

**Hazardous Materials  
Management Plan  
for the  
Northeast Fisheries  
Science Center**

**by**

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ANSI	- American National Standards Institute, Inc.
ASR	- Area Safety Representative
CAS	- Chemical Abstracts Service
CERCLA	- Comprehensive Environmental Response, Compensation and Liability Act
CESQG	- Conditionally Exempt Small Quantity Generator
CFR	- Code of Federal Regulations
CHO	- Chemical Hygiene Officer
CHP	- Chemical Hygiene Plan
CMR	- Code of Massachusetts Regulations
CP	- Contingency Plan
COTR	- Contracting Officers Technical Representative
CWA	- Clean Water Act
DEM	- Department of Environmental Management
DEP	- Department of Environmental Protection
DOC	- Department of Commerce
DOT	- Department of Transportation
DPS	- Department of Public Safety
EASC	- Eastern Administrative Support Center
ECD	- Electron Capture Detector
EPA	- U.S. Environmental Protection Agency
GSA	- General Services Administration
HAZCOM	- Hazard Communication Program
HAZMAT	- Hazardous Materials
HAZMIN	- Hazardous Materials Minimization
HM	- Hazardous Materials
HW	- Hazardous Waste
MSDS	- Material Safety Data Sheet
NEFSC	- Northeast Fisheries Science Center
NJAC	- New Jersey Administrative Code
NFPA	- National Fire Protection Association
NIOSH	- National Institute for Occupational Safety and Health
NMFS	- National Marine Fisheries Service
NOAA	- National Oceanographic and Atmospheric Administration
NRC	- Nuclear Regulatory Commission
O-I-C	- Officer-In-Charge
OSHA	- Occupational Safety and Health Administration
PCB	- Polychlorinated Biphenyls
PEL	- Permissible Exposure Limit
PPE	- Personal Protection Equipment
RCRA	- Resource Conservation and Recovery Act
RSM	- Regional Safety Manager
RTK	- Right-To-Know
SARA	- Superfund Amendments and Reauthorization Act
SOHS	- Safety and Occupational Health Specialist
TSCA	- Toxic Substances Control Act
TSD	- Treatment, Storage, Disposal
TSCA	- Toxic Substances Control Act
USCG	- U.S. Coast Guard
VSQG	- Very Small Quantity Generator

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## EXECUTIVE SUMMARY

The Northeast Fisheries Science Center (Center) of the National Marine Fisheries Service has been entrusted with the stewardship of the land, air, water, and natural resources associated with performing the overall mission of each laboratory. In order to carefully manage these resources and ensure that employees are protected from harm due to carelessness or ignorance, the Hazardous Materials Management Plan has been developed. This Plan shows that safety and environmental compliance are not activities that can be separated from technical research, but rather they must be integrated with daily work habits. Ultimately, we will benefit from improved productivity in a safer work environment, even though the monetary costs seem high.

The purpose of the Hazardous Materials Management Plan is to define and delineate the myriad of laws, rules, and regulations governing the operations of laboratories and research operations. Worker safety and facility environmental compliance can be achieved by adhering to Federal, state, and local codes, but the process is not a one-person job. In addition, laws change almost on a daily basis, and various regulations overlap in requirements. The following chapters of this document will provide clear-cut steps for referral by every employee, so that proper management of hazardous materials will become a routine part of daily duties.

Chapter 1, Chemical Hygiene Plan, details the multitude of steps that must be taken to ensure that employees are not being exposed to chemicals at levels above those published by Occupational Safety and Health Administration (OSHA). The Department of Commerce Occupational Safety and Health Manual (DOC Manual) provided a strong base for the development of this Plan, but the DOC Manual does not address the regulations published in 1991 called "Occupational Exposure to Hazardous Chemicals in Laboratories" (29 CFR 1910.1450), commonly known as the Laboratory Standard, which includes the Chemical Hygiene Plan. Prior to 1991 laboratory worker safety was governed by the Hazard Communication Standard (29 CFR 1910.1200).

Chapter 2, Hazard Communication Program, is for those employees who are exposed to hazardous chemicals in a non-laboratory setting, such as maintenance, custodial, clerical, and other workers. The Hazard Communication Standard mandates that information concerning chemical hazards be transmitted to these employees.

Chapter 3, Recycling & Hazardous Waste Minimization, addresses the steps being taken to ensure that laboratories/offices are properly recycling glass, aluminum, paper, styrofoam, batteries, and used oil. Many states have passed legislation requiring the recycling of various materials. The Environmental Protection Agency also requires that hazardous waste generators have a hazardous waste minimization "HAZMIN" program in place. In addition, formaldehyde for sample preservation can also be reused, and guidance for the reuse of this substance can be found in this chapter.

Chapter 4, Hazardous Waste Generator Standard Operating Procedures, clarifies the roles of

employees as well as agencies, particularly those of hazardous waste management. Environmental compliance is a facility's status with respect to the multitude of Federal, state, and local environmental regulations. Various Federal environmental statutes provide civil and criminal penalties for violations. Some of the statutes are the Hazardous Materials Transportation Act (governed by the Department of Transportation), Toxic Substances Control Act (TSCA), Resource Conservation and Recovery Act (RCRA), Superfund or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), and the Clean Water Act (CWA), with the last five being governed by the Environmental Protection Agency (EPA). The Federal Facilities Compliance Act, signed into law in September 1992, waived sovereign immunity for Federal employees. Thus, employees as well as agencies can now be fined for environmental violations to the above laws, as well as to state and local laws. This makes it increasingly important to define each employee's role in environmental compliance.

Chapter 5, Contingency and Emergency Evacuation Plans, addresses the issue of hazardous materials contingency planning and emergency evacuation plans which have been developed for each of the laboratories of the Center. Such plans are required by Federal and/or local statutes at each location, and local fire departments are required to be familiar with the plans and our facilities, including the types of chemicals in use. While these plans were originally developed to address hazardous waste laws, they are being updated regularly to include safety, underground storage tanks, and other emergencies.

Chapter 6, Training, defines the training necessary to achieve both environmental compliance and worker safety. The two are not easily separated, therefore the training can be combined so that both issues are addressed at the same training sessions. Training is required by the Chemical Hygiene Plan, hazardous waste operations, Department of Transportation (DOT) regulations, and other OSHA guidelines. In fact, more than 100 OSHA standards contain training requirements.

Chapter 7, OSHA Safety, details the OSHA-type inspections, documentation, Safety Committees, and workers' compensation steps being taken to ensure employee safety. High hazard areas, such as laboratories and maintenance shops, must be inspected on a quarterly basis, while general office and storage areas must be checked annually.

