



## UNIVERSITY OF SOUTH ALABAMA CHEMICAL HYGIENE PLAN

### POLICY STATEMENT OF THE UNIVERSITY OF SOUTH ALABAMA

The University of South Alabama is committed to providing a safe work environment and believes its employees have the right to know about any health and safety hazards associated with their workplace. This Chemical Hygiene Plan includes policies, procedures and responsibilities designed to develop an awareness of any potentially hazardous situations in the workplace and to train USA employees in appropriate, safe working practices.

It is important that all supervisors and employees assume equal responsibility for workplace safety. All employees must have access to pertinent safety information through their supervisory staff. The people working in any given area are best able to detect potential hazards either in the facility or in work procedures. When safety concerns arise, employees are responsible for contacting their supervisor.

### INTRODUCTION

The purpose of the University of South Alabama Chemical Hygiene Plan is to define work practices and procedures that should help ensure that workers at the University of South Alabama are protected from health and safety hazards associated with the hazardous chemicals they work with.

A hazardous chemical is defined, as “a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.” In addition, a laboratory is defined as “a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.” Finally, a worker is defined as “any individual employed in an area that may be exposed to hazardous chemicals in the course of his/her assignments.”

# THE USA CHEMICAL HYGIENE PLAN AND THE LABORATORY STANDARD

## CHEMICAL HYGIENE PLAN

All areas using hazardous chemicals must develop and implement a site-specific Chemical Hygiene Plan based on hazards exclusive to their workplace. This requirement is based on the Federal "Occupational Exposure to Hazardous Chemicals in Laboratories" Standard.

At minimum, a site-specific chemical hygiene plan must include the following eight subjects:

- Standard operating procedures.
- Criteria to determine and implement specific control measures such as engineering controls and personal protective equipment.
- A requirement that ventilation hoods and other engineering controls are functioning properly.
- Information and training requirements.
- A description of circumstances under which laboratory operations would require prior approval before starting work for the University.
- Provisions for medical review.
- Designation of a Chemical Hygiene Officer/Safety Representative.
- Provisions for additional protection for work with select carcinogens, reproductive toxins and substances with a high degree of active toxicity.

The SEC Department has created a general Chemical Hygiene Plan for the University and copies of this plan and the Lab Standard are available on the department's web site. This plan may be adopted unchanged by a laboratory. However, it may be necessary to add components to the plan that are site specific to an individual laboratory.

## STANDARD OPERATING PROCEDURES

*“Standard operating procedures relevant to safety and health considerations are to be followed when laboratory work involves the use of hazardous chemicals.”*

This plan represents the **MINIMUM** guidelines for the handling of hazardous chemicals on all USA campuses. Individual laboratories or research groups are required to develop procedures that are more detailed as their specific situation warrants. In all situations, individual faculty or staff will be responsible for enforcing safety measures in the laboratories they supervise. Additional assistance from the SEC Department is available.

Because few chemicals are without some kind of hazard, general precautions for handling any chemical should be adopted to include minimizing exposure and assuming that any mixture of hazardous chemicals is more toxic than its most toxic component.

### Unattended experiments/Working alone

- Leaving any experiment or hazardous system unattended is not an acceptable practice.
- When working with hazardous materials, it is advisable to have a second person present or at minimum, maintain surveillance via telephone contact.

### Food, drink and cosmetics:

- NO eating, drinking and smoking in areas in chemical storage areas. Do not use refrigerators, glassware or utensils found in these areas for food or drinks.
- Wash hands thoroughly and remove lab coat and gloves before leaving the laboratory.
- If a lab coat becomes contaminated remove it immediately.

### Housekeeping

- Keep the work area clean (**daily clean up**) and keep as uncluttered as possible. Chemicals and equipment must be labeled, stored and functioning properly. Clean up your work place upon completion of an operation and at the end of the day
- Leave lights on. Place appropriate warning signs on the door. Provide names and telephone numbers of persons to be contacted in case of emergency.
- Provide for containment of hazardous substances in the event of utility service failure during unattended operation.
- Have the appropriate spill kits on hand.
- Be aware of unsafe conditions and make corrections when problems are detected. Do not assume that someone else will take care of the problem.

