



Volunteer Handbook



Wayne E. McFee

Charleston, South Carolina
July 2003

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service
National Centers for Coastal Ocean Science
Center for Coastal Environmental Health and Biomolecular Research

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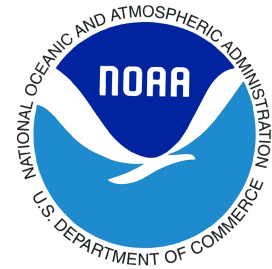
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Volunteer Handbook

National Centers for Coastal Ocean Science
Center for Coastal Environmental Health and Biomolecular Research
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Charleston, South Carolina 29412-9110

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July 2003

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Welcome to NOS Center for Coastal Environmental Health and Biomolecular Research

Dear Volunteer:

Welcome to the National Ocean Service (NOS) Center for Coastal Environmental Health and Biomolecular Research (CCEHBR). Thank you for joining us! We want you to feel that your association with NOS will be a mutually beneficial experience.

You have joined an organization that is dedicated to the management and protection of marine resources as well as the education of the public about our mission. We hope you will also find satisfaction and take pride in your work to conserve our marine resources.

This Handbook provides answers to most of the questions you may have about the NOS CCEHBR programs, as well as the policies and procedures we abide by. If anything is unclear, please discuss the matter with your immediate supervisor. You are responsible for reading and understanding this Handbook to ensure safety for you and co-workers and to adhere to NOS policies and procedures.

Occasionally the information contained in this Handbook may change. Every effort will be made to keep you informed of policy and procedural changes.

Personal satisfaction of doing a job well and career development are two of the many reasons people volunteer. The CCEHBR is committed to doing its part to provide you with a satisfying volunteer experience.

We extend to you our personal best wishes for your success and happiness at the CCEHBR.

Sincerely,

Wayne McFee
Volunteer Committee Chairman

Geoff Scott, Ph.D.
Laboratory Director

Purpose of this Handbook

This Handbook has been prepared to inform you of the National Ocean Service's history, philosophy, policies, and expectations of you and the NOS.

No volunteer handbook can answer every question, so we hope through regular conversations between you and your supervisor we can continue to add to the Handbook as conditions warrant. We hope this Handbook will help you feel comfortable with us. We depend on you in an ever shrinking workforce - your success is our success. Please do not hesitate to ask questions. Your direct supervisor or Volunteer Coordinator will gladly answer them.

We ask that you read this Handbook carefully, and refer to it whenever questions arise. The NOS policies, benefits and rules, as explained herein, may be changed from time to time as business, volunteer legislation, and economic conditions dictate. If and when changes are made, you will be made aware of the changes.

About the NOS CCEHBR

MISSION STATEMENT

The mission of the CCEHBR is to provide scientific information required to resolve management issues associated with NOS' agency goals. These goals are to:

- Restore healthy coasts
- Ensure safe maritime navigation
- Conduct coastal ocean science to answer and predict questions related to current science-related issues
- Protect the public from coastal hazards

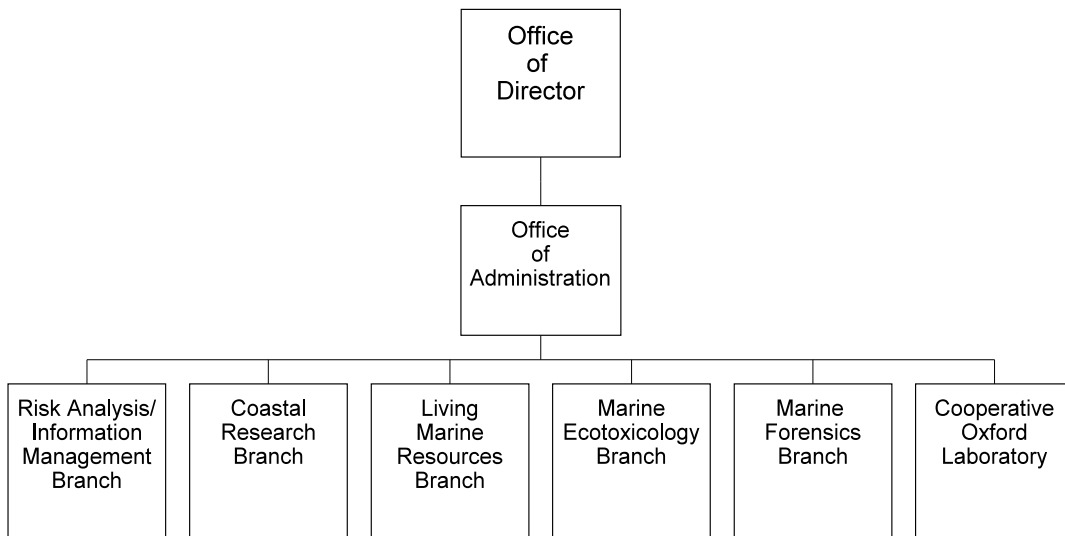
BACKGROUND

The Volunteer Program at the NOS CCEHBR was initiated as a result of the 1995 Federal Government National Performance Review leading to a reduction in the federal workforce. The loss of Full Time Employee (FTE) positions have created a need for greater volunteer assistance. This has also resulted in enhanced opportunities to students and interested professionals interested in marine fisheries careers. The NOS CCEHBR provides opportunities within several Branches and the Oxford Laboratory (Figure 1) in a number of marine fisheries disciplines such as:

- Marine Ecotoxicology
- Risk Assessment
- Marine Biotechnology
- Marine Forensics
- Managed and Protected Resources
- Marine Biotoxins

Some duties volunteers have undertaken include: routine laboratory duties, water and oyster sampling for water quality analyses, chromatography, assistance in the retrieval and necropsy of stranded marine mammals, preparation of tissue and skin samples for pesticide, heavy metals, and genetic analyses, marine mammal skeletal preparation, and others. Approximately 10-15 volunteers spread among the various programs work throughout the week at the CCEHBR.

Center for Coastal Environmental Health and Biomolecular Research Organizational Chart



What You Can Expect from the NOS CCEHBR

The NOS CCEHBR will provide you with:

- A clear job description
- Assignments that fit your skills, interests, availability, and training
- Orientation, training, and supervision for specific duties, and an explanation for such duties
- A friendly, safe workplace that promotes a pleasant learning experience
- Safety precautions regarding chemicals, field work, and potentially dangerous areas
- Prompt and fair responses to on-the-job problems which may arise
- Recognition and appreciation for a job well done
- Skills and contacts to enhance career objectives and goals
- Confidentiality of individual records
- Personnel records to document experience, skills learned, training, evaluations, and commendations
- Consultation on job performance prior to resigning

What NOS CCEHBR Expects from You

The NOS CCEHBR expects you will:

- Act professionally and maintain a good attitude towards your job and your fellow workers
- Honor the work schedule you have arranged with your supervisor, and notify your supervisor if your schedule changes, or you can not work due to unforeseen circumstances (i.e., illness, car trouble, etc.)
- Perform duties assigned to the best of your abilities
- Ask questions if you are unsure of a job assignment or safety issue
- Follow all safety precautions, policies, and rules outlined by your supervisor and/or provided to you by the NOS CCEHBR
- Hold in confidentiality anything you may hear at the Laboratory which may jeopardize the security of data produced at the Laboratory
- Obtain permission from your supervisor or Laboratory official to “tour” a friend or family member around the NOS CCEHBR
- Make this an enjoyable and rewarding experience that will help you in your future endeavors!

VOLUNTEERING POLICIES

As a new volunteer to the NOS CCEHBR, you may be overwhelmed with the number of policies and safety issues you are exposed to. As a returning volunteer you may notice changes to policies and procedures. This section is designed to answer any questions you may have regarding policies and procedures.

Background Checks

The federal government requires all volunteers fill out a Wage Claim Waiver (Appendix A) and a Security Worksheet for Non-Employees (Appendix B) if work assignment is for less than 60 days. If working over 60 days volunteers are required to fill out a Wage Claim Waiver, a Security Worksheet and submit two sets of fingerprints for a security check. Failure to comply with the above will result in a termination of volunteer service. Acceptance into the Program shall be granted after a Volunteer Program Approval Certificate (Appendix C) has been signed by all listed approving officials and review of all credentials and background have been satisfied.

Time Commitment

Volunteers are expected to establish a work schedule with their supervisor by stating the days and number of hours per week to be worked. Requests for changes in time commitment should be communicated to your supervisor at the earliest opportunity.

If you are unable to report to work, or expect to arrive late, please contact your supervisor so that arrangements can be made to cover for your absence. Repeated absence or lateness may require a change in schedule or termination of appointment.

Attendance

Volunteers are required to “sign in” in the designated log book at the front desk, or if you do not have a time sheet in the book, you must sign in in the guest register at the front desk. You may also be asked to sign in at your particular area of work.

Sign-in procedures are important for keeping track of number of hours worked, starting and ending dates, for security measures, and for safety requirements in case of fire. It is also a measure to recognize time spent in a program and for evaluating the volunteer program.

Confidential Information

As a volunteer in this federal government laboratory, you may view sensitive documents, be present during discussion of sensitive information, such as law enforcement evidence analysis results, or overhear staff opinions about politically sensitive topics. You shall refrain from discussion of any staff conversations or viewed documents outside the room where such conversations or viewings have occurred.

Public Relations

Government agencies are constantly in the public's eye and issues related to marine species, especially endangered species, can be delicate subjects. Integrity of samples for receiving and shipping to other researchers need to be handled in a professional manner in order to deliver quality samples for research as well as protect the reputation of the NOS CCEHBR.

As a volunteer you shall not discuss privileged research information, law enforcement cases, or any other information deemed confidential by the NOS CCEHBR to the general public. Your supervisor will explain these items to you. As a volunteer you shall not answer **any** questions from the media without the permission of your supervisor. Please refer questions from the media to your supervisor regardless of whether you can answer the question or not.

From time to time you may be asked to assist in educational projects or participate in field research which places you face-to-face with the public. Please communicate pleasantly and respectfully to the public and refer questions to your supervisor.

Acting professionally and using common sense can save you and the CCEHBR from embarrassing situations.

Equal Opportunity

The NOS provides equal volunteering opportunity for everyone regardless of age, sex, color, race, creed, national origin, religious persuasion, marital status, or disability that does not prohibit performance of essential job functions, with or without accommodations, as stated in the job description.

Harassment

The NOS CCEHBR intends to provide each volunteer with a pleasant, healthful, and comfortable working environment, free from intimidation, hostility or other offenses which might interfere with your performance as a volunteer. Harassment of any sort - verbal, physical, visual, sexual - will not be tolerated. Volunteers who become aware of harassment in any form, or are harassed themselves, have an obligation to report the incident(s) to their supervisor or a trusted employee immediately. The NOS is obligated by law to investigate allegations of any form of reported harassment.

Job Descriptions

We maintain a job description for each volunteer position in the NOS CCEHBR. Job descriptions may be very general or very specific depending on the needs of the particular Project. If your duties are changed, your job description will be updated. You may ask to see a copy of your job description at any time.

OTHER POLICIES

Computer Software

Unauthorized duplication of software is a federal crime! U.S. Code, Title 17, Section 106 states that “it is illegal to make or distribute copies of copyrighted material without authorization” from the copyright holder.

At the NOS CCEHBR you may receive authorization from your supervisor and/or computer analyst to use the Government computers and will receive a password to log-in to the network system.

The NOS CCEHBR computers shall be used only by volunteers for carrying out routine laboratory activities that are described in your job description and approved by your supervisor (e.g., data entry). **Personal computer software shall not be added to CCEHBR computers. The NOS CCEHBR computers are not for personal use (i.e, typing letters, school work, resumes, etc.).**

Personal Use of Government Property

At no time shall a volunteer use Government property for personal purposes.

Copy Machines

Copy machines are not for your personal use. You may be asked to make copies as part of your job duties. These machines are located in the mail room near the front reception desk and in the back hallway near the Biotoxins section.

Personal Phone Calls

Personal use of Laboratory phones is not permitted unless absolutely necessary. Long-distance phone calls are not allowed except in the case of an emergency. Otherwise you must use your own calling card and long-distance carrier. Local calls must be kept to a minimum.

Parking

Please park in the front of the NOS CCEHBR along with other staff members. Do not park in the designated “Visitor” spaces or “Handicapped” spaces (unless you are authorized to do so). Please do not park on the grass in front of the flag pole or in the back of the Laboratory by the loading dock. These areas are needed for emergency vehicles and delivery trucks.

Smoking

Smoking is not allowed anywhere in the CCEHBR buildings. If you must smoke, please do so outside and use the cigarette receptacles.

Dress Code

Please see your supervisor for the appropriate dress required for your duty station. Safety concerns may require specific dress conditions.

While the majority of Laboratory personnel enjoy the freedom of dressing casually, there are instances when more formal dress is appropriate (i.e, meetings, public appearances, etc.). There are also instances when you may be in the field where “throw-away” clothes and footwear may be appropriate. Your supervisor should keep you informed as to the above situations.

Problems

Problems which relate to your work are important to the NOS CCEHBR. In order to run an efficient laboratory we need to know when problems arise.

Be assured we will be receptive to your concerns regarding any situation which you believe violates your civil rights, is discriminatory, or presents a feeling of discomfort in your duties. This includes statements, attitudes, or opinions held by your supervisor or a fellow worker.

If you sense a problem, please see your immediate supervisor first. If the problem is against your supervisor please see the Volunteer Coordinator of the Laboratory. After a confidential discussion regarding the issue, if you are still not satisfied with the outcome, you may bring your problem directly to the Volunteer Committee. The problem will be discussed with the Committee and a decision rendered which will be final. The purpose of this procedure is to give each volunteer the chance to voice concerns regarding any problem situation.