The Northeast Fisheries Science Center is dedicated to ensuring that all Federal, state, and local laws, regulations, and codes are adhered to in the areas of environmental compliance and safety, and the handling of hazardous materials and wastes. Minimizing the generation of hazardous waste is also of prime importance, not only to reduce the cost of disposal, but also to follow the spirit of the law to protect the environment. The management guidelines in this Plan will ensure that we recognize and understand all the hazards and potential hazards associated with doing research, and that we attempt to prevent and control all such hazards.

## **CHAPTER 1**

### **CHEMICAL HYGIENE PLAN**

The Chemical Hygiene Plan is required by what is commonly known as the Laboratory Standard (29 CFR 1910.1450 Occupational exposure to hazardous chemicals in laboratories). The Laboratory Standard states "where hazardous chemicals as defined by this standard are used in the workplace, the employer shall develop and carry out the provisions of a written Chemical Hygiene Plan". The plan will be monitored by the Chemical Hygiene Officer.

The purpose of the Chemical Hygiene Plan is to protect laboratory employees, students and non-NOAA employees from harm due to chemicals while they are working in a laboratory. This Plan shall be available to all employees and shall be reviewed annually. The employees shall be trained on the plan during orientation and shall be given refresher training annually. Both the Laboratory Standard and the Chemical Hygiene Plan are available for review in the Officer-In-Charge's (O-I-C's) and Area Safety Representative's (ASR's) office.

#### **01. STANDARD LABORATORY OPERATING PROCEDURES**

This section includes standard operating procedures relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals. The scope of this section includes step-by-step procedures to follow when ordering, receiving, distributing, and handling chemicals, and maintaining a chemical inventory. Disposal of chemicals as hazardous waste is addressed in Chapter 5 of this document.

a. **CHEMICAL PROCUREMENT, RECEIVING, AND DISTRIBUTION** - Specific measures to ensure the protection of laboratory workers begin with the procurement process. In order to ensure that all chemical purchases are approved prior to the order being placed, the following steps must be taken:

1. Procurement - Before a chemical is received, information on proper handling, storage, and disposal shall be investigated.

(a) Before an employee submits a requisition for a chemical, they shall check the chemical inventory for their facility. If the chemical they require is on the inventory, they should use what is in stock before ordering more. See Chapter 3 for NMFS Waste Minimization Policy.

(b) Employees should make every attempt to purchase potentially harmful chemicals in safety packaging, for example, plastic-coated gallon bottles of solvents and in the smallest quantity allowable.

(c) When an employee prepares a requisition for a chemical purchase (either for credit card purchase or through the purchasing agent), a copy of the requisition will be given to the Area Safety Representative (ASR), who will then research the toxicity and/or danger of the chemical. This will also alert the ASR to the volume and type of chemicals being ordered, plus any new chemicals which must be added to the laboratory Chemical Inventory. If the chemical is listed by the Environmental Protection Agency (EPA) as an acutely hazardous substance, discussion with the scientific staff will ensue as to the absolute necessity of using this material. If this purchase is deemed necessary, proper handling and disposal techniques will be reviewed with supervisors and employees.

(c) The ASR will initial each chemical requisition to show approval of the purchase.

(d) The requisitioner will request a Material Safety Data Sheet (MSDS) for each chemical ordered, even if a MSDS is already on file.

2. Receiving and Distribution - No container should be accepted without an adequate identifying label. Preferably, all substances should be received in a central location.

(a) All chemicals will be delivered first to the designated chemical receiving area. This area must consistently be at the same location. The initial recipient will check for damage before acceptance. In the case of bulk shipments, the purchasing agent will be notified of delivery to a different location.

(b) The initial recipient will notify, as soon as possible, the employee who placed the order that his/her shipment has been delivered. If that employee is unavailable, arrangements should be made for an alternate to transport the order, so that chemicals remain in the office area for as short a time as possible.

(c) The employee who placed the order or his/her designee will open the package and check for damage, and then promptly transport the material to a laboratory or storage area. If transport is accomplished by hand-carrying, a secondary container (such as the original packaging, or a plastic or styrofoam carrier) will be utilized.

(d) If the employee receiving the order requires the assistance of the maintenance or custodial staff to transport chemicals, the recipient will accompany the transporter in order to provide proper response in case a spill occurs.

(e) All MSDSs received will be given to the ASR, who will copy and distribute them to the appropriate locations.

(f) The employee receiving the order will verify that all containers are labeled properly and will label each container with the date received. Before using the chemical the employee will read the Material Safety Data Sheet.

(g) The employee receiving the order will store the chemicals in accordance with Section 01.b.5. of the Chemical Hygiene Plan guidelines.

(h) The employee who orders and receives a chemical will communicate to the ASR where it is stored, through use of the chemical inventory data entry form on page 1-19.

b. CHEMICAL HANDLING - This section describes basic safety practices and precautions to take when working with chemicals. Every attempt has been made to keep this section as simple as possible, recognizing the fact that we cannot govern every move an employee makes.

1. Hazard Determination by Material Safety Data Sheet (MSDS)

(a) Employees shall review the MSDS for each chemical he/she will be using to determine the hazards of individual chemicals. Use of personal protective equipment will be based on the hazard determination, as well as the exposure monitoring addressed in Section 02 of this Chemical Hygiene Plan.

(b) A file of every MSDS on site will be maintained in a designated central location as listed below. In addition individual laboratory files are encouraged. The ASR will coordinate this effort.

Howard Lab - Laboratory Bldg., Room L107, Annette Kubinec's office  
Milford Lab - Main Bldg., 2nd floor Library Annex Room 21  
Narragansett Lab - Main Lab Bldg., Wet Lab, Room 30  
Woods Hole Lab - Dan O'Brien's (ASR) office, Room L201B,

2. Basic Guidelines for Handling Chemicals - It is prudent to minimize all chemical exposures. Because few laboratories are without hazards, general precautions, i.e., "skin contact with chemicals should be avoided as a cardinal rule", for handling all laboratory chemicals should be adopted, rather than specific guidelines for particular chemicals,

(a) Use chemical fume hoods, engineering controls, and personal protective equipment (PPE) as advised by MSDS and exposure monitoring.

(b) Inspect non-disposable gloves before using.

(c) Know where emergency equipment is located and how to use it. This includes spill materials, fire extinguishers, fire blankets, eyewashes, safety showers, and first aid kits. Ensure that access to this equipment is not blocked.