### Equipment

- Apparatuses that can discharge toxic chemicals (vacuum pumps, distillation columns, etc.) should be vented into exhaust devices to avoid inhalation of chemicals.
- Inspect gloves, personal protective equipment and lab equipment before beginning any work.
- Do not allow release of toxic substances in cold/warm rooms since these rooms have atmospheres that are re-circulated.
- Make sure that the ventilation system is appropriate for the chemicals being used.
- Handle and store laboratory glassware with care. Never use damaged glassware. Use extra care with Dewar flasks and other evacuated glass apparatus. Shield or wrap them to contain chemicals and fragments should implosion occur. Use equipment only for its designated purpose.
- Use a properly functioning chemical fume hood for operations that might result in a release of hazardous fumes, vapors or dust. Confirm adequate hood performance before use. The hood



- *Clean up:* As soon as safe and practical, begin cleaning up a spill using the proper protective apparel and equipment. Keep absorbents on hand (sodium bicarbonates, sand, etc.) appropriate for chemicals being used in the laboratory. Dispose of spill debris as hazardous waste.
- *Accountability*

## Satellite Waste Accumulation Areas and Logs [ADEM Chapter 335.14.3-. 03]

Alabama Department of Environmental Management (ADEM) Land Division--Hazardous Waste regulations state that individual laboratories that collect hazardous waste (chemicals) for disposal are considered to be "Satellite Waste Accumulation Areas". Each investigator, no matter how small his waste accumulation is, will be required to monitor their individual "satellite waste area". Fines for non-compliance with these regulations can be directly assessed to the principal investigator as well as his/her Department, their College and the University. A weekly inspection log must be maintained by each individual laboratory accumulating chemical waste. Additional information regarding the requirements of a Satellite Accumulation Area can be found on the SEC Website.

### USA Satellite Waste Accumulation Areas Policy [ADEM Chapter 335-14-3-. 03]

Individual laboratories that collect hazardous waste chemicals for disposal are considered a "Satellite Accumulation Area."

To prepare for EPA and ADEM inspections and to prevent the issuance of "Notice of Violations" and fines, each investigator is required to keep a weekly log monitoring their individual "satellite accumulation areas". Penalties for non-compliance to these regulations can be directly assessed to the principal investigator as well as the University.

This log must include:

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## PRIOR APPROVAL

The responsibility for approval of the acquisition and use of hazardous chemical agents rests ultimately with the laboratory manager/supervisor. Certain materials, including radioactive materials, recombinant DNA, highly toxic and unstable chemicals and certain bio-

should be marked with a DANGER, specific agent name, AUTHORIZED PERSONNEL ONLY or comparable warning sign.

6. All laboratory personnel, working in a laboratory using carcinogens, reproductive toxins or acutely toxic chemicals, must be informed of the signs and symptoms of over-exposure to these substances. Training is the responsibility of the laboratory supervisor. Training must be done prior starting work with any of these materials.
7. Laboratory personnel working with these chemicals must have access to appropriate protective equipment and clothing (available at no expense to the worker) and must be trained on how to properly use the safety equipment.
8. Detection equipment may be required in laboratories where chemicals (especially poisonous gases) with a high degree of acute toxicity are utilized.
9. All materials contaminated with these substances should be collected and disposed of as hazardous waste.
10. The designated working area shall be thoroughly decontaminated and cleaned at the conclusion of the work interval.

## CONTROLLING CHEMICAL EXPOSURES

There are three major routes of entry for a chemical to enter the body: inhalation, skin and eye contact and ingestion. Three types of controls for prevention of these various routes of entry include engineering controls, personal protective equipment and administrative controls. Each route of entry a chemical can take to enter the body can be controlled by a number of varying controls as explained below:

### Inhalation hazards

Inhalation of chemicals is the most common route of entry into the body. To avoid significant inhalation exposure, substitution of a less volatile/toxic chemical or substitution of a liquid or solid chemical for a gaseous one is the best means of control. If substitution is not practical, engineering controls, such as ventilation hoods, biological safety cabinets, vented glove boxes and other local exhaust systems are often required to minimize exposure to hazardous chemicals. Dilution ventilation may be used to reduce exposure to non-hazardous nuisance odors. For extremely toxic chemicals such as those classified as poison gases (e.g., arsine, phosgene), the use of closed systems, vented gas cabinets, failsafe scrubbing, detection or other stricter controls may be required.