Expense Reimbursement

You must have your supervisor’s authorization to incur an expense on behalf of the NOS. Situations may arise in the field where you may have to purchase small items (such as ice) to complete a job. To be reimbursed for all authorized expenses, you must produce receipts and signed approval from your supervisor.

Resignation and Exit Interview

If you are planning to resign as a volunteer, the NOS CCEHBR would appreciate notice as far in advance as possible to make arrangements for an exit interview with your supervisor and to allow for time to staff your volunteer position. An informal exit interview with your supervisor is recommended in order to obtain your ideas of ways to improve our program, answer any questions you may have, and to see how you enjoyed your time with us.

STANDARDS OF CONDUCT

Because of the professional nature of business conducted at this Laboratory, stringent safety precautions, and law enforcement issues, certain standards of conduct are expected of each volunteer, as well as NOS employees, to assure high quality products in a safe environment. The purpose of these standards is not to restrict your rights, but rather to be certain that you understand what is needed for you to meet these important responsibilities.

Unacceptable Activities

If you have any questions concerning any safety rule or any of the unacceptable activities listed below, please see your supervisor for an explanation. Occurrences of any of the following violations may result in immediate dismissal without warning:

- Willful violation of any NOS policy or rule, including actions that are obviously detrimental to the NOS.
- Willful violation of security or confidentiality policies.
- Willful or repeated violation of safety policies or rules; failure to wear required safety equipment; tampering with NOS equipment.
- Negligence or any careless action which endangers the life or safety of another person.
- Being intoxicated or under the influence of controlled substance drugs while volunteering or on Government property; use or possession or sale of controlled substance drugs in any quantity while on NOS premises.
- Unauthorized possession of dangerous or illegal firearms, weapons, or explosives on NOS premises or while working in the field.
- Engaging in criminal acts of violence, threats of violence, fighting, provocation of fighting, or negligent damage to property while on NOS premises.
- Insubordination or refusing to obey instructions deemed proper by your supervisor.
- Theft of NOS or Government property or the property of co-workers; unauthorized possession or removal of NOS or Government property, including documents, manuscripts, journals, books from the premises; unauthorized use of NOS or Government equipment or property for personal use; using NOS or Government equipment or property for profit.
- Dishonesty; willful falsification of personnel records; altering of personnel records or other NOS or Government documents.

- Engaging in behavior designed to create discord and lack of harmony; interfering with the work of others within the CCEHBR.
- Immoral conduct or indecency on NOS premises.
- Unauthorized presence on NOS premises after hours.

Disciplinary Actions

Unacceptable behavior which does not lead to immediate dismissal may be handled with a verbal warning, written warning, or suspension. Written warnings will include the reasons for the warning and any supporting evidence. You will have the opportunity to contest the warning by presenting your case to the Volunteer Coordinator and/or Volunteer Committee.

Dismissal

Volunteers who do not adhere to the rules of the agency or who fail to satisfactorily perform their assignment are subject to dismissal. Repeated absence or failure to honor a pre-arranged schedule may also be cause for dismissal.

Volunteers may be dismissed without warning for just cause. The NOS has the right to request a volunteer leave immediately. Grounds for immediate dismissal may include, but are not limited to:

- Gross misconduct or insubordination
- Being under the influence of illegal substances/drugs, including alcohol
- Theft of property or misuse of NOS equipment or materials
- Lies or falsification of records
- Illegal, violent or unsafe acts
- Conflict of interest
- Breach of security policies
- Breach of confidentiality policies
- Abuse or mistreatment of co-workers or animals

WORKERS' COMPENSATION

You are covered under Workers' Compensation title 5 U.S.C. chapter 81, relative to compensation for injuries sustained during the performance of work assignments. Claims related to injuries should be referred to the Office of Workers' Compensation Programs, U.S. Department of Labor.

Should you become injured or ill while performing your volunteer duties at the NOS CCEHBR please notify your supervisor immediately. Your supervisor will put you in touch with the proper authorizing official to fill out a claim form.

SAFETY AND SECURITY

The NOS CCEHBR has a Laboratory Safety Program, which includes a Chemical Hygiene Plan (Appendix D) and an Emergency Preparedness Plan (Appendix E), that all employees and volunteers must read and follow. Each Program at the NOS CCEHBR has its own specific guidelines and policies for safety and security. These guidelines and policies will be explained to you by your immediate supervisor after assignment.

While each Program may have slightly different safety policies and procedures, the CCEHBR as a whole believes that safety comes first and is everybody's business. If you are placed in a situation in which you are not comfortable, or you feel that an activity is hazardous to you or someone else, please stop and notify your supervisor of your concern. Please pay attention to all warning signs. All NOS volunteers are required to view safety videos before beginning work.

Maintaining security in each Program may also be slightly different, but the Laboratory does have common practices. Maintaining security is also everybody's business.

Everyone is to be aware of new faces in the building. If you see someone in the building or on the property who is suspicious or who you do not recognize, ask them if you can help them, or find a co-worker who may be able to identify that person. Everyone should sign into the guest register when they come in the building. If you see someone who does not sign in when they come in the building, ask them to do so, or alert an Office Support Specialist at the front desk.

All outside doors to the buildings are to remain locked at all times. After you leave an area please lock the outside door if it requires a key. If you do not have keys or a magnetic card and notice an outside door unlocked, alert your supervisor so that he/she can lock the door. Again, each Program or Project may have other security measures for door access, computer access or file cabinet access. You will be issued a magnetic access card which will be coded for the appropriate areas you need access to in order to perform your duties, as well as a photo-identification card which you must wear at all times.

ACKNOWLEDGMENTS

I would like to thank the following people for their review and comments: Ms. Nancy Davey, Ms. Pat Smallwood, Dr. Carol Preston, Dr. Mike Fulton, Mr. Ron Lundstrom, Dr. Geoff Scott, Dr. Malcolm Meaburn, Mr. Paul Comar, and Dr. Pat Fair. I would also like to thank all of the volunteers both present and past who have contributed their time and efforts to make all of our work more manageable, productive, and enjoyable.

APPENDIX A

SECURITY WORKSHEET FOR NON-EMPLOYEES

1. Full names of non-employee: _____
2. Other names and dates used: _____

3. Position: _____
4. Project Title: _____
5. Place of Birth: _____

(Be sure to include the city, county, state, and country, if other than the U.S.)
6. Date of Birth: _____
7. Social Security Number: _____
8. Sex: Male _____ Female _____
9. Has guest worked for DOC in the past: Y _____ N _____
Location: _____ Date: _____
10. Period of Visit: Beginning Date: _____ Ending Date: _____

ARREST RECORD:

11. During the last 10 years have you ever forfeited collateral, been convicted, been imprisoned/been on probation or parole? Y ___ N ___
12. Are you now under changes for any violation? Y ___ N _____
13. Have you ever been convicted by a military court-martial or received Non Judicial punishment under the Uniformed Code of Military Justice? Y ___ N _____
14. In the last five years have you ever possessed, used or manufactured illegal drugs?
Y _____ N _____

HEALTH CARE:

15. Have you ever seen a health care professional for the treatment of an alcohol, drug, mental or emotional disorder? Y _____ N _____

If you answered yes to any of items 11-15, please explain your answer on a separate sheet of paper.

Signature Date

This section to be completed by the requesting official:

1. Name: _____
2. Mailing Address: _____
3. Position or Title: _____
4. Will access to departmental facilities be restricted to normal office hours or under escort?
Y _____ N _____
5. Furnish accounting data if visit is for more than 60 days.
Accounting data: _____
6. If the visit is for less than 60 days, this form may be sent to security for Regional Security Officer review.
7. Failure to forward this form, assumes Facility Manager permitting visit accepts full responsibility and risk for the actions of the non-employee.

Date of Request Signature of Requesting Official Date

Date Received Date Processed Approved Y ___ N ___

Date: _____

Robert E. Dickson
Regional Security Officer

APPENDIX B

NOAA/NOS
CCEHBR

Volunteer Program Approval Certificate

After review of credentials, including past and present coursework, employment history, internships (if any), volunteer experiences (if any), and present availability, the undersigned approve/reject the request of _____, for a volunteer position at the NOS CCEHBR.

Signed _____ Approve _____ Reject _____ Date _____
Supervisor

Signed _____ Approve _____ Reject _____ Date _____
Division Chief

Signed _____ Approve _____ Reject _____ Date _____
Prom. Mgmt. Spec.

Signed _____ Approve _____ Reject _____ Date _____
Volunteer Comm. Chair

APPENDIX C

WAGE CLAIM WAIVER
Against
Federal Agencies

Under the
Student Volunteer Service Program

I hereby acknowledge that no Agency of the United States Government is responsible for the payment of any wages to me because of any work performed as an Enrollee for the National Ocean Service, U.S. Department of Commerce as part of the Student Volunteer Service Program. I agree that I will not make a claim against the United States Government or the National Ocean Service for wages for my services.

Signature of Enrollee

Date

Street Address

City

State

Zip Code

Witness

Date

Witness

Date

APPENDIX D

CHEMICAL HYGIENE PLAN FOR CHARLESTON LABORATORY

**CENTER FOR COASTAL ENVIRONMENTAL HEALTH
AND BIOMOLECULAR RESEARCH
AT CHARLESTON**

NATIONAL OCEAN SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

DEPARTMENT OF COMMERCE

April 2003 (rev. A)

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INTRODUCTION

The purpose of the CCEHBR Chemical Hygiene Plan is to establish uniform, safe and efficient practices in the laboratories and to assist in the safety instruction of new laboratory employees. The contents of the manual are general in nature and specific problems should be referred to the Area Safety Representative or laboratory supervisor. Additional specifics are included in Section VIII.

It is the policy of the CCEHBR to do all that is reasonable to prevent injury to persons and damage to property and to protect the employees, facility, the environment, and the public from injury, fire or other damage. In order to achieve these goals the CCEHBR has instituted a comprehensive safety program. The Director urges the active cooperation and commitment of all branches and employees. Ongoing dialogue and feedback is encouraged. CCEHBR's management supports this program in its promotion of employee safety and health. Aspects of the overall safety program include:

- Safety policies and procedures
- Incident reporting and investigation
- Emergency preparedness
- Hazardous materials and hazardous waste management programs
- Fire protection
- Safety education and training

These facets of the facility safety program are also incorporated by reference into the Chemical Hygiene Plan.

The employees who work with chemicals bear the primary responsibility for safety on the job, not only for themselves but also for fellow employees. They must obey all safety rules; they must report unsafe conditions to the Safety Committee and if they are not certain about proper safety procedures, they must consult their supervisors.

The attitude of the employee is the key to employee and environmental safety. If he/she is interested and willing to follow the simple safety rules outlined in this manual, there will be little chance of injury or damage from material being handled in the laboratory.

The Safety Committee and management expect that all laboratory staff will live up to the spirit and intent of this manual and make their laboratory a safer and better place to work.

CHEMICAL HYGIENE PLAN

The following written chemical hygiene plan has been established for:

CHARLESTON LABORATORY
CENTER FOR COASTAL ENVIRONMENTAL HEALTH
AND BIOMOLECULAR RESEARCH

NATIONAL OCEAN SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
DEPARTMENT OF COMMERCE

to comply with the U.S. Department of Labor, Occupational Safety and Health Administration Standard 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories and other applicable regulations issued by DOC.

The senior official at this site has primary responsibility for this locations's chemical hygiene program. Functional responsibility has been delegated to:

To be determined , Area Safety Representative (ASR)

All NOAA components at this site are covered by the program. As such, NOAA employees, their designated representatives, and, upon request, the Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health shall have access to this written plan at the following location:

On the SAFETY/MSDS yellow binders hanging on the walls near each spill station in the laboratory hallway areas throughout the entire facility.

PART ONE

PERSONNEL RESPONSIBILITIES

CCEHBR has established a chain of command to handle specific safety responsibilities within the facility. The CCEHBR Safety Committee, in conjunction with individual laboratory supervisors, holds primary responsibility for developing and maintaining a safe working environment for laboratory workers.

The responsibilities of various staff positions are described below.

A. ALL LABORATORY STAFF

All laboratory staff are expected to obey the safety rules and to report all unsafe conditions and all accidents. Each person working with or around chemicals, having been properly trained, is responsible for remaining aware of the hazards associated with these chemicals and handling them in a safe manner. If there is any doubt as to the specific hazards or a material or to the proper method of handling, the employee is expected to ask his or her supervisor or the Safety Officer for the appropriate information.

B. SAFETY COMMITTEE

(Safety Officer) Rick Meitzler, Martin E. Burnett, Paul Becker, Gloria Seaborn, Dan Bearden, Tod Leighfield, Laura Webster, Peter Moeller, Ron Lundstrom, Wayne McFee, Mike Fulton, and Nancy Davey

The Safety Committee is responsible for overall coordination of safety policies within CCEHBR including routine inspections along with branch chief supervisor's.

C. LABORATORY SUPERVISOR

1. Provide assistance, information, or instruction to employees regarding safety issues, identification of hazards or potential hazards, and ensure that adequate supervision is provided.
2. Provide laboratory employees with information, as applicable, to allow an effective review of existing procedures and policies in regards to safety issues.
3. Ensure workers comply with the Occupational Health and Safety Act and that they carry out all prescribed safety measures and procedures.

4. In addition to posting a copy of the Occupational Health and Safety Act poster in a conspicuous place in each location, post a copy of any OSHA inspection reports and responses to orders issued.
5. Ensure that all equipment, whether leased, rented or owned outright is maintained in good condition.
6. Ensure proper facilities, equipment, protective devices or services are provided and maintained in good order for safe handling, storage and disposal of chemicals and biological materials or wastes.
7. Maintain a list of all hazardous materials used in the lab.
8. Ensure compliance with legislative requirements regarding dangerous drugs, radioactive isotopes, hazardous chemicals or reagents, biological materials or wastes.
9. Ensure workers are familiar with the Chemical Hygiene Plan and comply with all its requirements.
10. Enforce proper procedures in chemical handling, storage, dispensing and transportation within the lab and any related bulk chemical storage rooms, as appropriate.
11. Ensure all new employees are properly trained, adequately supervised and familiarized with all aspects of lab safety.
12. Be involved in clean up of significant lab chemical spills and ensure proper procedures and precautions are carried out. Carry out all required reporting of spills or releases.
13. Ensure that waste is disposed of in an appropriate manner.