- (d) Ensure that all containers are labeled properly--including secondary containers. Primary containers should always have the original manufacturer's label plus the date received and date opened. Secondary containers should be labeled with each chemical name (spell out the full name in plain English, no abbreviations), the percent solution of each component (i.e., 0.5% Aroclor in 50% Benzene), the hazard (toxic, flammable, etc.), the date the solution was prepared, and the initials of the preparer.
- (e) Do not smell or taste chemicals.
- (f) Do not eat, drink, apply cosmetics, chew gum, or smoke in areas where laboratory chemicals are present. Contact lenses are not recommended in laboratories.
- (g) Do not bring or store food or beverages in laboratories, storage areas, or refrigerators where chemicals are present.
- (h) Do not pipette by mouth.
- (i) Use proper hygiene practices, e.g., remove personal protective equipment (PPE) and wash hands with soap and water before leaving area.
- (j) When moving large containers, use lab carts or plastic carriers purchased for that purpose.
- (k) Do not dispose of any chemical into the sewage system unless it has been previously approved in writing by the ASR. Follow all waste disposal procedures, as outlined in Chapter 4.
- (l) Do not work alone out-of-hours unless the procedure and chemicals used have been pre-approved by the ASR.
- (m) Do not wear open toed shoes in laboratories.
- (n) Do not store chemicals above the head, on top of high shelves used mostly for books or computers, or on top of file cabinets.
- (o) Use only those chemicals for which the quality of the ventilation system is appropriate e.g. perchloric acid requires a special fume hood.
- (p) Handle and store laboratory glassware with care. Do not use damaged glassware. Use extra care with Dewar flasks and other evacuated glass apparatus. Shield them to contain chemicals and fragments should implosion occur. Use equipment only for its designated purpose.

(q) Contemplate and address safety, health and environmental concerns before commencing work on new equipment or procedures.

(m) Be alert to unsafe conditions and report them for the benefit of others.

3. Personal Protective Equipment - For each hazardous substance being handled Personal Protective Equipment (PPE) should be provided. For each lab PPE should include protective apparel compatible with the required degree of protection for the hazardous substance being handled. Each employee must be properly fitted and trained on the proper use and care of the PPE.

(a) Goggles/glasses--Only American National Standards Institute, Inc. (ANSI) approved prescription or plain safety glasses or goggles shall be worn. These will be worn wherever or whenever chemicals are being handled.

(b) Gloves--Gloves appropriate to the chemical hazard shall be worn when handling chemicals and/or potentially contaminated glassware. Consult the MSDS, a vendor or a chemical handbook for the best gloves. For example, when handling benzene, regular latex gloves provide only minimal short-term protection. A better choice for long-term handling would be Neoprene (for handling up to 16 minutes) or industrial-type fluoroelastomer (for handling up to 6 hours). The source for these recommendations is the supplier.

(c) Clothing/Lab coat--Cloth or disposable lab coats shall be worn when hazardous materials are being handled.

(d) Hearing protection--If environmental monitoring has determined that OSHA acceptable noise levels have been exceeded (see Section 02), hearing protection shall be worn.

(e) Respirators--Respirators shall be worn when necessary to maintain exposures below PEL's (Permissible Exposure Level) as determined by exposure monitoring in Section 02. When a respirator must be worn, Department of Commerce (DOC) policy on respirators shall be followed, as set forth in the DOC Occupational Safety and Health Manual and the NMFS Respiratory Protection Program in Chapter 9.

(f) Hoods--Fume hoods shall be used when using hazardous chemicals. Fume hoods should provide 80-120 linear feet per minute of air flow. Hoods shall not be used as a storage area for chemicals. Fume hood windows (sashes) should be lowered (closed) at all times, except when necessary to raise (open) them. The hood fan should be turned on whenever a chemical is inside the hood, whether or not any work is being done inside the hood. Hoods shall be inspected and monitored on a routine basis (see Section 02.).

4. Emergency Equipment shall be accessible at all times and be inspected and tested on a routine basis as detailed in Chapter 7. The employee shall be familiar with the location and use of the following:

- (a) Spill Materials
- (b) Eyewash Fountains - Flush eyes for 15 minutes
- (c) Drench-type Showers - Flush for 15 minutes
- (d) Fire Extinguishers
- (e) Fire Blankets
- (f) Fire Alarms
- (g) First Aid Kits

Training on the proper use of this equipment will be provided to all employees who use hazardous materials (PPE chapter will be developed at a future date).

5. Storage of Chemicals - The following guidelines for storing chemicals shall be observed:

(a) In-Laboratory Storage:

(1) The amounts of chemicals stored in laboratories shall be minimized to be as small as practical. Bulk quantities should be stored in the Hazardous Materials Storage Building.

(2) Within each laboratory, flammable and combustible liquids may be stored in plastic, glass or metal containers of various sizes depending on the class of the liquid. In general, a glass or plastic container up to 1 gallon in size or a metal safety can up to 5 gallons in size may be used to store flammable and corrosive liquids. An exception to the rule is the size of each container of 190 and 200 proof ethanol which can only be as large as 1 pint in a laboratory.

(3) Flammable liquids should not be stored in lab refrigerators unless the refrigerators are explosion proof.

(4) Compressed gas cylinders should always be stored and used in an upright position except in rare special cases. The upper 1/3 of the cylinder must be firmly secured by a belt or chain to a wall or laboratory bench. Flammable cylinders must be stored away from oxidizers. Only maintain gas cylinders in use in the laboratory. All other cylinders should be stored in a central storage area.

(5) Exposure of chemicals to heat and sunlight should be avoided.

(6) Chemicals stored in the laboratory shall be segregated by hazard class, and within hazard class, according to compatibility. This information can be found on the manufacturer's label, as well as on the MSDS. For example, sulfuric acid is not compatible with hydrochloric acid, and acids should not be stored with bases.

(7) In-laboratory storage cabinets should be metal, where possible. However, wood cabinets can be used if constructed in accordance with National Fire Protection Association (NFPA 30) codes.

(8) Storage cabinets should not be overloaded. Manufacturers have established quantity limits. Leave the manufacturers storage quantities/stickers on the doors as a reminder.

(9) When not in use, all chemicals must be capped tightly and stored in approved cabinets. Storage on bench tops and in hoods is inadvisable.

(10) Do not store paper, cardboard, or other combustible material in a flammable liquid storage cabinet.

(11) Never store acids or bases above chin level. Never store any chemical above head level.

(b) Storage Rooms

(1) Never store chemicals in hallways, doorways, or stairwells where routes of egress would be even partially blocked.

(2) Segregate chemicals according to hazard class and compatibility.

(3) Storage cabinets should not be overloaded. Follow manufacturers established quantity limits.

(4) Compressed gas cylinders must always be secured, have valve protection cap in place, be properly labeled with contents, and be labeled empty or full.

(c) Historical Sample Collections - This Section will be developed at a future date.

c. CHEMICAL INVENTORY - The Laboratory shall maintain a comprehensive chemical inventory on a room-by-room or area basis. This inventory is required by the Environmental Protection Agency (EPA) and state regulations, as well as Occupational Safety & Health Administration (OSHA) 29 CFR 1910.1450, and must be submitted to local police and fire departments, as well as hospitals.

