facilities & Programs

1. The Hazardous Material Control Center (HMCC)

The Hazardous Materials Control Center is located at 2719 Gourrier Avenue, southeast of the Baton Rouge Campus. The building is set on ~2 acres of bordered by Gourrier Avenue on the south, pasture land on the west, the Civil Engineering Pilot Scale Kiln & Petroleum Engineering Well Facility on the north, and a small bayou on the east. This site is also ~500 yards from the Mississippi River.

The building contains an office/laboratory and individual storage areas that total ~3750 square feet. The building was designed to eliminate the possibility of waste being released from the building in the event of a fire or spill.

The HMCC is allowed by the EPA to store hazardous waste for only 90 days. This means that waste must be moved from the facility every 90 days. Waste is collected from the LSU personnel by EHS for ultimate disposal. A Hazardous Waste Coordinator uses a vehicle designed to carry hazardous materials to collect waste from campus departments or buildings and stores the material until a waste disposal contractor is hired to remove the waste from the campus. The Hazardous Waste Coordinator is trained under the OSHA HAZWOPER regulations and holds a Commercial Drivers License (CDL) for transporting hazardous materials.

Waste collected by EHS is commingled into larger drums or shelved with other compatible materials based on the on information provided by the generator. (Label)

The facility is regulated by the LADEQ and the EPA as a Treatment, Storage, Disposal Facility(TSDF) and has completed numerous inspections by LADEQ.

2. Biomedical Waste Management

Biomedical Waste materials are generated throughout the campus in various departments. Three (3) department have a shared responsibility for disposal of the waste.

The Student Health Center collects, stores, and disposes of medical waste generated at its facility as well as other departments.

The School of Veterinary Medicine collects, stores, and disposes of waste generated in teaching labs and research ongoing at its facility.

EHS collects, stores, and disposes of biomedical waste generated in research labs not associated by the SVM or the SHC.

All biomedical waste shall be properly containerized, labeled, and then notify one of the facilities listed above for pick up or drop off.

3. Recycling Program

- a. Used Oil Recycling
EHS collects and stores used oil and other petroleum production for recycling. A local recycler converts the used oil into a useful product for sale.
- b. Fluorescent bulb recycling
EHS manages used fluorescent lamps as universal waste and sends all lamps and bulbs to a mercury recycler.
- c. Battery recycling
EHS manages used batteries as universal waste and recycles the following types of batteries: nickel cadmium (Ni-Cad), nickel metal hydride (Ni-MH), lithium, sealed lead acid, alkaline, and mercury.
- d. Lead Waste Recycling
Lead containing waste can be recycled at a local smelting facility. Used lead acid batteries and lead waste from other campus operations are shipped to this facility.

C. Management of Asbestos Containing Materials

The management of asbestos containing materials (ACM) located in campus buildings is regulated by the state Department of Environmental Quality. Specifically, Chapter 27 of the Air Quality Regulations covers all activities in schools and state owned buildings regarding asbestos containing materials. Additional information on asbestos may be found in section V of this manual. The following guidelines must be followed when handling ACM.

1. Rules for The Proper Handling of Asbestos Containing Material(ACM)

- a. Only authorized persons can handle asbestos containing material. State regulations mandated that employees must be training and accredited to perform asbestos work.
- b. Suspect material that may contain asbestos, should not be touched. Contact EHS or Facility Services and a training and accredited inspector will assess the situation for potential hazards.
- c. Prior to renovation or demolition activities EHS shall be consulted to determine if asbestos materials are present.

- d. EHS has oversight of occupational and environmental exposure to asbestos. As such EHS is the point of contact (liaison) with the LADEQ to ensure compliance with OSHA and DEQ regulations.
- e. Facility Services maintains the University Asbestos Operation and Maintenance Plan, including periodic surveillance. Periodic surveillance (PS) must be completed every six (6) months for all areas of the campus. PS consists of a visual inspection of all asbestos containing materials to note any change in condition of the material.
- f. Building Coordinators ensure that potential asbestos problems are reported to EHS and Facility Services in a timely fashion.

2. Construction Document Review and Contractor Notification

- a. When contractors perform work on campus they may come into contact with asbestos containing materials. It is the University's responsibility to properly communicate the potential risk to the contractors prior to the start of work. The University must inform the contractor about the location of all asbestos in the work area. This information is communicated with the following forms.

Construction Document Review Forms and Contractor Notification Form see appendix

3. Management Plans

- c. Inspections have been performed in all University buildings identifying ACM. This information is contained in Management Plan Documents. These documents are housed in the EHS office and at Facility Services. The Management Plans are updated after every asbestos activity. All employees have a right to view the information for their work area.

4. Employee Training

- a. EHS also provides 2hour Asbestos Awareness Training for all employees as directed by state and federal regulations. Asbestos Awareness Training covers information about asbestos and its origins, health effect of exposure, proper identification techniques, University policy and O & M Plans, and emergency response. This ensures that all employees can protect themselves from unnecessary exposure to asbestos environments. This level of training does not permit an employee to handle ACM in any circumstance. Working with asbestos require advanced training as described below.
- b. Employees who work with asbestos on a routine basis require additional training. The training may be for 8 to 40 hours depending on the level of exposure and type of activities involved in the task the employee is required to perform.

D. Water Quality

Water Quality is strictly regulated by the LADEQ. Any discharge into a body of water of into the sanitary sewer may result in damage to the ecosystem and enforcement actions by the state. Some discharges are allowed, but only when properly approved by the state through the

permit process. LSU is permitted to discharge sewer waste to the city parish sewer system. LSU is also permitted to discharge wash water into a local bayou by the LADEQ.

1. Permit Management

a. City Sewer Discharge Permit Management

LSU is the largest user of water and the largest discharger of waste in the parish. Sanitary sewer waste is discharged off campus into city parish sewage treatment facilities. The waste sent off campus is routinely monitored by LSU and City Parish employees to insure that only normal sewage is being discharged. Waste must fall within a set-criteria when it reaches the treatment plant. Waste falling outside the established limits will be surcharged; or in other words, the University will be fined. A current discharge permit is included in the appendix.

b. State Discharge Permit – Landscape Services

LSU is permitted to discharge wash water from landscaping operations into a local bayou by the LADEQ. LSU applied for and was granted a Louisiana Water Discharge Permit (LWDP) for landscape services. This permit only allows discharge which meets a strict-criteria. The discharge must be sampled and tested quarterly by LSU to insure that the discharge falls within the regulatory requirements. A copy of the LWDP is located in the appendix.

E. Radiation

Radiation Protection in University Facilities is managed by the Office of Radiation Safety. ORS is located in the Nuclear Science Building as part of the Department of Nuclear Science. Radiation Protection is also regulated by the LADEQ. All users of radioactive materials must be registered with ORS and follow University guidelines.