D. LABORATORY DIRECTOR

1. Under the OSHA Laboratory Standard, the Laboratory Director of the facility has ultimate responsibility for the implementation of this plan, and must, with other administrators, provide continuing support for institutional chemical hygiene.

PART TWO

RULES FOR SAFE PRACTICE

A. GENERAL SAFETY

1. Fundamental Rules

- a) Do not eat, drink, smoke, handle tobacco items or apply cosmetics in the laboratory.
- b) Do not put any objects, i.e., pencils, fingers, swabs, etc. in the mouth, ears or nose.
- c) Do not bring food, drink or other consumables into the laboratory. Wash your hands often.
- d) Mouth pipetting is forbidden.
- e) Keep your lab coat buttoned while working in the laboratory. When leaving the laboratory remove your coat and wash your hands. Lab coats should not be worn outside of the lab or work area and must be changed at least once a week (sooner, if soiled).
- f) Cover all cuts, abrasions, open sores and bruises with waterproof band-aids or disposable gloves and report all injuries to your supervisor. See safety officer for assistance.
- g) Read all labels and warning signs. Never transfer products without proper labeling as by law.
- h) Hair should be tied back, if shoulder length or longer.
- i) Keep the work area tidy and free of unnecessary equipment and materials.
- j) Shoes with open toe or heel are prohibited in all lab areas. Full foot coverage by shoes.
- k) Conduct only authorized work; no horseplay should take place in the laboratory.
- l) Clean up all spills and leakages (small) immediately. See instructions for specific spills.
- m) All electrical equipment should be grounded and kept in good condition. Contact maintenance when any questionable encounter may develop - CCEHBR ext. # 8934 or 8808.
- n) Keep all corridors, doorways and emergency exits free from hazards and accessible.
- o) Acquaint yourself with local procedures in case of fire, accident, explosion or other emergency, by learning the layout of your building and the location of the emergency exits, telephones, fire fighting equipment (and how it works) and first aid equipment. In addition locate the MSDS's and spill response equipment.

p) Appropriate Eye protection must be worn when handling materials that may splash.

WARNING:

Employees who wear contact lenses should be aware that fumes from concentrated acids and solvents can cause eye irritation and damage to lenses. Should eye irritation occur, remove lenses immediately and rinse eyes with clean water.

q) Appropriate gloves are recommended when handling any chemicals. Be sure that gloves are resistant to the particular material being handled.

r) When it is not practical to wear gloves, extra care should be taken to avoid exposure.

s) Report all injuries, spills, and other releases of hazardous materials to the Safety committee.

2. Fire Regulations and Extinguishers

Equipment required for a normal Laboratory includes:

a) Fire extinguishers - Five lbs., dry chemical type (at least 10BC rating) suitable for class ABC fires except in areas containing machinery with integrated circuits. These areas should have a CO₂ type extinguisher. Actual placement should be verified by each person as in the CCEHBR building they are in the adjacent hallway not each room or lab, or as required permanently attached to a wall, cupboard or similar. There should be approximately one extinguisher located every 50 feet with discretion used in sharing between one or more rooms. The above outline is provided only as a general guide. Please refer to 29 CFR 1910.157 OSHA and/or Fire Prevention Code regulations to verify compliance with requirements. To notify the fire department while in CCEHBR dial 9 – 911 and ask for the fire department upon reaching the 911 operator. You may also pull any fire alarm station in the building and along egresses.

b) Fire blankets - Should be available in areas containing open flames, flammable liquids, flammable gases and corrosive chemicals rated as fire hazards. Blankets should be located at exits or adjacent to fire extinguishers and should be permanently attached to the wall. Travel routes should be free from obstruction and travel distance no greater than 70 feet.

c) Safety cans - flammable chemicals > 4 gallons should be kept in UL approved safety containers having a spring loaded cap and a flame arrester.

d) Safety Pumps - must be used when dispensing from containers larger than five gallons.

NOTE: Safety pumps with flame arrestors are required when dispensing flammable materials from a metal container to a metal container.

e) Flammable storage cabinets - for storage of flammable or combustible liquids only. Do not store corrosive materials in these cabinets.

3. Lighting and Noise Levels

a) Lighting - it is essential that each work area have sufficient lighting.

b) Noise levels - should not exceed those recommended by OSHA, generally 85db. If the noise level is in excess of the standard, efforts must be made to reduce the level. (Possible solutions are: enclosing noisy equipment, acoustical treatment of walls or ceiling, vibration damping of noisy machines, replacing metal to metal contact with synthetic material to material contact , etc). Contact maintenance or the safety department for questions of noise issues within the work area or a noise survey.

4. Electrical and Thermal Equipment

a. Electrical Equipment

1) Always read the instructions before attempting to assemble apparatus or to operate it.

2) All equipment must be U.L. approved and have three prong plugs.

3) Do not use cords with worn insulation. Replace connections immediately when there is any sign of thinning insulation.

4) Make sure the wire is dry before plugging it into any circuit.

5) Electrical units which are to be operated in an area where to flammable vapors may be present should be explosion proof.

6) Disconnect all electrical equipment before servicing. Electrical service supply should be well grounded with adequate circuit protection.

7) Bench tops made of conducting material e.g. (stainless steel) should be grounded.

8) No connections to the main service lines should be made by anyone but a licensed electrician.

9) Multiple adapters which can lead to overloading and bad connections should never be used.

10) Fuses or circuit breakers of the correct rating should be used on all equipment at all times but "ground" connections must never be fused.

11) Labs should have sufficient outlets, suitably spaced to allow for convenient connection of each item of electrical equipment likely to be used at one time.

The following signals are indicative of electrical hazards and should be corrected if found:

- 1) Shock received when touching any part of electrical equipment.
- 2) Power receptacles which are the non-grounded type (two wire instead of three wire) or are cracked or do not hold the plug securely.
- 3) Power plugs having only two prongs which are connected to a receptacle through a "cheater" (grounding plug to non-grounded receptacle adapter) or have bent or broken pins.
- 4) Power cords which are frayed, burned, nicked, cracked, or otherwise damaged or are so short that they require an extension cord. Powercords having lengths in excess of the distance between the equipment and the electrical outlet must be neatly coiled. Power cords running across the floor where personnel must walk.
- 5) Equipment which is dirty or shows evidence of fluid spillages or has been obviously damaged.
- 6) Multiple electrical equipment attached to an adaptor.
- 7) Electrical noise shown on meter readings, scope patterns and strip chart recorder traces making them difficult or impossible to read.
- 8) Wet or moist surfaces on electrical equipment.

b. Thermal Equipment

- 1) Heating baths - be sure the thermoregulator works properly. Water baths must be checked daily for temperatures and water level.
- 2) Autoclaves/ovens - avoid steam and heat burns by being familiar with good operating techniques.

c. Outlets

Should be checked for grounding using a circuit tester every three (3) months, by the Safety Team, as part of routine laboratory inspection. Or anytime that you may suspect a AC problem.

NOTE: Electrical Shock - Turn off electricity first. If the patient is not breathing, begin artificial CPR immediately and then phone for emergency assistance, in CCEHBR dial 9 – 911 for EMS. Always notify the front desk during regular business hours Monday thru Friday, 8511.

5. Centrifuges

Centrifuges should be securely anchored either by strong suction cups or wheel brakes and should be located where vibration will not cause items to fall off nearby shelves.

Any centrifuge that does not have an interlocking device to prevent:

- a) The lid from being opened while the centrifuge is still in motion and;
- b) The head from spinning while the lid is open.

Must have a sign affixed to it or near it stating:

"DO NOT OPEN LID WHILE CENTRIFUGE HEAD IS IN MOTION"

Centrifuges are dangerous unless operated correctly, therefore, these procedures should be strictly followed:

a) Balancing

Accessories and contents should be carefully balanced and the load distributed symmetrically around the head before starting. Containers should be the right size for swing out heads, buckets must always be properly seated in the heads in the buckets.

b) Starting and Stopping

The lid must be closed before use and kept closed until the head has stopped rotating. Changes in speed should be made gradually so as not to destroy the motor and the maximum speed recommended must not be exceeded. The centrifuge must be stopped by turning the speed control knob (rheostat) to zero.

c) Breakage

When a breakage occurs, at least 10 minutes (preferably 30) should be allowed for aerosols and droplets to settle before clean-up is attempted. If practical, the buckets, broken tube(s) and contents, trunnions and head should be autoclaved or immersed in Lysol for 10 minutes. Decontaminate the inside of the bowl with Lysol, allowing 10 minutes for disinfection, rinse with water and allow to dry, then reassemble for use. Disposable gloves and respirator should be worn for clean-up procedure.

Daily cleaning of the inside of the centrifuge bucket with Lysol is recommended. Immediate clean up of any blood spattered inside the centrifuge is a must. The unit should be unplugged before cleaning to avoid electrical shock.

6. Pipetting

Mouth pipetting is prohibited. The use of safety bulbs and other mechanical pipettors is mandatory.

A disposable wipe should be used to remove excess fluids from the tip of a pipette. Fluid should not be drawn up to the top of the pipette. Contents should be expelled gently down the wall of

the receptacle to avoid splashing and aerosol formation. Soiled pipettes should never be placed on benches but placed gently into hypochlorite solution with tips down and cotton plugs removed, the pipette being completely immersed.

B. CHEMICAL PROPERTIES AND DEFINITIONS

1. Flammable Liquids

Since flammable liquids can be found in most laboratories, knowledge of the properties of flammable liquids is important for all laboratory personnel. Flammable liquids are volatile and it is the vapor of these flammable chemicals, not the liquid, which ignites and burns. The vapors are often heavier than air and tend to settle on the floor and to flow down stairways, air ducts, elevator shafts, etc. Frequently, ignition of this vapor trail with its resultant flashback can occur at some distance from the source of the vapor. Common sources of ignition are electrical equipment, open flames, hot surfaces, cigarettes and static electricity, etc. Since flammable liquids such as carbon disulfide are immiscible in and denser than water, they can settle in the bottom of drains, e.g. the U section of a sink drain, and be ignited not only by the above sources of ignition, but also by certain chemicals such as perchloric and nitric acid. In case of an actual fire alert others and sound the building alarm and notify the fire department at 9 – 911 from a safe location and evacuate the facility.

Certain flammable solvents such as ethyl ether, isopropyl ether, dioxane, tetrahydrofuran will form peroxides which explode if allowed to concentrate by evaporation or by distillation. Improper handling of most flammable liquids can lead to health hazards - skin reactions and inhalation illnesses.

The meaning of certain words should be understood by everyone who works with flammable chemicals:

- a) Flammable liquid is a liquid which has a flash point of less than 37.8°C, e.g. acetone, ethyl alcohol and xylene.
- b) Combustible Liquid has a flash point equal to or greater than 37.8° C but not exceeding 93.3° C, e.g. fuel oil, kerosene and varsol.
- c) Flash point is the temperature at which a liquid gives off vapors sufficient to form an ignitable mixture with the air near the surface of the liquid. For example, the flash points of acetone, diethyl ether and xylene are approximately -15°C, -45°C and 24°C respectively. A good source for flash point information is NFPA 325 M (National Fire Protection Association, Batterymarch Park, Quincy, MA). Also the MSDS will have this data.
- d) Ignition temperature is the temperature to which a mixture must be raised to initiate combustion. Only a small part of a flammable vapor-air mixture need be heated to the ignition temperature to result in self-sustained combustion. A static electric spark lasting only a fraction of a second is sufficient. Some organic solvents have dangerously low ignition temperatures, e.g. diethyl ether 185°C; carbon disulfide 100°C, etc. The MSDS will have the data.

e) A type B portable fire extinguisher is the extinguisher of choice for putting out fires involving flammable solvents. The discharge should be directed at the base of the fire, but care must be exercised not to spread the burning flammable liquid. ABC rated extinguisher's may also be used.

2. Corrosive Chemicals

Concentrated acids and bases must be added to water to minimize the possibility that the heat of reaction will cause eruption of the corrosive. Never add water to a concentrated acid or base as the water will layer on the top of the more densely concentrated acid or base. The extreme heat produced may boil and project the upper layer. Since the fumes of concentrated corrosives can cause severe external and internal burns, these solutions should be handled in a fumehood with the employees wearing rubber gloves, rubber apron and safety glasses. If a spill occurs, neutralize spills of concentrated acid with dry sodium carbonate or bicarbonate, and neutralize spills of concentrated alkali with citric or boric acid. Keep a supply on hand.

Drips of acids or alkalis on the sides of containers are best cleaned off with paper towels. Plastic stoppers are better than glass stoppers for glass bottles holding an alkaline solution. Alkalis tend to bind glass to glass making it sometimes impossible to remove a glass stopper. For safe transportation of corrosives, protective packaging should be used. When a corrosive chemical is to be disposed of, it should first be neutralized before being flushed down the drain with large volumes of water. Disposal must be in compliance with waste disposal policies as well as state and local regulations.

3. Toxic Chemicals

Several toxic chemicals are commonly used in the laboratory at CCEHBR. It is best to review the Material Safety Data Sheet prior to handling new chemicals introduced to the laboratory. For additional information, consult the Safety Officer or Laboratory Supervisor for special details concerning materials suspected of being toxic or other unique or suspect harmful issues when handling products, especially unknowns.