1. The inventory shall consist of, at minimum, the name of the chemical, Chemical Abstracts Service (CAS) registry number, size of container and how many containers of each size in that location, the building number or name, room number, hazards and the manufacturer. Optional information includes synonyms, expiration date, and MSDS availability.
  2. An initial inventory shall be made when a laboratory is being established or changed significantly. This inventory shall be conducted by the employee who is responsible for the chemicals in that laboratory. If the space is shared, the inventory should be a joint effort.
  3. Annual updates shall be submitted to the Area Safety Representative (ASR). Updates will be made directly on the dBase IV computer program by the Safety & Occupational Health Specialist (SOHS). Updates can also be made on the Chemical Inventory Data Entry form shown on page 1-19.
  4. When a new chemical is introduced to a laboratory, follow the procedure outlined in Section 01 of the Chemical Hygiene Plan. It will be the responsibility of the user of the new chemical to ensure that a Material Safety Data Sheet (MSDS) is on file.
  5. Laboratory workers (including guest researchers, research associates, and intergovernmental appointees) will be responsible for all chemicals acquired and used in their laboratories, i.e. from acquisition through disposal. This responsibility includes accountability for materials present in the laboratory and in storage when the laboratory worker leaves the service or the appointed position.
  6. The ASR will be responsible for the overall maintenance of his/her laboratory's chemical inventory and will submit the inventory to the proper officials, i.e. fire department, (SOHS), etc.
  7. The Chemical Inventory of each facility can be found in the offices of the Area Safety Representative and the Officer-In-Charge (O-I-C) in Appendix A of the Contingency Plan.
- d. PROCEDURES FOR PARTICULARLY HAZARDOUS SUBSTANCES - The following procedures were developed for special emphases on "particularly hazardous substances" such as "select carcinogens", reproductive toxins and substances with a high degree of acute toxicity (e.g. hydrogen cyanide, hydrogen sulfide). It is the responsibility of each employee working in the laboratory to be aware of and follow all NMFS established guidelines and procedures when working with particularly hazardous substances.

The information contained in this section repeats many previously stated policies and procedures. This reiteration is for additional emphasis on particularly hazardous substances with specific additional requirements for select carcinogens and reproductive toxins. A list of select carcinogens is provided on page 1-18 in Table 1.1. Any carcinogen present in a mixture, reaction product or reagent at a concentration of greater than 0.1% by volume is subject to the requirements outlined in this procedure. "Reproductive toxins" are chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on the fetus (teratogenesis).

Before initial work begins with a chemical in any of these categories, the scientist must read the MSDS and discuss any concerns with the Chemical Hygiene Officer (CHO). The following are additional requirements the scientist must adhere to:

1. If work with a particularly hazardous substance will involve quantities in excess of milligram or milliliter quantities, a designated work area must be established and posted to warn those that might use the area of the hazard in that area. A "designated area" may be the entire laboratory, an area of the lab or a lab hood.
2. Appropriate protective clothing will be worn at all times when handling particularly hazardous substances. This includes safety glasses, lab coat and chemical resistant disposable gloves. Disposable gloves should be removed inside out. Gloves must always be removed before leaving the laboratory.
3. Do not eat, drink, apply cosmetics, chew gum, or smoke in designated areas.
4. Remove protective clothing before leaving the lab. Wash hands and any other potentially exposed area after handling particularly hazardous substances. This includes at break, lunch or the end of the day. In the event of a splash, all contaminated clothing must be removed and the exposed area washed.
5. Pipetting by mouth is prohibited.
6. All work involving a particularly hazardous substance will be performed in a lab hood unless doing so increases the potential of exposure. Before beginning work, employees must verify proper operation of the hood.
  - (a) Confirm that the hood is working properly.
  - (b) Keep hood sash closed at all times except when adjustments within the hood are necessary.
  - (c) Keep materials stored in hood to minimum and do not block air flow through back slots.

7. Storage of particularly hazardous substances should be in a well ventilated area. Store breakable containers in unbreakable, chemical resistant secondary containers.
8. Laboratory analyses that may release a carcinogen into the exhaust air must incorporate an air cleaning device in the lab set-up to remove the carcinogen prior to discharge whenever feasible.
9. All carcinogens will be labeled in accordance with OSHA requirements.
10. Working quantities of particularly hazardous substances shall be kept to a minimum.
11. All surfaces on which a particularly hazardous substance is handled must be protected from contamination. If contamination does occur, contact the CHO for assistance.
12. Notify the CHO of all exposures.
13. Notify the CHO to handle all generated waste streams.

e. **MEDICAL WASTE** - Medical waste is regulated by OSHA's Bloodborne Pathogen Final Standard (29 CFR 1910.1030) issued December 6, 1991 and effective March 5, 1992 and the health department of each state. The purpose of these regulations is to set forth the requirements for the storage and disposal of infectious or physically dangerous medical or biological waste. In other words, waste which because of its characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or pose a substantial present potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

The following types of waste are identified and defined as infectious or physically dangerous medical or biological waste, and shall be subject to regulation:

1. Blood and Blood Products: Discarded bulk human blood and blood products in free draining, liquid state; body fluids contaminated with visible blood; and materials saturated/dripping with blood.
2. Pathological Waste: Human anatomical parts, organs, tissues and body fluids removed and discarded during surgery or autopsy, or other medical procedures and specimens of body fluids and their containers.
3. Cultures and Stocks of Infectious Agents and Associated Biologicals: All discarded cultures and stocks of infectious agents and associated biologicals, biotechnological by-product effluents, cultures of specimens from medical and pathological laboratories,

cultures and stocks of infectious agents from research laboratories, wastes from the production of biologicals, and discarded live and attenuated vaccines intended for human use.

4. Contaminated Animal Carcasses, Body Parts and Bedding: The contaminated carcasses and body parts and bedding of all research animals known to be exposed to pathogens.

5. Sharps: Discarded medical articles that may cause puncture or cuts, including but not limited to all used and discarded hypodermic needles and syringes, pasteur pipettes, broken medical glassware, scalpel blades, disposable razors, and suture needles.

6. Biotechnological By-Product Effluents: Any discarded preparations made from genetically altered living organisms and their products.

Some of the biological work done at our laboratories requires the use of "Sharps", biotoxins and research animals, and therefore generates biotechnological by-product effluents. Biotoxins are not specifically addressed in OSHA's Bloodborne Pathogen Final Standard but sharps are and it is reasonable to interpret these regulations to include biotoxins and other related materials. For lack of a better term, we will refer to this waste as Medical Waste. Thus, a laboratory-specific definition of Medical Waste is as follows:

any materials generated within the laboratory which contain as surface contaminants or in solution substances of biological origin having injurious properties if absorbed, ingested, injected or otherwise brought into intimate contact with plants or animals including humans (this would include paper products, plasticware, disposable glassware, syringes and needles)

or

laboratory animals which have been injected or otherwise exposed to substances described above.

or

discarded medical articles that may cause puncture or cuts, including but not limited to all used and discarded hypodermic needles and syringes, pasteur pipettes, broken medical glassware, scalpel blades, disposable razors, and suture needles.