If both substitution and engineering controls are unavailable, the use of personal protective equipment may be required to reduce inhalation exposures. Respiratory protection, including supplied air respirators and self-contained breathing apparatus may be utilized. If a laboratory employee must wear a respirator, training in the proper selection and use of respirator is required. Screening to ensure the user is capable of wearing a respirator, and fit testing to ensure that the respirator fits properly is also required. A lab worker or his/her supervisor should contact the Safety and Environmental Compliance Department in the event that respiratory protection is utilized to control exposures to hazardous chemicals. Finally, administrative controls can be utilized to reduce the risk of overexposure to hazardous chemicals. Some examples include:

- Minimization of exposure time for individual employees.
- Restricted access to an area where a hazardous chemical is used.
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**Responsibilities of the Laboratory Employee include:**

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**IN CASE OF CHEMICAL/BIOLOGICAL/FIRE EMERGENCIES**

To be posted in USA facilities

**During Office Hours: 8 am to 5 pm--Monday-Friday**

|  |  |              |
|--|--|--------------|
| Safety & Environmental Compliance Department |  | 251-460-7070 |
| Radiation Safety Department                  |  | 251-460-7063 |

**After Offices Hours:**

|  |        |              |
|--|--------|--------------|
| William Guess, Director, Safety & Environmental Compliance     | Cell   | 251-709-7783 |
|  | Office | 251-460-6673 |
| Anne Foster, Asst. Director, Safety & Environmental Compliance | Cell   | 251-680-8448 |
|  | Office | 251-460-6714 |
| Cedric Crawley, Safety & Environmental Specialist II           | Office | 251-460-7556 |
| Nathan Tew, Safety & Environmental Specialist I                | Office | 251-460-4974 |
| Savannah Wallace, Industrial Hygienist                         | Office | 251-460-6971 |
| Debbie Bryars, University Fire Marshal                         | Office | 251-460-6676 |
| Roger Crowley, Emergency Management & Life Safety Specialist   | Office | 251-460-7106 |
| Lisa Cobb, Training Specialist                                 | Office | 251-460-6677 |
| Catherine Kelly, Accounting Clerk                              | Office | 251-460-7070 |

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**USA EMERGENCY NUMBERS**

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**Emergency Telephone Numbers for USA Clinic Facilities**

(Area code is 251 unless otherwise indicated)

**USA Main Campus**

|                                   |               |          |
|-----------------------------------|---------------|----------|
| USA Main Campus                   | Main Number   | 460-6101 |
| USA University Police             | Non-emergency | 460-6312 |
| Safety & Environmental Compliance |               | 460-7070 |
| Radiation Safety                  |               | 460-7063 |
| USA Weather Line                  |               | 460-6999 |

|                         |                           |                      |
|-------------------------|---------------------------|----------------------|
| USA University Hospital | Main Number               | 471-7000             |
|                         | Emergency (In-House Only) | 511                  |
|                         | Security                  | 471-7525 or 471-7195 |

|                                 |                           |          |
|---------------------------------|---------------------------|----------|
| USA Children's & Women Hospital | Main Number               | 415-1000 |
|                                 | Emergency (In-House Only) | 511      |
|                                 | Security                  | 415-1135 |

|                     |                              |          |
|---------------------|------------------------------|----------|
| USA Mitchell Cancer | Main Number                  | 665-8000 |
|                     | Front Desk                   | 445-9878 |
|                     | 24-hr emergency (USACW Main) | 415-1000 |

|                                    |             |          |
|------------------------------------|-------------|----------|
| USA Mitchell Cancer-Kilborn Clinic | Main Number | 990-1850 |
|------------------------------------|-------------|----------|

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| USA Mitchell Cancer Institute-Infusion | Main Number | 665-8000 |
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