4. Compressed Gases

A compressed gas is defined as a gas having pressure in the container of 40 psi or greater at 70°C. Also any flammable liquid having a Reid vapor pressure exceeding 40 psi at 38°C is classified as a compressed gas. The regulations define the minimum pressure but not the maximum pressure in a cylinder which can be above 6000 psi for non-condensable gases.

The gas pressure within a cylinder depends on its physical state. For example, "permanent" gases exert a pressure proportional to the amount of gas in the cylinder; while gases which are liquified in the cylinder e.g. carbon dioxide, propane, ammonia, etc., exert vapor pressure as long as liquid remains.

C. GENERAL HANDLING AND STORAGE

1. Flammable Chemicals

a) NO SMOKING

b) Know the location of and the proper use of each type of fire extinguisher in your area. Contact Safety Officer at ext. # 8842 for hands on training to use same.

c) Flammable liquids must not be stored in domestic type refrigerators. An explosion may result.

d) Flammable liquids in glass are best stored in approved storage cabinets. They should never be stored with oxidizing agents, e.g., nitric, perchloric and sulfuric acids. Safety cans should be used whenever possible but should not be subjected to extreme changes in pressure or temperature. If there is any sign of a vapor or liquid leak, transfer the liquid to another approved container.

e) After opening of container, flammable liquids in excess of 4 liters must be stored in safety cans or safety cabinets. One liter glass bottles or smaller should be used when contamination from the safety can may interfere with clinical results. Safety cans with a spring-action cover have five important functions:

1. Pressure relief valve;
2. To prevent leakage or spillage if the can is dropped;
3. To minimize vapor escape;
4. To prevent a fire from entering a safety can; and
5. To smother a fire inside the safety can.

Normally this cover should prevent leakage of a liquid when the safety can is inverted. Safety cans should not be stored in closed compartments which are subject to extreme changes in pressure or in temperature. The pressure release feature of a safety can may cause flammable vapors to leak into the closed compartment. The purpose of the flame arrester is to prevent propagation of a flame into a safety can and ignition of the vapors inside the can.

f) The glass bottles should never be more than 75% full, leaving a vapor space of 25% for expansion.

g) Static electricity is generated when liquids, especially flammable liquids, come in contact with other materials, e.g. pouring, pumping, etc. If the static electric charge becomes sufficiently great, a spark can occur from one metal container to the other container and ignite the vapor air mixture. Good wire to metal electrical contacts must be made. The purpose of the bonding is to minimize the potential differences between the dispensing drum and the safety can; grounding is to minimize the potential differences between the containers and the ground.

- h) 500 ml is the maximum recommended volume of any type of flammable liquid which should be stored on a laboratory shelf.
- i) All containers must be well labeled.
- j) Flammable liquids should never be heated with an open flame, hot plate or uninsulated resistance heater. The preferred sources of heating are a heating mantle, steam bath or hot water bath.
- k) When shaking flammable liquids in closed containers, e.g. separatory funnels, release the pressure frequently or the stopper may be forced out and the worker will be sprayed with the chemical.
- l) All spills must be cleaned up immediately.
- m) Flammable liquids must not be exposed to potential sources of ignition, e.g. electric motors, bunsen burner flames, bacticinerators, etc.
- n) When dispensing flammable liquids (metal to metal), the dispensing container and safety can must be well grounded and bonded.
- o) OSHA approved fumehoods with explosion-proof fans should be used where possible when handling volatile substances, i.e. for organic solvent extractions.
- p) Keep inventory control of all flammable chemicals in the laboratory and storage areas.
- q) The maximum amount of flammable liquid that may be stored at any onetime in a location is 235 liters. Liquids may be stored in vented UL approved safety cabinets or in sealed containers of no more than 23 liter capacity each.(Sealed means closed by a lid or other device from which no liquid will escape at normal room temperature and which has not been opened since it has been filled and sealed by the supplier).
- r) Flammable or combustible liquids should never be stored in a basement or below ground.

2. Corrosive Chemicals

- a) Before transporting a carboy of acid or base, check to make certain the neck of the bottle is not broken.
- b) Never store strong acids with bases or either of the two with flammable liquids or oxidizing chemicals. Perchloric acid should be stored by itself. Keep sealed when not in use. Corrosive chemicals are best stored in special ventilated cabinets.
- c) On-site storage of corrosives should be limited in quantity.

- d) All acid or alkali solutions must be clearly labeled. Glass containers storing alkaline solutions should have plastic rather than glass stoppers as alkali tends to bind glass.
- e) Strong acids or bases should be handled in fumehoods with glass partitions lowered to provide protection to hands and face. Bottles should be placed in a sink with absorbent cloth or towel covering the neck when opening.
- f) Safety glasses, rubber aprons, rubber gloves and lab coats are necessary when handling concentrated acids or alkalis.
- g) Never add water to acids or alkalis; always add a concentrated acid or base to water, a small portion at a time. Using moist paper towels, clean off any acid or alkali drips remaining on the outside of a container. Pour with container below eye level to avoid eye injury and with label up to avoid drips contaminating the label.
- h) Neutralize spills of concentrated acid with sodium carbonate or bicarbonate and neutralize spills of concentrated alkali with boric acid.
- I) Ensure all glassware used to hold corrosive chemicals is well rinsed with water before sending to washup.

ACID AND ALKALI BURNS - The burned areas must be washed with large volumes of water, for a period of five times longer than is necessary to stop the burning sensation. The area must then be covered with sterile dressing and then aluminum foil or plastic wrap to prevent exposure to air. No ointments, creams, baking soda or other substances should be applied. Severe burns should be examined by a physician. An incident report shall be filed using the facility's incident report form.

3. Explosive Chemicals

a) Ethers

Ethyl Ether is a highly volatile and flammable solvent requiring special storage and disposal procedures. With exposure to air, peroxides will form. When the peroxides are concentrated by evaporation of the ether, an explosion will occur. Isopropyl ether and other ethers also form peroxides readily. The following precautions must be adhered to:

- i) Ethyl Ether is preferably obtained in metal cans, and stored in safety containers as opposed to glass bottles.
- ii) All opened bottles must be dated when opened and expiration date sealed.
- iii) "Inhibited" grades, i.e. containing small amounts of water or alcohol, can be used longer (no more than 6 months) than the pure "non-inhibited" grade which must be disposed of within a few weeks following exposure to air. The latter often contains butylated hydroxytoluene.
- iv) It is not advisable to leave a container around with very little ether left in it. Such containers must be promptly disposed of to minimize the risk of explosion. Empty containers will be

picked up by CCEHBR's/CCEHBR hazardous waste contractor.

v) Store all ether cans in a cool place and away from direct heat and sunlight. Explosion proof refrigerators only may be used.

vi) Stabilization of peroxidized ether:

aa. - To the container add approximately 100 ml of a 5% ferrous sulfate solution for each liter of ether. For smaller volumes adjust the amount accordingly, i.e. 1 ml 5% ferrous sulfate solution for each 10 ml ether.

bb. - Mix (do not shake)

4. Toxic Chemicals and Unknown Toxicity

If there is any uncertainty about the hazards of a chemical, contact the Area Safety Representative or Laboratory Supervisor.

Of special interest are:

a) Azide Solutions

Sodium azide is a preservative commonly used in many in vitro diagnostic products. Continual discharge of wastes into drains can bathe the drain pipeline with solutions of sodium azide. Over a period of time, the azide reacts with copper, lead, brass or solder in the plumbing system to form an accumulation of lead and/or copper azide. Both of these compounds are extremely explosive. Solutions containing sodium azide should be discharged down drains with copious amounts of running water. Regular cleaning of the drains should be effected with a strong caustic (NaOH, KOH or Draino) to prevent sodium azide build-up.

b) Cyanide

Avoid contact of cyanide solutions with acids. Acids react with cyanides to produce hydrocyanic acid (prussic acid) vapor which is potentially lethal. Rapidly flowing water must be used when discharging such poisons into drains.

c) Mercury

Mercury is extremely toxic. Every laboratory should do a mercury assessment and include in as part of their Chemical Hygiene Plan. Mercury should be stored in plastic, air-tight containers, away from direct heat or sunlight, and at as low an ambient temperature as possible.

Contact the Lab Supervisor and/or Safety Officer if a spill occurs for (ext.8842 SO) proper clean up procedures. Other than the most minor of spills report them when in doubt.

5. Carcinogenic Chemicals

Currently regulated by OSHA as carcinogenic:

2-Acetylaminofluorene

4-Aminodiphenyl

Benzene

Bis-chloromethyl ether

Acrylonitrile

Asbestos

Benzidine

1,2-Dibromo-3-chloropropane

3,3'-Dichlorobenzidine (+ salts)
Ethylene oxide
Inorganic arsenic
a- Naphthylamine
4-Nitrobiphenyl
B-Propiolactone

4-Dimethylaminoazobenzene
Ethyleneimine
Methyl chloromethyl ether
b- Naphthylamine
N-Nitrosodimethylamine
Vinyl chloride

Other recognized carcinogens:

Analgesics with Phenacetin
Myleran
Chromium and certain compounds
Cyclophosphamide
Melphalan
Mustard gas

Azathioprine
Chlorambucil
Conjugated estrogens
Diethylstilbestrol
PUVA
Thorium dioxide

Suspected carcinogens:

Adriamycin
2-Aminoanthraquinone
1-Amino-2-methylantraquinone
o-Anisidine hydrochloride
Beryllium and some compounds
1,3 Butadiene
Carbon tetrachloride
Chlorinated paraffins
CCNU
4-Chloro-o-phenylenediamine
p-Cresidine
Dacarbazine
2,4-Diaminoanisoole sulfate
1,2-Dibromo-3-chloropropane
1,4-Dichlorobenzene
3,3'-dichlorobenzidine HCL
Methylene chloride
Diepoxybutane
Diethyl sulfate
3,3'-Dimethoxybenzidine
Dimethylcarbonyl chloride
Dimethyl sulfate
1,4-Dioxane
Direct blue 6
Estrogens (not conjugated)
Ethylene oxide
Formaldehyde gas

Afltoxins
o-Aminoazotoluene
Amitrole
Benzotrichloride
Bischloroethyl nitrosourea
Cadmium and some compounds
Chlorendic acid
Chloroform
3-Chloro-2-methylpropene
C.I. Basic red 9 mono HCL
Cupferron
DDT
2,4 Diaminotoluene
1,2 Dibromoethane
3,3'-dichlorobenzidine
1,2-Dichloroethane
1,3-Dichloropropene
Di(2-ethylhexyl)phthalate
Diglycidyl resorcinol ether
3,3'-Dimethylbenzidine
1,1-Dimethylhydrazine
Dimethylvinyl chloride
Direct black 38
Epichlorohydrin
Ethyl acrylate
Ethylene thiourea
Hexachlorobenzene

Carcinogenic materials should always be handled with care. Use protective equipment such as gloves when handling, and avoid breathing vapors. Take the time to learn precautions. **Know the specific precautions as indicated on the proper MSDS and follow them fully.**

6. Compressed Gases

- a) The cylinder contents must be clearly identifiable.
- b) Cylinders must be handled carefully and not rolled, slid or dropped; large cylinders should be transported on a wheeled cart; do not lift a cylinder by its cap.
- c) Cylinders must always be **securely** fastened whether in storage, transit or use.
- d) The cylinder valves must not be tampered with. Never force connections or use homemade adapters. Use only approved equipment. Never repair or alter cylinders, valves or safety relief devices.
- e) Compressed gas cylinders should only be used with a regulator. Close the cylinder valve when the compressed gas is not being used.
- f) When a compressed gas cylinder is "empty", turn off the cylinder valve and label the cylinder as "empty". Store separately from full cylinders. Current cylinder status tags must be attached to the tank at all times.
- g) Compressed gas cylinders should be stored in well ventilated areas away from ignition sources, heat, flame and flammable chemicals. Cylinders should never be artificially cooled. Cylinders must never be placed where they can become part of an electrical circuit.
- h) Never completely empty a compressed gas cylinder.
- i) Empty gas cylinders must never be refilled on laboratory premises. Never attempt to mix gases in cylinders.
- j) If a gas cylinder leaks, close the valve and clearly identify the cylinder as unusable and hazardous. Remove the cylinder outdoors to a well ventilated location away from possible sources of ignition if the gas is flammable. Contact the supplier.
- k) The protective caps should be kept on the cylinders at all times except when the cylinders are in active use.
- l) Avoid using a wrench on valves equipped with handwheels. Never hammer a valve to open or to close it.
- m) Use only soapy water to check for gas leaks. All extended lines must be marked every 8 feet.

- n) It is best not to store cylinders containing flammable gases with oxygen cylinders. They should be separated by a minimum of 20 feet.
- o) Hydrogen should be handled with care as it ignites easily.
- p) Compressed air tanks should have an air pressure of less than 30 pounds per square inch. Never use to clean clothing or parts of the body.
- q) Small propane fuel tanks when exhausted are not to be refilled and should be disposed of according to the facility hazardous waste disposal plan.

D. GENERAL HANDLING OF SPILLS

All spills should be promptly evaluated to determine the following:

1. What is the material, and what are the hazards?
2. Does the employee have the ability to handle the problem?
3. Is there a risk to other employees?

For any spill, regardless of its size or type of chemical involved, first alert fellow employees and visitors that a spill has occurred. If it is determined that extreme danger is present due to flammability and/or noxious fumes, evacuate all personnel from the affected area. Secure the area if necessary.

Before attempting to contain or clean up a chemical spill, determine the appropriate level of protective equipment and put it on! Appropriate protection might include safety goggles, apron, gloves, and/or respiratory protection. Next, determine the appropriate method of handling by reviewing the Material Safety Data Sheet, label, or other source of information.

Spillages of organic solvents, acids or alkali are effectively cleaned up with "Spill Control Pillows". These pillows contain highly absorptive silica which is capable of retaining up to 1 liter of liquid. Be aware that these pillows do not reduce the toxicity or flammability hazard of the material - they are to absorb the material and prevent further spreading. Strong oxidizing acids will destroy the pillow fabric. Some chemicals will have to be neutralized or diluted before they can be absorbed onto the pillow.