Storage - Individuals generating wastes of this type will be personally responsible for disposing of all materials in the designated containers as follows:

solid waste: contaminated solid waste such as paper, plastic, glass, etc. should be placed in marked, plastic-lined, containers (red biohazard bag in a container marked with the biohazard symbol) strategically located, away from general traffic flow patterns, preferably in an area identified for this purpose, in each laboratory area where wastes are



likely to be generated. The manner of storage shall restrict access or contact with such waste to authorized persons only.

Sharps shall be segregated from other wastes and aggregated in leakproof, rigid, puncture-resistant, shatterproof containers immediately after use. Syringes, scalpel blades, needles (uncut), and all other sharps (no animal waste is acceptable) are to be placed in special puncture-proof "Sharps" containers, which will be provided.

animal waste: sacrificed laboratory animals or other animal tissues, including blood and serum are to be placed in small plastic bags, tied with string or rubber band and deposited in marked cardboard cartons. Animal wastes should not be stored, even temporarily, in any other location. Sterilized biohazard bags and contents should be deposited in this carton also.

Non-disposable contaminated glassware and other laboratory apparatus should be thoroughly decontaminated if possible, then detergent-washed and rinsed with copious quantities of water before returning to storage.

Disposal - Containers of Sharps shall be disposed of by incineration at an approved incineration facility. The SOHS will coordinate all medical waste disposals.

Solid waste & animal wastes - Containers of solid wastes and animal wastes shall be disposed of by incineration at an approved incineration facility.

Biotechnology By-Product Effluents - The following methods shall be used as appropriate:

1. Steam sterilization - Methods which rely on heat shall be evaluated mechanically and biologically by using a recording thermometer and indicator microorganism with a defined heat susceptibility pattern.
2. Chemical disinfection - If these wastes are rendered noninfectious by chemical disinfection, the chemical used shall be of demonstrated efficacy against the target or indicator organism.
3. Once rendered noninfectious, biotechnology by-product effluents may be disposed of directly into the waste generator's connection to the municipal sewerage system or septic system unless such disposal is otherwise restricted by the authorized approving agency.
4. Other methods approved by the Department - If the generator is prohibited by the authorized approving agency from disposing of biotechnology by-product effluents through the municipal sewerage system or septic system, these wastes shall be rendered noninfectious and disposed of in a sanitary landfill approved by the Department of Environmental Protection or in the case of out-of-state disposal, approved by the

appropriate regulatory agency responsible for landfill approval.

Labeling - Every container or bag of waste which has not been rendered noninfectious shall:

1. Be distinctively marked with the international biohazard symbol and colored red to indicate that it contains waste; and
2. in the case of sharp wastes, be distinctively labeled to indicate that it contains sharp waste capable of inflicting punctures or cuts.

Manifests - Generators shall prepare manifests before shipping waste which has not been rendered noninfectious. The manifest is a tracking document designed to record the movement of waste from the generator through its trip with a transporter to an approved disposal facility for final disposal. Each lab shall have a designated person to prepare, sign and maintain such manifests. This will be done in coordination with the SOHS.

Manifests must include the following information:

1. Description of waste to be shipped;
2. Total quantity of waste; and
3. Type of container in which waste is transported.

The generator shall put the address of the site to which the waste is to be delivered on the manifest and sign it. The transporter of the waste or an agent of the transporter shall sign the manifest to indicate that the transporter has received the waste and will comply with the generator's transportation instructions. When the waste has been disposed of at the approved off-site disposal facility the owner, or agent of the owner, shall sign the manifest and return the original to the generator.

If the generator does not receive the manifest from the disposal facility within 30 days after shipment of waste by the generator, the generator shall report this fact to the Department of Public Health.

The generator shall maintain a copy of the manifest both as initially sent out and as returned by the disposal facility for a period of at least three years.

In the absence of any restriction concerning individuals who are authorized to transport waste, including but not limited to those imposed by boards of health or the Department of Environmental Protection, generators who transport their own waste shall follow the manifest requirements set forth in the regulations.

## **02. CONTROLS DESIGNED TO MEASURE EMPLOYEE EXPOSURE**

Chemical safety is achieved by continual awareness of chemical hazards and by keeping the chemical under control by using precautions, including engineering safeguards such as hoods. Employees should avoid underestimation of risk, and exposures should be minimized, even for substances of no known risk. Employees must take measures to protect themselves from hazards by following appropriate work practices, emergency procedures, and wearing personal protective equipment as needed.

The Area Safety Representative (ASR) will make every effort to assist employees in safe work practices, and perform exposure monitoring in laboratories.

a. **EXPOSURE MONITORING** - There are methods and observations that may be used to detect the presence or release of a hazardous chemical, such as air monitoring, continuous monitoring devices, visual appearance, and odor of hazardous chemicals.

It is the responsibility of the Chemical Hygiene Officer (CHO) to anticipate the need for personal and/or area monitoring for any new or existing research activities. If there is a need, the SOHS will conduct monitoring to determine the concentration of exposure to a given health hazard.

1. Initial monitoring will be conducted to measure employee exposure to any substance regulated by a specific health standard if there is a reason to believe the action level or permissible exposure limit (PEL) are exceeded.
2. If initial monitoring indicates exposure above the action level or PEL, the routine monitoring requirements specified in the specific health standard will be followed. In addition, control measures will be implemented to minimize employee exposure.
3. Employees will be notified in writing of their monitoring results within 15 days of receipt by the CHO.

b. **MEDICAL SURVEILLANCE** - If one of the three circumstances below occurs, the employer shall provide all employees who work with hazardous chemicals an opportunity to receive medical examinations and consultations performed by or under the direct supervision of a licensed physician. All examinations shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

1. Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory.
2. Where exposure monitoring reveals an exposure routinely above the action level or

PEL for an OSHA regulated substance.

3. Whenever an event such as a spill, leak, explosion or other occurrence takes place and results in the likelihood of a hazardous exposure.

c. **CHEMICAL FUME HOOD/VENTILATION MONITORING** - The best way to prevent exposure to airborne substances is to prevent their escape into the working atmosphere by use of hoods and other ventilation devices.

1. **Chemical Fume Hoods**--The Laboratory Standard requires that fume hoods function properly and the methods taken to make sure that they work properly are described below. Hoods should undergo continuing appraisal and be modified if inadequate. Linear face velocity for each hood should be measured on a monthly basis, at minimum. Each ASR will carry out such a program. Optimally, each hood should have a continuous monitoring device to allow convenient confirmation of adequate hood performance before each use.

- (a) Fume hoods should provide 80-120 linear feet per minute of air flow.
- (b) Fume hoods should be kept on whenever a chemical is inside the hood.
- (c) Fume hood sash/window should be kept closed when not in use.
- (d) Hoods should never be used as a storage area for chemicals.
- (e) Hood vent ducts and fans should be inspected and cleaned at frequent intervals.
- (f) A laboratory hood with 2.5 linear feet of hood space per person should be provided for every 2 workers if they spend most of their time working with chemicals.

