The National Park Service
EnviroFact Sheet

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Managing Laboratory Waste (SW-6)

DRAFT

July 2007

Labs are commonly found at National Park Service facilities. The word "laboratory" is generally used to describe a facility that conducts experimental or routine testing. Most people associate labs with activities involving chemicals.

Labs in parks may be used for water and wastewater quality monitoring, photo processing, environmental research and education, or preservation activities.

Laboratories often use a wide variety of toxic, corrosive, reactive and flammable chemicals in small containers. These chemicals should all be stored in a designated, centralized place.

Many but not all lab waste streams are hazardous. It is important to determine if lab waste is subject to the Resource Conservation and Recovery Act (RCRA). If laboratory waste is a RCRA hazardous waste, it must be managed as such.

It is important to first identify waste streams coming from labs, then to determine which of those waste streams are, or may be, hazardous. Chemicals that are likely to be hazardous are often spent solvents such as acetone, methylene chloride and methanol, and discarded commercial or industrial chemical products.

FOR MORE INFO…

EPA Hazardous Waste Website:
http://www.epa.gov/epaoswer/osw/hazwaste.htm

APPLICABLE REGULATIONS

There is no single regulation specifically covering laboratory waste management. If laboratory waste is hazardous, it is subject to the Resource Conservation and Recovery Act (RCRA) and must be managed under 40 CFR 290-262 (see the hazardous waste EnviroFact Sheets - "Identifying Hazardous Waste (HW-2)" and "Generator Requirements HW-1"). States may regulate lab waste more stringently. Also, states and local municipalities often regulate wastewater discharges from labs and may also require lab fume hood exhausts to have a permit.

Many labs perform "sink disposal" of waste materials. Though legal in many cases, this practice is not necessarily the best environmental management choice. At the local level, some municipalities may treat lab waste under a special category, especially when discharged to a sink.

WASTE CHARACTERISTICS

It is important to know the hazards of laboratory wastes **before** handling. Often, Material Safety Data Sheets (MSDSs) for laboratory chemicals can help in understanding the hazards of waste. Waste handlers must also consider chemical mixtures, and new chemicals produced from the lab activities (see the EnviroFact Sheet – "Hazardous Waste Identification (HW-2)" for more information).

HANDLING AND STORAGE

The storing of lab wastes should follow many of the same practices used for storing unused chemicals. That is, wastes should be clearly labeled, they should be grouped and segregated according to type, and they should be tracked. Here are some general suggestions for how to store lab waste, whether or not it is legally considered hazardous.

- If you know that the waste is hazardous, label the waste with the words "Hazardous Waste," the date, and the type of hazard of the material (e.g., corrosive, explosive). A waste label should provide as much information as possible. The waste should be identifiable as a specific compound. Be certain that you determine whether or not the waste is hazardous before disposal.
- As with all chemical storage containers, make sure the waste storage container is compatible with its contents. Keep it tightly closed.
- Segregate all wastes based on chemical incompatibilities.
- Store so you can inspect it easily (e.g., don't pile containers on top of each other).
- Inspect the waste regularly for damage to containers or leaks.
- Make sure that any people handling the waste are familiar with the hazards associated with it, as well as with the regulations governing waste handling and storage.
- Ensure that lab staff wear appropriate personal protective equipment (e.g., gloves, aprons, splash goggles, and possibly respiratory protection) when transferring wastes.

Hazardous lab waste may be stored in "satellite" accumulation areas as long as containers are in good condition, compatible with the waste, and labeled as to the contents. Satellite accumulation limits are one quart of acutely hazardous waste or 55 gallons of hazardous waste.

DISPOSAL

Hazardous lab waste must be sent only to a permitted treatment, storage, and disposal facility (TSDF), accompanied by a hazardous waste manifest. Generators should maintain copies of manifests for at least three years. Hazardous lab waste may not be disposed of via evaporation in a fume hood. Eliminating neutralization on corrosive wastes may be allowed in the lab but should only be conducted by qualified personnel. However, even if neutralized, the waste may be hazardous due to other characteristics and require disposal at a TSDF.

POLLUTION PREVENTION

- Maintain a limited inventory of chemicals so that they do not expire/deteriorate.
- Never mix hazardous waste with non-hazardous waste.
- Substitute hazardous chemicals with less or non-hazardous chemicals.
- Model chemical reactions with computer simulations when possible.

LABORATORY WASTE MANAGEMENT COMPLIANCE CHECKLIST	
Checklist Item	**Notes**
1. Ensure that a determination has been made whether or not your laboratory generates hazardous waste.	
2. Ensure that the hazardous waste accumulation containers in the laboratory are: • Closed, except when adding or removing waste; • In good condition and properly labeled; and • Used to consolidate compatible waste only.	
3. Confirm that hazardous waste satellite accumulation areas are limited to 1 quart of acutely hazardous waste and 55 gallons of hazardous waste.	
4. If your site is a Conditionally Exempt Small Quantity Generator of hazardous waste, confirm that the accumulation of acutely hazardous waste is limited to 1 kg/month.	
5. Confirm that emergency equipment, such as spill control equipment, fire extinguishers, and a telephone or two-way radio, are present at your hazardous waste accumulation area.	
6. Assess how laboratory waste is disposed (e.g., to a RCRA-permitted TSDF, to a landfill, down the drain, treated on site). Ensure this is the correct method.	
7. Ensure that hazardous waste transported off site is packaged, marked and labeled in accordance with DOT regulations and accompanied by a properly completed hazardous waste manifest.	
8. Ensure that laboratory wastewater discharges are in compliance with applicable standards and permit provisions.	
9. Confirm that laboratory personnel have received training with respect to their waste management responsibilities.	
10. Ensure that the laboratory's Chemical Hygiene Plan includes a procedure for managing lab waste.	
11. Ensure that personnel explore improved processes or equipment that might decrease the quantity or toxicity of waste generated by your laboratory.	