Clean Up Procedure

- a) Initiate any appropriate action to prevent a larger problem. If the liquid is flammable, all sources of ignition (electrical, open flame) must be shut off. To reduce irritant vapors the area of the spill should be well ventilated.
- b) Alert all staff to avoid area of spill.

- c) Wear protective clothing when cleaning up spill (chemical resistant gloves, eye protection, respirator, etc. based on the specific hazards of the material).
- d) Determine the volume of the spill. For each liter of liquid spilled use one Spill Control Pillow. Large spills with flowing liquid should be diked to prevent further spread. Small spills (under 100 ml) can be easily handled with absorbent paper towels and copious rinsing with water.
- e) Clean-up. Press the pillow into the spill and allow absorptive action of the silica to absorb the spill. Do not use a "wiping" actions to clean-up the spill.
- f) Disposal. Spill Control Pillows cannot be re-used or used to clean up spills of different solvent as violent chemical reactions can occur. Used pillows should be containerized, labeled, and held for disposal.
- g) Decontamination. Rinse the area with water and dry. Check yourself to determine whether or not you have spilled any chemical on yourself or your clothing. If so, discard clothing or clean as appropriate. After the area is clean and fumes have dissipated, evacuated personnel may return to the room and normal operations may resume.

Note the following special precautions:

a) Acid and Alkalis

Spill Control Pillows do not neutralize acid or alkali. It is important to first neutralize acid spills with dry sodium carbonate (or bicarbonate). Neutralize alkali spills with boric acid. Add until bubbling ceases. Flush with copious amounts of water.

b) Organic Solvents

As the Spill Control Pillow does not eliminate the fire hazard associated with organic solvents it is recommended that the Pillows be placed in a fume hood until they can be properly containerized prior to disposal.

c) Mercury

Accidental spills of mercury must be cleaned up immediately to prevent toxic vapors from entering the air and to prevent contamination of surface or water systems by large or microscopic droplets. If traces of mercury are left in laboratories as the result of mercury spills, worker health can be affected over a period of time. In areas of spills, mercury vapor in the air can exceed 20 mg/m³ (T.L.V. is 0.05 mg/m³) depending on the conditions in the lab and the amount spilled. Contact Safety Officer also.

It is recommended that each branch with equipment containing mercury stock a Mercury Spill Control Kit. In addition, all other locations should stock Mercury Absorbent Sponges to handle small spills. All residue is a regulated hazardous waste.

The Mercury Spill Control Kit contains:

- i) A hand operated suction pump to pick up large quantities of mercury.

- ii) Mercury absorbent sponges for swabbing up small particles from benches, floors and other smooth surfaces.
- iii) An absorbent powder that reacts with mercury to form a harmless amalgam. This powder is suited for collecting mercury from rugs, crevices and other poorly accessible areas. If additional supply is needed, it can be made by mixing equal parts of zinc powder and sulfur powder.
- iv) Protective eye glasses.
- v) Plastic, disposal bag.

Large Spills (> ½ lb.)

Wear protective plastic gloves, respirator and chemical resistant clothing. Use the suction pump to pick up puddles and droplets of mercury. For efficient operation of the pump, keep the reservoir at about the same level as the spill. The stainless steel adapter tube is useful for picking up mercury droplets in crevices. Transfer all mercury in the reservoir to a plastic container with a screw cap. Seal tightly and label "Waste Mercury". After removal of large mercury droplets with the suction pump, use either the sponges or the powder to complete clean-up (see below).

Small Spills

On flat surfaces use the mercury absorbent sponges. Dampen the sponge and slowly wipe the contaminated area. Allow for complete absorption of all free mercury. Return the used sponge in its plastic bag, seal tightly and label "Mercury Waste". Waste material should be held for disposal according to the facility Waste Disposal Plan. For spills that are difficult to access, sprinkle the contaminated area with a fine layer of the mercury absorbent powder. Overlay the powder with wet paper towels to moisten the powder. Allow 10 to 15 minutes for the mercury to react with the powder and form an amalgam. As the amalgam lowers the vapor pressure of mercury, it can then be cleaned up by conventional means (eg. a vacuum cleaner) and disposed with the routine waste.

E. CHEMICAL EXPOSURES

CHEMICAL BURNS

If you witness or are made aware of an accident where an individual receives a chemical burn:

1. Remove the individual from contact as promptly and completely as possible. Contaminated clothing should be removed immediately. Disposition to be determined via safety.
2. The affected area should be flushed with water by emergency shower, face flush, or whatever means is quickly available. If the individual is wearing safety goggles, do not remove them until the face area has been flushed. When chemical is splashed in the eyes, the lids should be forcibly held apart so that the entire surface of the eye is flushed.

3. Do not use neutralizing agents, buffering agents, or chemical antidotes.
4. When the affected area has been flushed extensively, the employee should be taken to the emergency unit. If a stretcher is necessary to transport the employee, call 9 - 911 for an ambulance via EMS.
5. The Supervisor, if not present, should be contacted immediately as well as the safety officer.

CHEMICAL INHALATION

When an individual inhales chemical gases, vapors, fumes, or mists and exhibits any symptoms of adverse exposure:

1. Remove the victim from exposure immediately. If located in a confined space or the chemical is irritating, a gas mask or Scott Air Pack should be used in the rescue. **DO NOT ATTEMPT TO USE THIS EQUIPMENT UNLESS YOU HAVE BEEN TRAINED IN ITS PROPER USE.** Inform a supervisor immediately if assistance is required. Dial 9- 911 for emergency assistance.
2. Dilute the concentration of the material in air by opening windows and nearby laboratory hoods.
3. Keep the victim warm and lying down.
4. If the victim has stopped breathing, begin artificial respiration. CPR (CARDIOPULMONARY RESUSCITATION) SHOULD ONLY BE ADMINISTERED BY CERTIFIED PERSONNEL. Select someone to dial 911 for an EMS ambulance.
5. If the victim has not stopped breathing, they should be taken to the local Medical Emergency Unit for definitive medical treatment. If a stretcher is needed, call 911 for EMS.
6. The source of the chemical gas or vapor should be cut off. Depending on the type of chemical, respiratory protection equipment may be required.
7. Contact the Supervisor and Safety Officer immediately.

F. WASTE DISPOSAL PLAN

It is the policy of CCEHBR to comply with all federal, state, and local regulations regarding the proper storage, handling, labeling, transportation, and disposal of all regulated wastes, including hazardous (chemical), infectious, and radiological materials. The CCEHBR Hazardous Waste Management Plan is administered by the Area Safety Representative. The plan addresses the management of chemical and residual wastes, and is incorporated by reference into this Chemical Hygiene Plan. Specific aspects of the plan as they affect waste management generated by the laboratory are summarized in this section.

PERSONNEL RESPONSIBILITIES

In the laboratory, specific responsibilities apply to all employees and supervisors. These responsibilities are described below.

ALL EMPLOYEES

The individual laboratory worker bears the primary responsibility for proper waste management practices, as control over the proper labeling, storage, and minimization of wastes is best implemented at the point of generation. Workers are responsible for proper labeling and identification of chemical, infectious, and radiological wastes, and should be aware that improper disposal presents potential liability to the individual as well as the facility. Unattended containers of even water left in a lab must be marked to indicate contents. Federal, state, and local controls prohibit the disposal of regulated hazardous wastes without specific permitting. No hazardous wastes should be combined with municipal trash or poured down the sink. Lack of labeling in an emergency may result in a delay of proper handling.

All hazardous wastes should be properly containerized, labeled, and stored prior to transfer to storage under the direction of the Safety Officer.

There are a few specific exemptions to this policy; these are detailed below.

- 1) Acids or alkalis should be neutralized and diluted with water before being poured down the drain.
- 2) Non-regulated, non-liquid chemical wastes may be disposed of in the normal trash. Ion-exchange resins, and non-regulated powdered dyes and stains. Any questions on waste determination should be directed to the Safety Committee. Chemical wastes should be considered hazardous if they have the characteristics of ignitability, corrosivity, reactivity or if they are specifically listed. Or otherwise restricted or regulated by laws. If in doubt contact your supervisor and the safety officer to ensure compliance with any regulation or laws.
- 3) Non-volatile, non-regulated, water-soluble liquids may be poured down the drain with copious amounts of water. Any questions about the proper identification of these materials or procedures for proper dilution should be directed to the Area Safety Representative.
- 4) Flammable liquids must be collected in safety cans for off-site disposal. Do not pour these materials down the drain.
- 5) All wastes should undergo a RCRA hazard determination prior to any disposal or mixing with other wastes. Hazardous wastes should be stored properly according to hazard class, with an accumulation date being placed on each container once accumulation begins. Hazardous wastes may not be stored on site for more than 90 days. A qualified waste management company is to handle all hazardous wastes generated by the laboratory. All wastes must be labeled immediately upon placement in a storage container.

6) Each employee should attempt to minimize wastes generated by utilizing good housekeeping practices and by buying only what supplies are needed. Avoid buying excessive quantities of any chemical, particularly those with expiration dates.

7) Chemicals should not be evaporated in fume hoods for the purpose of disposal. Regulatory laws prohibit any such practices and are prohibited for any hazardous substance. Particular care should be taken when evaporating solvents in the hood for any purpose; certain materials, such as ethers, may form explosive peroxides when evaporated to dryness.

LABORATORY SUPERVISOR

The Laboratory Supervisor is responsible for overall direction of the hazardous waste disposal plan within the laboratory. By basic practices and policy, if it is put in a container, it must be plainly labelled with the common product name, mixture, or chemical term without being abbreviated, except when they are simply too small to fully label then the use of a coded or lab log #'s is permissible. Special packaging and handling requirements are available as determined by law should questions arise concerning certain agents. Contact the CCEHBR safety officer at HML ext. # 8842 for assistance and disposal criteria.

Area Safety Representative

The Area Safety Representative assists in making waste determinations, reviews requests for on-site disposal approval, advises laboratory personnel on regulatory compliance, and is responsible for the overall hazardous waste management program. It is usually, preferred that this be a individual within the science group that is familiar with the unique aspects of the lab and it's primary investigation(s) and related use of chemicals and concentration of hazards as a collateral duty.

TO BE POSTED

CCEHBR Safety and Health Rules

- 1) Authorized persons only are permitted in the laboratory. All visitors must register and must be accompanied by a responsible employee.
- 2) Approved eye protection must be worn by all persons in laboratories at all times. Visitors spectacles will be available for use by those not having suitable glasses.
- 3) Persons handling corrosive or highly toxic substances must wear gloves impervious to the material.
- 4) Laboratory coats are furnished to employees and are to be worn whenever doing laboratory work and foot wear that completely covers the foot. (Sandals and open toe or heel foot wear are not allowed).
- 5) Good personal hygiene shall be practiced at all times. Chemicals, samples, solvents, biologicals or other hazardous materials contacted by the hands or other parts of the body must be washed off immediately. Safety showers shall be used in case of major chemical contact.
- 6) Smoking is not permitted in the laboratories or within any building.
- 7) No eating or drinking can be permitted in laboratories. Never use laboratory glassware for food or beverage. Label all refrigerators as to Emergency Point of Contacts & NO Food.
- 8) Long hair must be tied up or worn under a cap.
- 9) Wearing of jewelry is discouraged. Rings can be damaged and can lead to irritation from chemicals retained under them. Metallic items are prohibited in proximity to the NMR.
- 10) Employees shall do no laboratory work while alone in the building, except with specific approval of their supervisors. Any hazardous materials activities requires two persons minimum.
- 11) Horseplay and practical joking are not permitted.
- 12) All driving on company business must be within legal limits and in conformance with all applicable laws and regulations. Defensive driving should be practiced at all times.
- 13) All injuries, no matter how slight, must be reported to the laboratory supervisor and the Safety Officer.
- 14) Know your nearest escape route for use in an emergency. Be familiar with fire and evacuation alarms. Know your nearest telephone source for reporting any emergency.

- 15) Know where your nearest extinguisher is located. Be sure you know how to use it.
- 16) Know where your nearest safety shower and eye wash fountains are located. Be sure you know how to use them.
- 17) Wipe up spills on bench or floor promptly. Correct other hazards or report them to your supervisor.
- 18) Label all containers for positive identification. Add hazard warnings when contents are flammable, corrosive, toxic, radioactive, etc. Use product name not abbreviations.
- 19) Maintain complete, valid records of all samples, reagents, analyses and results. Protect records from damage or loss. Make it a practice to have a MSDS for each lab chemical.
- 20) Handle glassware carefully to avoid injury. Discard broken glassware into the designated container.
- 21) Avoid pressure or vacuum in glassware unless it is specifically designated for the conditions. Plan for a possible failure anytime + or – pressures are employed. Use of shields?
- 22) Use autoclaves, steam sterilizers and other pressurized equipment strictly according to written procedure. Safety relief devices and controls must function properly.
- 23) Gas cylinders must be secured with a strap or chain when being stored, used, or transported. Adapters between cylinder valves and regulators may not be used. Caps must protect valves when cylinder are not in use. Ask if in doubt cylinders are a danger.
- 24) Use the hood for all operations involving toxic or flammable materials. Verify hoods are tested for flow rate at least twice per year. The face velocity should range between 100 and 200 feet per minute. This is a must adhere to work practice for hazardous activities.
- 25) Flammable materials (flashpoint 100oF or less) are best kept in safety cans. Glass bottles when preferred for purity, must be kept in a flammable liquids cabinet, OSHA regulations limit the size of glass bottles for flammables.
- 26) Use syringes in accordance with proper procedures. Do not use excessive force on a syringe. Dispose of syringes and needles in sharps container. Follow sharps protective policies.
- 27) Dispose of all samples and test materials in accordance with the facility waste disposal plan. Avoid putting hazardous materials into the sewer unless instructed to do so. Avoid purchasing excess materials that will have to be disposed of.
- 28) All electrical equipment must be grounded by a ground fault interrupter. Equipment or cords with poor insulation or base terminals must be repaired before reuse. Extension cords are prohibited. All wiring is to be done by a qualified electrician.