2. **Ventilation** - Four to twelve room air changes per hour is normally adequate if local exhaust systems such as hoods are used as the primary method of control. However, laboratory ventilation should not be less than eight air changes per hour (calculated).

The quality and quantity of ventilation should be evaluated on installation, regularly monitored (at least every three months), and reevaluated whenever a change is made.

d. **MAINTENANCE OF RECORDS** - Employers must keep records of employee exposure to hazardous chemicals, including measurements made to monitor exposures, as well as medical consultations. Records of air concentration monitoring results, exposure assessments, medical consultations, and examinations must be maintained for at least 30 years.

### **03. CHEMICAL HYGIENE RESPONSIBILITIES**

Responsibility for chemical hygiene rests at all levels within each laboratory. This section identifies personnel responsibilities under the Chemical Hygiene Program.

a. Each Officer-in-Charge (O-I-C) has the ultimate responsibility for chemical hygiene at his/her Laboratory. He/she must administer and provide continuing support for institutional chemical hygiene. Such support includes advocating measures adopted by the Area Safety Representative (ASR) and Safety and Occupational Health Specialist (SOHS).

b. Division Heads/Principal Investigators/Supervisors/Team Leaders are responsible for chemical hygiene within their departments/laboratories. Their duties include the following:

- (1) Ensure all employees working in a laboratory know and follow the chemical hygiene rules.
- (2) Ensure that appropriate PPE is available, and in working condition, and ensure that employees have been properly fitted and trained on the use of PPE.
- (3) Ensure that appropriate training has been provided to all employees before they begin working in the lab for the first time or whenever a new chemical is to be handled.
- (4) Oversee Material Safety Data Sheet files and the chemical inventory for the lab.

c. Safety and Occupational Health Specialist (SOHS) - The SOHS bears responsibility for their assigned laboratories. Annette Kubinec is the SOHS for the Howard and Milford Labs. Barbara Jobe is the SOHS for the Narragansett and Woods Hole Labs. Their commitment to the Chemical Hygiene Plan includes such assignments as:

- (1) The monitoring of procurement, use, and disposal of chemicals used in laboratories.
- (2) The training of employees on chemical and safety issues.
- (3) The review of issues handled at the Area Safety Representative (ASR) level.

d. Chemical Hygiene Officer (CHO), is also the Area Safety Representative (ASR) - At the Howard Laboratory, the SOHS is also the ASR. At the other labs of the Northeast Fisheries Science Center, the ASR/CHO will bear the day-to-day responsibilities of overseeing safety and hazardous materials issues and coordinate these with the SOHS. The ASR/CHO will have the ultimate responsibility to maintain the central MSDS files.

e. Safety Committee - Each laboratory Safety Committee will meet at minimum four times per year to discuss issues relevant to safety and hazardous materials issues, and to provide support to the ASR and SOHS. Specific duties are outlined in Chapter 7 of this document.

f. Laboratory workers are responsible for:

- (1) Planning and conducting each operation in accordance with the Laboratory's chemical hygiene procedures;
- (2) Developing good personal chemical hygiene habits; and
- (3) Maintaining individual laboratory MSDS files.

#### **04. TRAINING**

Training for the Chemical Hygiene Plan is outlined in Chapter 6 of the Hazardous Materials Management Plan. All laboratory workers shall be informed of the content and requirements of the Laboratory Standard as detailed in this chapter, and the location and availability of the Chemical Hygiene Plan at each facility.

Employee training records shall be maintained in the training file in the ASR/CHO's office(s). An example of the training form can be found in Chapter 6.

TABLE 1.1

## PART 1910 - OCCUPATIONAL SAFETY AND HEALTH STANDARDS (Continued)

## Subpart Z - Toxic and Hazardous Substances

Section	
1910.1000	Air contaminants.
1910.1001	Asbestos, tremolite, anthophyllite, and actinolite. (eff. 7-21-86)
1910.1002	Coal tar pitch volatiles; interpretation of term.
1910.1003	4-Nitrobiphenyl.
1910.1004	alpha-Naphthylamine.
1910.1005	[Reserved]
1910.1006	Methyl chloromethyl ether.
1910.1007	3,3'-Dichlorobenzidine (and its salts).
1910.1008	bis-Chloromethyl ether.
1910.1009	beta-Naphthylamine.
1910.1010	Benzidine.
1910.1011	4-Aminodiphenyl.
1910.1012	Ethyleneimine.
1910.1013	beta-Propiolactone.
1910.1014	2-acetylaminofluorene.
1910.1015	4-Dimethylaminoazobenzene.
1910.1016	N-Nitrosodimethylamine.
1910.1017	Vinyl chloride.
1910.1018	Inorganic arsenic.
1910.1025	Lead.
1910.1028	Benzene.
1910.1029	Coke oven emissions.
1910.1043	Cotton dust.
1910.1044	1,2-dibromo-3-chloropropane.
1910.1045	Acrylonitrile.
1910.1047	Ethylene oxide.
1910.1048	Formaldehyde.
1910.1101	Asbestos.
1910.1200	Hazard communication.
1910.1450	Occupational exposure to hazardous chemicals in laboratories.
1910.1499	Source of standards.
1910.1500	Standards organizations.

CHEMICAL INVENTORY DATA ENTRY FORM

Date of: Receiving \_\_\_\_\_ Disposal \_\_\_\_\_ Moving \_\_\_\_\_ Consumed \_\_\_\_\_

Date of this notice: \_\_\_\_\_

Employee Name: \_\_\_\_\_

Investigation/Group: \_\_\_\_\_

Chemical/Product Name: \_\_\_\_\_

Synonym/Generic Name: \_\_\_\_\_

CAS Number: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

MSDS on site: Yes \_\_\_\_\_ No \_\_\_\_\_

Quantity: Container Size \_\_\_\_\_ Number of Containers \_\_\_\_\_

Expiration Date: \_\_\_\_\_

Storage Area

Use Area

Building Number: \_\_\_\_\_ Building Number: \_\_\_\_\_

Room Number: \_\_\_\_\_ Room Number: \_\_\_\_\_

Hazard(s) - Check all that apply:

Explosives \_\_\_\_\_ Flammable \_\_\_\_\_

Combustible \_\_\_\_\_ Oxidizer \_\_\_\_\_

Organic Peroxides \_\_\_\_\_ Poison \_\_\_\_\_

Corrosive \_\_\_\_\_ Non-Hazardous \_\_\_\_\_

Chemical State: Liquid \_\_\_\_\_ Solid \_\_\_\_\_ Gas \_\_\_\_\_

Disposal Date: \_\_\_\_\_



## CHAPTER 2

### HAZARD COMMUNICATION PROGRAM

#### 01. INTRODUCTION

The following written hazard communication program (HAZCOM) has been established for the U. S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Northeast Fisheries Science Center (NEFSC) to comply with the U.S. Department of Labor, Occupational Safety and Health Administration Standard 29 CFR 1910.1200, Hazard Communication and other applicable regulations issued by DOC.