29) Learn how to lift properly to avoid back injury. **Get help for heavy loads.**

30) Planning lab actions and practices that enhance safety and each worker's personal protection is the primary emphasis of accomplishing quality science while pro-actively mandating SAFETY within the lab. **SAFETY Rules have a purpose and direction it is your responsibility as an employee to learn and practice them.** Help us to help keep you safe.

PART THREE

INFORMATION AND TRAINING

Introduction

Safe operation of the laboratory is largely contingent upon personnel awareness and knowledge. These skills apply to the ability of employees to obtain information and use it in the performance of their duties. It applies to familiarity with procedures as well as the hazards of chemicals and equipment in the laboratory.

The OSHA Lab Standard requires the laboratory to provide information and training to verify employees are aware of the hazards of chemicals present in their work areas. Information is to be provided at the time of an employee's initial assignment to a work area and prior to assignments involving exposures to chemicals they have not worked with before. Refresher training is to be provided on a schedule determined by the Safety Officer.

Training/ Information Program Outline

The following information is provided on exposure to hazardous chemicals in the laboratory:

- Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory
- Permissible exposure limits or other recommended exposure limits
- Location of material safety data sheets (MSDSs) and other available reference material on hazards, safe handling, storage and disposal of the hazardous chemicals used in the laboratory

The following information is included in the required training program:

- Physical and health hazards of chemicals in the work area
- Measures that employees can take to protect themselves from these hazards, including Specific procedures such as work practices, personal protective equipment to be used, and emergency procedures
- Methods and observations that may be used to detect the presence or release of hazardous chemicals

All new employees will receive this training prior to working unsupervised in the laboratory. Any employees transferred from other work areas to the laboratory will also receive training. Annual refresher training will also be provided. Training will be implemented through a combination lecture/audio-visual presentation format.

The CCEHBR and CCEHBR Chemical Hygiene Training Program is administered through the Safety Representatives office, located at CCEHBR extension # 8842. Laboratory Supervisors are expected to inform the Safety Representative when new chemicals are

introduced to the laboratory and when job changes are instituted requiring additional training for employees. Each lab has a current copy of your (JHA) - Job Hazard Analysis and updated master inventory control list posted at the primary entrance door to each laboratory. At the CCEHBR facility these are located just inside such entrance to the lab. In the CCEHBR facility they are most often outside the lab door. Contact your lab supervisor for any questions concerning these important documents, particularly if they are missing or beyond their annual renewal date as posted.

PART FOUR

CRITERIA FOR CONTROL MEASURES

Criteria for determining what control measures are needed to assure safe handling of hazardous materials in the laboratory include the following:

- Description of operations that must be conducted within laboratory hoods or with an enclosure or exhaust ventilation
- Description of specific handling practices
- Description of personal protective equipment to be used
- Air monitoring to determine exposure levels and establish respiratory protection requirements, if any may be applicable.

In particular, control measures for the handling of extremely hazardous chemicals must be described. For example, highly toxic materials may require special protective measures. Several sources are used for making these determinations. Following is a list of sources which are available to all laboratory employees:

"Threshold Limit Values and Biological Exposure Indices", American Conference of Governmental Industrial Hygienists, Cincinnati, OH. (1990 or later edition).

"Right to Know Pocket Guide for Laboratory Employees", Genium Publishing, Schenectady, NY, 1991.

"Condensed Chemical Dictionary", Van Nostrand & Reinhold, NY, NY. (11th or later edition).

SPECIFIC HANDLING PRACTICES

All employees are urged to follow the general safety rules regarding the handling of chemicals and chemical containers. These rules are referenced in Section 2.

PERSONAL PROTECTIVE EQUIPMENT

Most personal protective clothing and equipment is provided by the laboratory to employees and visitors when and where this is necessary. It is the responsibility of each employee to be certain that the appropriate clothing is worn as necessary. The most fundamental piece of personal protective clothing is provided by each employee for his/her own use. This is the normal clothing worn in the laboratory. Clothing should be worn to minimize skin surfaces available for direct contact through splashing, etc. Therefore, all employees should wear long sleeve and long legged clothing or long lab coats and oxford style shoes or sneakers. Avoid short sleeve shirts, short trousers or skirts, and open-toed shoes or sandals. Additional personal protective gear available includes: (such as ,but not limited to the following)

Eye Wear
Gloves
Aprons
Respirators

Face Shields
Full foot coverings
Radiation monitors
Cosmetic or Jewelry
Retainers

RECORDS

- 1) Accident records, including recommendations to prevent a recurrence, will be retained in the Administrative Office (Nancy Davey) and by the Area Safety Representative(To be determined). Employees incurring an accident or illness believed to be work related will complete and file a Form CD-137 (Report of Accident/Illness within 24 hours).
- 2) Chemical Hygiene Plan records will document that facilities and precautions are compatible with current knowledge and regulations.
- 3) An inventory of Room 266, volatile solvents storage, will be recorded each year and purchase restrictions applied to specific items if needed. Orderly housekeeping is a must for all storage areas and rooms.
- 4) Records of hazardous chemicals stored in individual work areas will be posted inside or outside the entrance to each room and periodically updated. Once a year workers will be instructed by Division Chiefs to update their lab inventories. Any chemical with one or more NFPA (diamond) Codes rated at 2 or above may be considered hazardous.
- 5) Records of high-risk substances (e.g., toxins or HCN) will be maintained in the laboratories by Project Leaders, and will include amounts on hand, amounts used and names of workers

involved. Job Hazard Analysis notices are to be posted as above in #4 and signed by each lab worker. (If assistance is needed or an e-form for JHA's : contact the Safety Officer at 8842).

6) Medical records will be retained by the Laboratory in accordance with the requirements of state and federal regulations (as may be applicable).

SIGNS AND LABELS

1) All containers shall be labeled as to contents and date made or purchased. This includes reagent bottles, chemical waste containers and receptacles. The labels on purchased chemical containers, including hazard and first-aid information, shall not be removed. You label it if you add it or transfer it to other containers, even if it is water, unless you use it all prior to departing.

2) Emergency telephone numbers will be posted for supervisors, emergency personnel and workers responsible for equipment and facilities. Emergencies to outside authorities require dialing 9 – 911 from any internal telephone to properly access from from CCEHBR and / or CCEHBR facilities.

3) There will be prominent signs for locating fire extinguishers, exits safety showers, eyewash fountains and other safety and first aid equipment.

4) There will be warnings at areas or equipment where special or unusual hazards exist. Obey labels and follow them as they are required by law. Violations may breach safe work practices.

HOUSEKEEPING

General housekeeping is an integral part of chemical hygiene and good safety practice. A clean work area is much safer than a cluttered or dirty one. Some appropriate housekeeping measures include:

- Keep all aisles, hallways and stairs clear of all chemicals.
- Keep all work areas, especially work benches, clear of all clutter and obstructions.
- All working surfaces and floors should be cleaned regularly.
- Access to emergency equipment, showers, eyewashes and exits should never be blocked.
- Wastes should be kept in the appropriate containers and labeled promptly and properly.
- Laboratory staff should be considerate and aware of housekeeping staff. The typical housekeeping staff is not properly trained in the handling of chemicals and should not face situations where they must make decisions regarding the proper handling or storage of chemicals. Therefore, all chemicals should be placed in proper storage areas by the end of each workday; all spills should be promptly cleaned up with arrangements made

for waste disposal; and all chemicals should be properly labeled.

AIR MONITORING

CCEHBR has established an Air Quality Monitoring Program to ensure a safe work environment for all employees. This program is summarized below.

Personnel Responsibilities

All laboratory supervisors are responsible for the following:

- Knowledge of applicable air quality regulations applicable to their department
- Informing employees of the hazards associated with chemicals used in the department, providing information on known air quality, and advising employees of air monitoring performed
- Reporting suspected air quality problems to the Health & Safety Manager
- Maintain air quality standards as required and implement corrective action as necessary

All employees are responsible for the following:

Reporting suspected air quality problems

- Follow policies and procedures designed to maintain air quality, such as replacing lids on containers and working in fume hoods
- Correctly use and maintain personal protective equipment

The Area Safety Representative is responsible for the following:

- Assist laboratory supervisors in determining air monitoring requirements in each workplace
- Arrange for air monitoring
- Ensure air monitoring meets regulatory requirements and implement corrective action as required
- Review results with laboratory supervisor and any impacted employee as by law.

PART FIVE

LABORATORY VENTILATION

Laboratory ventilation is a key factor in controlling employee exposure to hazardous substances. Ventilation is provided in two ways: through the facility's heating and air conditioning system, and through fume hoods utilized in the laboratory. OSHA defines a fume hood as a "device located in the laboratory which is enclosed on five sides with a moveable sash or fixed particle enclosure on the remaining side. It is constructed and maintained to draw air from the laboratory and to prevent or minimize the escape of air contaminants into the laboratory. It allows chemical manipulation to be conducted in the enclosure without insertion of any part of the body other than the hand and arm. Walk-in hoods with adjustable sashes meet the above requirements if the sashes are adjusted during use so that the airflow and the exhaust of air contaminants are not compromised and employees do not work inside the enclosure during the release of airborne toxic substances."

Following are additional requirements applying to fume hoods in the laboratory:

Ventilation will not be obstructed or modified except by qualified mechanical engineers. Ventilation in areas where noxious fumes or flammable liquids are handled should provide a minimum of six air changes per hour. Ventilation in areas where fungal, mycobacterial, or viral specimens are handled should provide a negative air pressure with respect to the rest of the laboratory.

Fume hoods are used for the safe handling of noxious, corrosive, or volatile chemicals. Fume hoods are not to be used as a substitute for Biological Safety Cabinets (laminar flow hoods). The following policies concerning fume hoods in the laboratory will apply:

Construction: No fume hoods constructed of flammable materials will be permitted in the laboratory.

Toxic fumes: Whenever toxic substances, corrosive aerosols, carcinogens, mutagens or teratogens are handled in a fume hood, the minimum face velocity must be 100 cubic feet per minute (fpm). For hoods not meeting this requirement, the velocity may be increased by lowering the sash. If the velocity cannot be increased, the hood may not be used for the aforementioned materials. For effective use, materials should be handled at least six inches away from the hood opening.

Inspection: All hoods will be inspected at least annually by a qualified, contracted engineer. Anytime a fume hood's air handling system is altered or serviced, the hood must be inspected before being placed in service. Any new fume hoods installed must be inspected by the contracted engineer before being placed in service. Inspected hoods shall have a sign affixed to them stating the inspection interval, last inspection date, average face velocity, location of the fan that serves the hood, and the inspector's name and dated initials.

PART SIX

PRIOR APPROVAL FOR USE OF SPECIAL HANDLING CHEMICALS

The OSHA Laboratory Standard requires that if a particular laboratory operation, procedure, or activity requires prior approval from the employer or any supervisor, the circumstances and the approval procedure must be described in the plan.

Following are operations requiring prior approval from the laboratory supervisor:

Radio-isotopes

PART SEVEN

MEDICAL PROGRAM

The OSHA Laboratory Standard requires the Chemical Hygiene Plan to describe the conditions under which the employer is required to provide laboratory employees who work with hazardous chemicals the opportunity to receive medical attention and any follow-up examinations which the examining physician determines to be necessary. The three conditions under which medical consultation and medical examinations must be provided without cost, without loss of pay, and at a reasonable time and place are as follows:

- Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory
- Whenever an event takes place in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure
- Whenever exposure monitoring reveals an exposure level routinely above the permissible exposure limit (PEL) or action level for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements.