The Officer In Charge (O-I-C) at the site has primary responsibility for this location's hazard communication program. Functional responsibility has been delegated to the Area Safety Representative (ASR) and/or Safety and Occupational Health Specialist (SOHS) at the site.

Laboratory workers are covered by the Lab Standard, but all others (including students, volunteers, non-NOAA scientists, etc.) at the site are covered by the HAZCOM program.

#### 02. HAZARD COMMUNICATION PROGRAM

a. CHEMICAL INVENTORY - The chemical inventory for the facility can be found in the offices of the Area Safety Representative (ASR) and the Officer-In-Charge (O-I-C) and in Appendix A of the Contingency Plan. The inventory contains a list of all known chemicals including materials used for maintenance purposes/cleaning and used or stored at this location, to which employees of this site may be potentially exposed in the performance of their work activities. It shall be reviewed and verified annually.

More detailed information on each listed chemical can be obtained by reviewing each chemical's Material Safety Data Sheet (MSDS) which may be found as listed below:

Howard Lab - Building 74 in the Library and Linda Arlen's office, Room 233

Milford Lab - Main Bldg., 2nd floor Library Annex, Room 21

Narragansett Lab - Main Lab Bldg., Wet Laboratory, Room 30

Woods Hole Lab - Dan O'Brien's (ASR) office, Room L201B

All employees who procure a new chemical shall complete the Chemical Inventory Data Entry form (on page 1-19) designated for this purpose. This person shall supply all information requested on the form. The information on the form shall be used to update the chemical inventory on a regular basis. Each site shall designate how they can most effectively accomplish the data input required to maintain the chemical inventory for the facility.

b. CONTAINER LABELING - Shipment receiving personnel must verify that all containers received for use:

- o Are clearly labeled as to chemical content,
- o Note the appropriate hazard warning, and
- o List the name and address of the manufacturer, importer, or responsible party.

This verification must be performed, and the date the chemical was received must be written on the label of the container, prior to releasing containers for use.

Supervisors must ensure that all secondary containers are labeled with either an extra copy of the original manufacturer's label or with a generic label which contains a block to identify the chemical components and a block for the hazard warning. For help with labeling, supervisors should call their ASR.

c. MATERIAL SAFETY DATA SHEETS - The Material Safety Data Sheets (MSDS) for all chemicals to which employees may be exposed at this site shall be maintained in the ASR's office or other designated location on site as listed on page 2-1. The supervisor is responsible for ensuring that an MSDS is maintained for each chemical identified in the chemical inventory.

When procuring hazardous chemicals, the manufacturer will be requested, by the requisitioner, to provide a copy of the MSDS to the site ASR. If a MSDS is not provided by the manufacturer or is found to be inadequate, the ASR shall request a complete, up-to-date MSDS from the manufacturer.

d. EMPLOYEE TRAINING AND INFORMATION - Prior to starting work activities, each new employee will receive information and training on the elements of the hazard communication program, through use of The Federal Hazard Communication Training Program. The training will be given by the ASR. The information and training will cover the following areas:

1. An overview of the requirements of the OSHA Hazard Communication Standard (1910.1200).
2. Location and availability of the written hazard communication program, chemical inventory, and MSDS files.
3. The chemicals in the employee's work environment.

4. Physical and health hazards of chemicals in the employee's work environment.
5. How to interpret labels and material safety data sheets.
6. Methods and observation techniques used to determine the presence or release of hazardous substances in the work area.
7. Methods and equipment available to the employee for protection against the physical and health hazards in the work environment.
8. Emergency procedures to follow if they are exposed to chemicals.

e. HAZARDOUS NON-ROUTINE TASKS - Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected employee will be given information by their first line supervisor about hazardous chemicals to which they may be exposed during such activity.

This information will include:

- o Specific chemical hazards;
- o Protective/safety measures the employee must take;
- o Measures the Northeast Fisheries Science Center (Center) has taken to lessen the hazards including ventilation, respirators, presence of another employee, and emergency procedures.

f. ON-SITE CONTRACTORS - When soliciting a contract, it is the technical representative's (COTR) responsibility to apprise the Contracting Officer of any possible hazards so that notification and special conditions can be put into the solicitation prior to contract award.

It is the responsibility of the Contracting Officer to provide information to contractors whose employees perform work activities within DOC controlled facilities. The information provided by the agency will be sufficient to enable the contractor to satisfy their hazard communication responsibilities under Federal, State, and local regulations.

## **CHAPTER 3**

### **RECYCLING AND HAZARDOUS WASTE MINIMIZATION**

#### **01. INTRODUCTION**

Under the Resource Conservation and Recovery Act (RCRA) the Federal government has established itself as a leader to stimulate markets for recyclable materials and to use recycled products nationally. On October 31, 1991, President George Bush signed an Executive Order entitled "Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy". The Order launched an ambitious program to stimulate waste reduction, recycling, and procurement of recycled goods in all Federal agencies and departments. Agencies are required to develop a program to reduce the amount of waste produced and to recycle reusable materials such as paper, plastic, metals, glass, used oil, lead-acid batteries, tires, and compostable materials wherever possible.

The Eastern Administrative Support Center (EASC) has implemented a procurement program called "Green Lights". Under this program procurement personnel are required to order recycled products whenever possible. The US General Services Administration (GSA) published the "Recycled Products Guide" in February 1992. This Guide provides more than 700 quality recycled and recycled content products to the Federal community. A few of the items included in this Guide are envelopes, many varieties of writing and printing paper, office machine tape, retread tires, trash bags, and laser toner cartridges.

Many states have passed legislation requiring the recycling of various materials. Cities and towns have also joined the recycling initiative by implementing either mandatory or voluntary programs. This chapter addresses the steps being taken by the Northeast Fisheries Science Center to ensure that our laboratories and offices recycle as many materials as possible.

#### **02. USED OIL**

In the September 10, 1992 Federal Register, the Environmental Protection Agency (EPA) defines used oil as any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical properties. This does not include waste water with mostly water and a "de minimis" or small quantity of oil.

The goals in recycling our used oil are complying with regulations and reducing the drain on our limited natural resources. The EPA wants all used oil recycled, blended, refined or burned for energy recovery. Used oil on vessels is regulated under these regulations when transported ashore. The ship and shore facility share responsibility and liability.