Material Safety Data Sheets, labels, and various reference materials describe potential signs and symptoms of exposure to chemicals. Following is a partial summary of symptoms or signs which are indicative of overexposure to hazardous materials:

Abdominal cramps
Alopecia (loss of hair)
Amenorrhea (stoppage of menstruation)
Amnesia
Analgesia (loss of sensitivity to pain)
Anesthesia (loss of feeling)

Angina pectoris (chest pain)
Anorexia (loss of appetite)
Anosmia (loss of sense of smell)
Anuria (lack of urination)
Anxiety
Aphasia (inability to talk coherently)
Apnea (breathing temporarily stopped)
Areflexia (loss of reflexes)
Argyria (blue colored tissue from silver)
Arrhythmia (irregular heartbeat)
Arthralgia (joint pain)
Asphyxia (suffocation)
Asthenia (loss of strength or energy)
Asthma (difficulty in breathing)
Ataxia (inability to walk straight)
Athetosis (slow writhing movements of fingers)
Atrophy (reduction in size or function of body)
Blindness
Blurred vision
Bradycardia (slow heart beat)
Bronchitis
Burn (tissue damage)
Cancer (abnormal tissue growth)
Cataracts
Changes in body/breath odor
Cheilitis (inflammation of the lips)
Chemical pneumonitis (inflammation of the lungs)
Chills
Chloracne (reddish skin rash)
Chorea (jerky uncontrolled movements of limbs)
Colic (abdominal pain due to intestinal gas)
Collapse
Coma
Confusion
Conjunctivitis (inflamed and reddened eyes)
Constipation
Convulsions
Coughing
Coughing blood
Cyanosis (blue to purple skin color)
Dark urine
Dehydration (excessive loss of body water)
Delirium (mental confusion)
Dental erosion
Depression, mental
Dermatitis (inflamed and reddened skin)

Diaphoresis (profuse perspiration)
Diarrhea
Disequilibrium (inability to maintain balance)
Disordered gait (change in walking pattern)
Dizziness
Drooling
Drowsiness
Dysarthria (difficulty in speaking clearly)
Dysosmia (impaired sense of smell)
Dysphagia (difficulty in swallowing)
Dyspnea (difficulty in breathing)
Dysuria (painful or difficult urination)
Eczema (itching and burning skin)
Edema (fluid retention, swelling)
Emaciation (extreme low weight)
Embolism (obstruction of a blood vessel)
Emphysema (difficulty breathing)
Epistaxis (nosebleed)
Erythema (reddened skin)
Euphoria (exaggerated feeling of well-being)
Fasciculation (muscle twitching under skin)
Fainting
Fatigue
Fever
Fibrillation (rapid muscle contractions)
Fluorosis (darkening of the teeth)
Footdrop (dragging of the foot while walking)
Frostbite
Gangrene (tissue death)
Gasping (difficulty catching breath)
Gastroenteritis (inflammation of the stomach and intestine)
Giddiness (dizziness, silliness)
Glossitis (tongue swelling)
Halitosis (foul-smelling breath)
Hallucination
Headache
Hematuria (blood in the urine)
Hemiparesis (paralysis of one side of the body)
Hemorrhage (bleeding)
Hyperemia (congestion of blood in a body part)
Hyperkinesis (excess activity or motion)
Hyperpigmentation (excessive coloring of the skin)
Hyperthermia (elevated body temperature)
Hyperventilation (sudden rapid breathing)
Hypocalcemia (calcium deficiency of the blood)
Hypothermia (lowered body temperature)

Hypoxia (insufficient oxygen)
Icterus (tissue discoloration)
Impotence (loss of sexual ability)
Incoordination
Inflammation (swelling, redness)
Inflexibility (rigidity, inability to move)
Insomnia (inability to obtain normal sleep)
Interstitial fibrosis (scarring of the lungs)
Involuntary defecation
Involuntary urination
Iridocyclitis (inflammation of the iris)
Irritability
Itch
Jaundice (yellow discoloration of skin or eyes)
Keratosis (horny growths on skin)
Lacrimation (excessive eye tearing)
Lassitude (sense of weariness)
Lesion (injury to tissue)
Lethargy (sluggish feeling)
Lightheadedness (dizziness)
Lipid granuloma (inflamed lung tissue)
Lipid pneumonia (from aspiration of oily materials)
Malnutrition
Melena (black tarry vomit or stools)
Menstrual changes
Metallic taste
Miosis (pupil contraction)
Miscarriage
Myotonia (temporary muscle rigidity and spasm)
Narcosis (stupor or uncontrolled sleeping)
Nasal ulceration (perforation of nasal tissue)
Nausea
Necrosis (localized death of tissue)
Neoplasm (abnormal tissue growth)
Nephrotoxic (poisonous to the kidney)
Nervousness
Neuritis (inflammation of the nerves)
Nocturia (excessive urination at nighttime)
Numbness
Ochronosis (dark spots on skin)
Oliguria (decreased urination)
Opisthotonos (spasms with body arched from head to heels)
Oxide pox (dermatitis from oxide contact)
Pallor
Palpitations (forceful heartbeat)
Paralysis

Paresthesias (abnormal tingling)
Paroxysmal (sudden recurrence of disease)
Perforation (opening through a tissue)
Pharyngitis (sore throat)
Phlebitis (swollen, painful vein)
Photophobia (inability to tolerate light)
Photosensitization (allergic reaction to light)
Phototoxicity (irritant reaction to light)
Pneumoconiosis (material particles in the respiratory track)
Prostration (marked loss of strength)
Proteinuria (presence of protein in the urine)
Ptosis (drooping of upper eyelid)
Pulmonary edema (fluid in the lungs)
Pyorrhea (swollen, bleeding gums)
Pyuria (pus in urine)
Respiratory distress
Rhinorrhea (excessive nasal discharge)
Salivation (discharge of saliva)
Scotoma (blind spot in field of sight)
Seizure
Sensitization (allergic reaction)
Shock (depression of all bodily functions)
Siderosis (lung and tissue damage from iron particles)
Silicosis (lung condition from silica dusts)
Spasms
Stomatitis (swelling of the mouth lining)
Strabismus (lack of coordinated eye movement, crossed eyes)
Sweating (excessive moisture on skin)
Swelling (of tissues)
Tachycardia (abnormal rapid heartbeat)
Tachypnea (increased respiratory rate)
Tetany (intermittent muscle spasms)
Tick (skin twitch)
Tinnitus (ringing in the ears)
Tracheobronchitis (coughing, difficulty breathing)
Tremors (shaking, trembling)
Tumor (swelling or growth)
Ulceration (tissue destruction)
Urticaria (skin eruption)
Vertigo (feeling of whirling motion)
Vesiculation (blisters)
Vomiting
Wheezing
Wrist drop (inability to extend hand at wrist)

PART EIGHT

**CHEMICAL INVENTORIES ARE HELD BY THE LABORATORY SUPERVISORS
AND THE SAFETY OFFICER.**

LABORATORY - SPECIFIC PRACTICES (To be determined)

APPENDICES

APPENDIX A

CONVERSION CHARTS

METRIC/ENGLISH

TEMPERATURE

From C to F $F = 1.8 \times C + 32$

From F to C $C = 0.556 \times F - 17.8$

VOLUME

1 ml	= 0.0338 fluid ounces	1 oz	= 29.573 ml
1 liter	= 2.1134 pints	1 pint	= 473.166 ml
1 liter	= 1.0567 quarts	1 quart	= 946.332 ml
1 cc	= 0.06102 cubic inches	1 ci	= 16.3872 cc

WEIGHT

1 gram = 0.03527 ounces
1 oz = 28.3495 g
1 kilogram = 35.274 ounces
1 oz = 0.0283 kg

APPENDIX B

HAZARDOUS CHEMICAL SPILL/DISCHARGE REPORT

PURPOSE

This form should be completed on hazardous chemical spills. The objectives of this form include: 1) an effective review of applicable regulatory reporting requirements, 2) investigation of ways to prevent a reoccurrence, and 3) to verify that all resultant hazardous wastes are properly handled.

INSTRUCTIONS FOR COMPLETION

1. This form should be completed for all spills meeting any of the following conditions:
 - a. An employee was injured as a result of the spill or release
 - b. The release resulted in evacuation of a work area
 - c. The release is believed to have resulted in an employee's exposure to an OSHA 1910.1000 air contaminant above the allowable STEL or PEL level
 - d. Staff members other than employees stationed in the immediate area were involved in spill cleanup

2. Only spills of regulated hazardous or infectious substances need to be reported. Contact the Safety Committee if there is any question on the regulatory status of a material. Note that a hazardous substance becomes a hazardous waste when spilled, under normal circumstances.

APPENDIX C

GLOVE SELECTION FOR COMMON LABORATORY CHEMICALS

SUBSTANCE	PREFERRED GLOVE	ACCEPTABLE ALTERNATIVE
Acetaldehyde		NH
Acetic acid	NR	
Acetone	BR	TF
Acrylonitrile		
Ammonium hydroxide	PVC	
Aniline		PVC
Benzaldehyde		PVC
Benzene	PVA, VT	
Benzyl chloride	TF	
Bromine	TF	
Butane		
Butyraldehyde	BR, TF	PVC
Cadmium oxide		
Calcium hypochlorite		
Carbon disulfide	PVA	
Carbon tetrachloride	PVA, VTR	
Chlorine	SX	BR
Chloroacetone		
Chloroform	PVA, VT	
Chromic acid	PVC, BR	
Cyclohexane	VT	
Dibenzyl ether		
Dibutyl phthalate	BR, PVA, VT	
Diethanolamine	PVC, BR, PVA	TF
Diethyl ether		
Dimethyl sulfoxide	BR	
Ethanol	BR	TF
Ethyl acetate	BR, PVA, TF	
Ethylene dichloride	TF, VT	PVA
Ethylene glycol	PVC	NR, NP
Fluorine	NR, NP	
Formaldehyde	BR, PE, VT	
Formic acid	PVC	
Freon 113	TF	VT
Furfural	BR	PVA
Glutaraldehyde	BR, VT	
Glycerol	PVC	
Hexane	PCA, TF, VT	
Hydrobromic acid	PVC	
Hydrochloric acid	BR, SX	NR, PVC

Hydrogen peroxide	PVC	NR,
Iodine	SX	PE
Isopropyl alcohol		TF
Maleic acid	NR, PVC	
Methylamine	BR, VT	
Methyl cellosolve	BR	
Methyl chloride	PVA,	
Methyl ethyl ketone	BR, TF	
Methylene chloride	PVA	
Monoethanolamine	BR, VT	PVC
Morpholine	BR	PVA
Naphthalene	TF	
Nitric acid	BR, SX	
Oxalic acid	BR, NR, PVC, VT	
Perchloric acid	NR, PVC	
Peroxyacetic acid	BR	BT
Phenol	BR, VT	
Phosphoric acid	NR, PE, PVC	
Potassium hydroxide	BR, PVC	NR
Propylene dichloride	None appropriate	
Sodium hydroxide	BR, NT, PVC	
Sodium hypochlorite	NR, PVC	
Sulfuric acid	BR, NR, PE, PVC, TF	
Toluene	PVA, TF, VT	
1,1,1-Trichloroethane	PVA, VT	
Trichloroethylene	PVA, VT	
Tricresyl phosphate	BR, PVA, PVC	VT
Triethanolamine	BR, PVA, PVC	
Trinitrotoluene		

BR= butyl rubber

NR= natural rubber

PE = polyethylene

PVA = polyvinyl alcohol

PVC = polyvinyl chloride

SX = Saranex

TF = Teflon

VT = Viton

EMERGENCY PREPAREDNESS PLAN

CENTER FOR COASTAL ENVIRONMENTAL HEALTH AND BIOMOLECULAR RESEARCH AT CHARLESTON

**U.S. DEPARTMENT of COMMERCE
NOAA, NATIONAL OCEAN SERVICE
NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE**

APRIL 2003 (rev. A)

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GENERAL EVACUATION INFORMATION

Persons Authorized to Order Evacuation

Center Director - Geoffrey I. Scott (Acting Director)/Paul Comar (Acting Deputy Director)

Office of Administration - Karen Bauersfeld / Nancy Davey / Martin Burnett

Building Maintenance Supervisor - Robbie Meyer

Notification for Emergency Evacuation

Fire - Fire Horns and Strobe Lights

Explosion or Gas Leak - Fire Horns and/or Public Address

Suspicious Object - Public Address Announcement

Bomb Threat - Public Address Announcement

Major Chemical Spill - Public Address or Fire Horns

Reporting Site

Fire / Explosion / Suspicious Object / Major Chemical Spill:

All employees should report to the parking lot in front of the building near the flagpole. If a fire alarm is set off during a thunderstorm and no fire is apparent, employees should report to the front lobby and await further instruction.

Bomb Threat: All employees report to the DNR guard shack just inside the main gate.

Building Re-entry

Re-entry to the building will be announced by the Center Director or designated official.

EMERGENCY PERSONNEL

Designated Official

Geoffrey I. Scott, Acting Center Director – 762-8508

Occupant Emergency Coordinator

Nancy Davey, - 762-8565 ; Martin Burnett , - 762-8808

Team Coordinator

Rick Meitzler, Safety Officer -762-8842

<u>Area Monitors</u>	<u>Area</u>
Debbie Braddock / Paul Comar - 8868 / 8558	Administration (Rm. 100-119)
Paul Bauersfeld / Lori Schwacke	Open Office Area (Rm. 200-214)
Tod Leighfield / Bennie Haynes	Biotoxins (Rm. 215-224)
Fran Van Dolah / Ed Wirth	NIST / Back Hall (Rm 225-229)
Laura Webster / Tom Brown	Back Hallway (Rm. 230-247)
John Bemiss / Tom Edwards	Biotech / ADP (Rm. 248-263)
Wayne McFee / Rusty Day	Bldg. 400 Areas (Rm. 401-426)
Mike Fulton / Paul Pennington	Bldg. 500, Greenhouse & Trailer
Len Balthis / Pete Key	Mezzanine
Ron Lundstrom / Julie Carter	Forensics, Suite 420

Disabled Staff Monitor

Karen Bauersfeld

Damage Control Team

Robbie Meyer, Charles Burns, DNR; Martin Burnett, NOAA & Safety Officer, Rick Meitzler.

Up dated as of Nov. 2002

FIRE EVACUATION PROCEDURES

1. **Be prepared for a fire emergency** by making note of the nearest fire extinguisher and the route to nearest emergency exit from your work area. Our fire alarm consists of loud horns and strobe lights. Most alarms will be activated by one of the smoke detectors or heat detectors located throughout the building. Thus the alarm may sound while no hint of fire is otherwise observable to you directly but evacuate if an alarm sounds irregardless.
2. **Upon detection of a fire**, regardless of size, do the following immediately and in sequence, unless there are others available to permit simultaneous execution.
 - C **Attempt to extinguish the fire immediately** using the closest available fire extinguisher **only if you judge the fire small enough to be controllable.**
 - C If a fire is too large, or the fire extinguisher is inadequate, **leave the area immediately.**
 - C **Activate the fire alarm** (if it has not sounded) by pulling one of the alarm pull stations which are located by each exit door from the building. Leave the building immediately
3. **Upon hearing a fire alarm**, personnel will:
 - C **Stop work immediately.** Terminate all meetings or telephone calls and if time permits, close doors, turn off lights and turn off equipment except those marked ADo Not Turn Off@. Do not attempt to remove personal belongings or records.
 - C **Evacuate the building.** Proceed without delay to the closest emergency exit, or an alternate exit if necessary to avoid the fire location. There is a fire exit door at the rear of Room 236 and Rooms 243 and 246 have emergency fire exit windows that could be pushed out with a heavy object.

Area Monitors should assist in evacuating personnel. Check to see that lights are off, doors are closed and people are out. If the alarm sounds when you are far from your area, leave the building by the nearest exit.

Upon exiting the building, go to the parking lot in front of the building by the flagpole and join the other employees. All driveways and roadways must be kept clear for emergency vehicles and fire equipment.
- * **Visitors and Handicapped Employees.** Area Monitors and/or employees nearest visitors will ensure that visitors are aware of alarms and evacuate the building with employees. Area Monitors will make sure that handicapped employees are assisted to leave the building safely in the event of a fire alarm.
4. **Return to the building** only after an official all clear is given.

OTHER EVACUATIONS

- 1. Chemical Spill.** In the event of a chemical spill, notify others in the area of the problem. Do not walk through the spill and do not attempt to clean it up without proper protective equipment. Notify the Safety Officer and / or the Facilities Manager. If it is a minor liquid spill, use the appropriate absorbant from your lab or from one of the spill cleanup kits in the hallways. Seal the contaminated absorbant material in a plastic bag and label it for disposal. If it is a major spill that is immediately hazardous, close the door, notify others, and if there is a major fire hazard pull the fire alarm as you exit the building. Air handlers shut off automatically with the fire alarm, and fire personnel will have adequate personal protective equipment to clean up the spill. Fire personnel with self-contained breathing respirators can also handle toxic spills if it is decided that they are needed.
- 2. Bomb Threat.** If a bomb threat against CCEHBR Charleston Laboratory is received by an employee, it shall be reported immediately to the front desk (8511). The receptionist will notify the Center Director or her designee (Acting Director or Administrative Officer) for appropriate action. If a decision is made to evacuate the building, the Center Director or her representative will make the following announcement over the public address system (NOTE: The fire alarm system will not be used for a bomb threat):

Attention Staff. The Laboratory has received a bomb threat. Please turn off all non-essential equipment and utilities, close your door and leave the building by the nearest exit. Go to the guard shack just inside the main gate and remain there until further notice. This is not a test. Do not stay in the building. Repeat.

The Center Director or designee will call 911 for the police and fire department. No evacuation order will be given without the approval of the Center Director or Acting Director. However, **when there is an immediate danger**, such as an actual fire or explosion, the premises shall be evacuated at once by sounding the fire alarm system (at pull station if not already sounding), leaving by the nearest exit, and proceeding to the assembly point near the main gate.

If you receive a call from a person stating there is a bomb in the building, **keep the caller on the line** as long as possible unless you have reason to believe a detonation is imminent (use judgement). Ask the caller to repeat the message. Record (write), if possible, every word spoken by the person making the call. Attempt to inform a coworker of the situation through hand signals and notes. Try to get word of the threat to the receptionist at the front desk.

* If the caller does not indicate the **location of the bomb or the time of possible detonation**, you should ask the caller to provide the information.

- * Pay particular attention to **any strange or unusual noises** such as motors running, background music, or any other noises which might indicate where the call is being made. Listen closely to the voice (male - female), voice quality, accents or speech impediments.

- * Immediately after the caller hangs up, the person receiving the call should **report this information to the Center Director / Acting Director and the Administrative Officer.**

- * In the event you see a suspicious looking object during or before an evacuation, do not disturb the object. Notify the Center Director (ext.8525) or the Receptionist (ext.8511) and inform them of its location.

INTRUDER ON PREMISES

In the event an intruder(s) is/are observed on the premises during working hours, call the reception desk (ext.8511) stating nature of intrusion (demonstration, vandalism, theft, bomb, arson etc.) and whether intruder has a weapon. The receptionist will call the County Police (911) or MRRI Security (762-5044). Do not attempt to apprehend an intruder. If possible record appearance of individual(s), sex, race, clothes, hair, behavior etc., and means of escape (foot, car, bike etc.)

Record license plate number if possible.

TRAPPED IN FREEZER ALARM

There are three alarms in the building to alert others of a person trapped in one of the walk-in freezers. Flashing red lights and high pitched audible alarms are located (1) in the back hallway between Rooms 235 and 237, (2) on the back loading dock outside Room 405, and (3) in the Room 406 corridor. When one of these alarms sounds, check walk-in freezers in the following order to determine if anyone is trapped inside.

1. Check the main walk-in freezers, Rooms 407A, B and C.
2. Check Marine Mammals receiving freezer, Room 401.
3. Check walk-in freezers outside Room 420 (Forensics).
4. Check Environmental Rooms (224 A&B, 253, 254).

If you should find yourself trapped in a freezer (unable to open the door), press in the large red button beside the exit door. This will set off the audible / visible alarms described above. As a general rule, do not enter a freezer alone unless someone else is aware of it. If it is after hours or on a weekend you should definitely not enter a freezer unless someone else is keeping a close watch. If you push the alarm button accidentally, pull it back out and let someone know. If after hours, page the on-call maintenance person (number is posted on door to Room 234) and let them know that an emergency trip to the lab is not needed.

NATURAL DISASTER RESPONSE

Hurricanes are our most common natural disaster, but we can expect to have adequate warning so that we can make preparations (as described below) and be elsewhere when it arrives. Tornadoes are most likely to occur during a hurricane, but there is a chance of a life threatening tornado during a thunderstorm and a remote but real chance of a severe earthquake.

The Center Director (or designee) shall assess the situation and advise the Administrative Officer and/or Receptionist of any specific information or instructions to be issued to Area Monitors and employees in general.

The Receptionist will make the following announcement:

May I have your attention. A tornado (or high winds, earthquake aftershocks etc.) is expected momentarily. Please turn off all non-essential equipment and utilities and go to the nearest shelter area until further notice. Repeat.

Preferred shelter areas in the main lab building are located in the crossing halls between the back hall and the front hall / bullpen. The main back hallway can also be used, avoiding the more hazardous labs, or use hallways in the administrative and 400 areas. Close all doors, proceed to a shelter area, find a place along a wall and wait for further instructions from Area Monitors.

HURRICANE PREPAREDNESS

Responsibilities

Center Director - is responsible for decisions related to implementation of this plan during an emergency.

Center Management Team - is responsible for assisting in the emergency planning process and ensuring their respective branches are secure.

Chief, Office of Administration - is responsible for operational elements of the plan prior to, during and following an emergency situation. Will notify major local television and radio stations of employee work dismissal.

Supervisors - are responsible for ensuring that employees are familiar with this plan and comply with its policies and procedures.

Employees are responsible for securing their areas.

Laboratory Safety Committee - is responsible for updating the plan.

Hurricane Preparations

Hurricanes will be monitored via television and the Internet to provide advance warning of any potential threat to the Charleston area. When a hurricane watch is issued, preparations will be made to secure the laboratory. Prior to a weekend or holiday, preparations will be initiated at an earlier stage of the hurricane threat.

Normal supervisory channels will be maintained and special instructions transmitted through supervisors. Each employee will be responsible for securing his/her work area and adjacent unoccupied areas. Computers will be backed up and plastic sheeting will be distributed to cover critical instruments and records. Get records and computers off the floor if possible and protect with plastic sheeting.

Assist as needed to remove and/or secure loose objects outside the building such as empty drums or materials on the loading dock. Ensure that trash dumpster is closed.

Government vehicles will be moved to high ground, away from trees. Laboratory boats will be filled with water and/or tied down if they have not been moved to a safe location.

Check to insure that all gas and water faucets, including the main distilled water faucet in the mezzanine, are shut off. Shut off electrical equipment that need not be running and ensure that all equipment that must remain operable is supplied by emergency outlets.

All employees will leave the building and the Fort Johnson premises when dismissed by their supervisors and return only after the hurricane threat is passed. Inside doors will be closed but not locked. Outside doors will be locked.

If a hurricane threat develops rapidly over a weekend, supervisors or their designees will request that employees come in to the Laboratory and secure their areas. Normally preparations will have been made in advance, allowing all employees to secure their homes and to evacuate the area if they so choose.

Communication Procedures

If employees have been dismissed, or are off duty as a hurricane approaches, they will be expected to check the CCEHBR telephone voice mail system for instructions. Information will be distributed through the **voice mail message center (762-8888)**. Should our phone system fail, there is a **backup system** (via SC CASU) at **1-800-343-0639**. Follow the menu selections.

Official NOAA Weather Service Hurricane Watch/Warnings for the Greater Charleston Area will be used for the decision making process. Charleston County Emergency Preparedness

Advisories for the Greater Charleston Area will be adhered to, especially those advisories affecting coastal islands.

Dismissing Employees

During Work Hours - Prior to and during a Hurricane Watch and after Center facilities are secured, there will be a liberal leave policy, allowing employees to secure their homes and make travel plans. After Center facilities are secured and a Hurricane Warning is imminent, Administrative Leave will be granted. *Due to changes in state policies on hurricanes, dismissal of staff at times prior to issuance of a hurricane warning may occur due to the significant times required for orderly evacuation of the SC coast.*

During Non-Work Hours - All employees will utilize the CCEHBR voice mail system to obtain instructions from the Center Director. If Laboratory facilities have not already been secured, employees will be expected to report to duty to secure facilities under a Hurricane Watch unless excused by their supervisor. If a Hurricane Warning is issued, employees will be on Administrative Leave and will not be expected to report to work.

Resumption of Operations

All employees should check the CCEHBR voice mail regularly (or the 800 number if necessary) for instructions. Employees will be expected to report back to duty upon the lifting of Hurricane Warnings, with the following exceptions:

- 1) If severe damage to the area occurs, instructions will be given by voice mail.
- 2) If less than four hours remain in the standard day (8:00 - 4:30) employees may choose to take advantage of the liberal leave policy to meet personal obligations.

Supervisors will assess the damage in their respective areas and submit a written report to the Chief, Office of Administration as soon as possible after the emergency. The State Maintenance Staff will inspect for structural damage and/or mechanical failure and advise the Facilities Manager and/or Administrative Officer and supervisors as soon as possible.

Information on the Web

The attached information on hurricane preparedness (modified), and much additional information on various types of storms, can be found at: <http://www.kate.net/storms/>

For much useful information on local conditions, forecasts, warnings and facilities for evacuation, try the Charleston Net Home Page at <http://www.charleston.net/> and click on the Storm Center icon.

Recommendation: Add these sites to your Bookmarks or Favorites list.

Are You Ready for a Hurricane ?

Know What Hurricane WATCH and WARNING Mean

Watch: Hurricane conditions are possible in the specified area of the Watch, usually within 36 hours.

Warning: Hurricane conditions are expected in the specified area of the Warning, usually within 24 hours.

Prepare a Personal Evacuation Plan

Identify ahead of time where you could go if you are told to evacuate. Choose several places a friend's home in another town, a motel or a shelter.

Keep handy the telephone numbers of these places as well as a road map of your locality. You may need to take alternative or unfamiliar routes if roads are closed or clogged. Listen to NOAA Weather Radio or local radio or TV stations for evacuation instructions. If you are advised to evacuate, do so immediately.

Assemble a Disaster Supplies Kit

First-aid kit and essential medications

Canned food and can opener

At least three gallons of water per person (one gallon per day per person for three days)

Protective clothing, rainwear and bedding or sleeping bags

Battery -powered radio, flashlight and extra batteries

Special items for infants, elderly or disabled family members

Written instructions for how to turn off gas and water if authorities advise you to do so.

(Remember, you'll need a professional to turn them back on)

Prepare for High Winds

Install hurricane shutters or precut 3/4 inch marine plywood for each window. Install anchors and predrill holes in the plywood so you can put it up quickly. Make trees more wind resistant by removing diseased or damaged limbs, then strategically removing branches so that wind can blow through.

Know What to Do When a Hurricane WATCH is Issued

Listen to the advice of local officials, and leave if they tell you to do so.

Complete preparation activities.

If you are not advised to evacuate, stay indoors away from windows.

Be aware that the calm eye is deceptive ; the storm is not over. High winds resume from the opposite direction once the eye passes over. Trees, shrubs, buildings and other objects damaged by the first winds can be broken or destroyed by the second winds whose force is opposite the first winds.

Be alert for tornadoes. Tornadoes can happen during and after a hurricane passes over. Remain indoors, in the center of your home, in a closet or bathroom without windows.

Stay away from flood waters. If you come upon a flooded road, turn around and go another way.

Cars are easily swept away by flood waters.

Know What to Do After a Hurricane Is Over

Listen to NOAA Weather Radio or local radio or TV stations for instructions. Check the CCEHBR Voicemail Message Center (843-762-8888).

If ground phone line communications are disrupted staff will be contacted via activation of the emergency phone tree.

HOMELAND SECURITY INCIDENTS

During the occurrence of bioterrorism acts or homeland security incidents which may pose a threat to the safety and security of CCEHBR, precautions will be taken to secure the safety of CCEHBR including:

Activation of the Ft. Johnson 5 (NOAA, NIST, SC DNR, MUSC and UofC) to secure the Ft. Johnson Campus including securing and closure of the Front Gate.

Activation of CCEHBR Continuity of Operations Plan (COOP) which includes: (1) Notification of the NCCOS Director to Activate the COOP; (2) The NCCOS Director will then notify the NOAA Deputy Acting Administrator to inform NOS Management; (3) The NCCOS Director will then have the NCCOS Deputy Director to notify other Centers.

The CCEHBR COOP Team will include the Center Director, Deputy Director, Building Supervisor (Martin Burnett), Human Resources (Nancy Davey), Safety Officer and Branch Chiefs along with appropriate representatives from SC DNR and other appropriate fire and law enforcement departments within the area who will confer and decide on the appropriate levels of response to take to secure the facility and safety /security of CCEHBR staff .

Employees will be dismissed and granted Administrative Leave according to the level of threat posed by the particular incident or act. A liberal leave policy will be granted during such events to ensure that employees are able to address security concerns of their family members.

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service
National Centers for Coastal Ocean Science
1305 East West Highway, Room 13601
Silver Spring, Maryland 20910