- a. USED OIL VS HAZARDOUS WASTE - Oils that are identified as a hazardous waste (HW) cannot be recycled on site without proper permitting, and must be managed in

accordance with the HW management regulations. This includes oils that become contaminated with a listed waste or oils that become contaminated with a characteristic waste, that still exhibit that characteristic. Such oils must be managed in accordance with HW management regulations as defined in Chapter 4 of this Plan. It is not acceptable to dispose of such used oil by placing it in a surface impoundment or waste pile or to use it as a road dust suppressant.

b. **DISPOSITION OF USED OIL** - Oils that were inherently ignitable or toxic are to be recycled and managed under the appropriate used oil regulations. In Massachusetts it is permissible to refine, reclaim and burn such oil with proper permitting. Acceptable burning is in approved industrial furnaces, utility and industrial boilers, and space heaters if it is a small home unit and its operator generated the used oil. Oil may be taken to a collection center, which must have a current and valid oil collection permit or license.

c. **RECORD KEEPING** - The paperwork and backup documentation of research of the transporter **MUST** be kept on file for three years. This is our proof that we have recycled our used oil through a reputable, licensed oil collection center.

### **03. RECYCLING GLASS, ALUMINUM, PAPER PRODUCTS AND STYROFOAM**

Americans generate 180 million tons of municipal solid waste each year. This is enough solid waste to fill a convoy of garbage trucks stretching halfway to the moon! Paper and paperboard represents 40% of the materials discarded into the municipal waste stream.

The materials that each laboratory recycles will ultimately depend on the recycling program of the city or town in which the lab is located. Most cities and towns have a voluntary, if not mandatory, recycling program in place. Employees of the Northeast Fisheries Science Center (Center) are expected to participate to the fullest extent possible.

Every Center laboratory should have a recycling program in place. If there is no program in place, the Officer in charge (O-I-C) should designate a Recycling Program Manager for the site. Central collection containers should be purchased and placed in a designated area for each recyclable material. It is the responsibility of each employee to take their recyclable materials to the central containers. When containers become full the collection company should be called, or maintenance personnel can take the containers to a local reclamation or collection center.

All Center laboratories should recycle paper materials such as newspapers, office paper, and in some locations, junk mail. GSA supplies fiberboard recyclable paper collection containers for office paper (desktop and central containers).

Glass and aluminum should be recycled, if possible, in your city or town. Set up central containers for collection and arrange for pickup or delivery to the reclamation or collection center.

Styrofoam packaging materials now come in a water soluble peanut form. If you are not using the new water soluble form they can be recycled in two ways. First, they can be reused whenever packages are mailed out of the laboratory. Second, if your city/town does not recycle them, companies such as Mail Boxes Etc. will take them. Place them in a plastic bag and periodically take them to the store. The Recycling Program Manager should check into finding a source to reclaim styrofoam packaging materials in the surrounding area.

#### **04. LASER TONER CARTRIDGES**

Recharged and remanufactured toner cartridges are currently available nationwide under General Services Administration (GSA) contracts. These cartridges fit various copiers and laser printers used with personal computers and are available at significantly lower prices, typically 40-50% less than new cartridges. A list of new vendors can be found in the GSA "Recycled Products Guide".

#### **05. BATTERIES**

Dry cells and batteries that are used to power recorders, flashlights, and a range of electronic gear can easily be recycled. They should be collected in a designated area, i.e. a basket near the receptionist's desk, and periodically collected. The site Recycling Program Manager will then send them to a battery recycling company or follow other local community guidelines.

#### **06. FORMALIN**

Formaldehyde/formalin disposal has become very expensive, in fact, it is our most expensive disposal item simply because of the volume. Recycling/reusing formalin shall be required whenever/wherever feasible. A key element in the reuse of formalin is determining the concentration after it has been used. Simple test kits are available for determining concentration. One manufacturer of such test kits stated that the test kit would not work with sea water as the diluent. Yet, tests have been performed in our laboratories that have proven that the results are the same for seawater as for tapwater. Your Safety and Occupational Health Specialist (SOHS) can be contacted for further information. Each significant user should be provided with a test kit and necessary storage containers for keeping various concentrations isolated for future use.

#### **07. WASTE MINIMIZATION**

The Environmental Protection Agency (EPA) uses the term "waste minimization" or, more recently, "pollution prevention." These terms encompass source reduction and recycling. Source reduction is defined as any activity that reduces or eliminates the generation of wastes at the source, usually within a process. Recycling is defined as the recovery and/or reuse of what would otherwise be a waste material.

In 1989 EPA published, in the Federal Register, a draft guidance document to hazardous waste generators, regarding the necessary elements of a successful waste minimization program. Each time generators sign the hazardous waste manifest they certify that they have made a good faith effort to minimize waste generation or they have a Hazardous Materials Minimization "HAZMIN" program in place to reduce the volume and toxicity of waste generated.

Every time we reuse, recycle, or reclaim a material we are in effect minimizing or reducing a pollution source. Waste minimization is accomplished in various ways. Changes in lifestyle, source reduction, consciousness of packaging, and reuse as an alternative to disposal are all ways to minimize waste.

In the laboratory some forms of source reduction are equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials and improvements in housekeeping, maintenance, training, and inventory control.

a. **SOURCE REDUCTION** - Reduce the amount or toxicity of waste at the point of generation.

1. When ordering chemicals ONLY order the quantity necessary to perform the task at hand. Always check the chemical inventory to see if the chemical is on-site already.
2. Reduce the size of sample containers whenever possible, which then reduces the amount of alcohol, formalin, and/or fixative solutions used per sample.
3. Reduce the number of samples taken whenever possible, which in turn reduces the amount of storage space required, the fire hazard while in storage, and the amount of solutions used.
4. When implementing a new procedure utilize the least toxic reagents available.

b. **RECYCLING** - Use or reuse of wastes for the original or some other purpose, or reclamation by recovering secondary materials or by removing impurities so that it may be reused.

1. Some solvents, such as methylene chloride, can be reclaimed. Our labs use a very high grade solvent and its purity remains after use. The used methylene chloride can be poured into drums and sold to a licensed facility for reclamation as a degreaser. If everything is done properly, the lab could save money. Always check with your Area Safety Representative/ Safety and Occupational Health Specialist (ASR/SOHS) before starting new procedures.
2. Some solvents can be recycled on site. For example, it is permissible in all states to use a solvent recycler to extend the use of chemicals such as methylene chloride.<sup>3</sup>

Occasionally, chemicals in the laboratory are still good but are considered excess. Always check with your ASR/SOHS, as many products can be recycled. Some products we have sent for recycling in the past are ethylene glycol, propylene glycol, turpentine, and methylene chloride.

4. Surplus chemicals can be given to high schools or universities. One of our labs has what they fondly refer to as "Yard Sales". Their Yard Sale is held in conjunction with an EPA lab and the local university. Each facility brings their surplus chemicals and an exchange is made. The remaining chemicals are sent to a licensed facility for disposal as hazardous waste.



## CHAPTER 4

### HAZARDOUS WASTE GENERATOR STANDARD OPERATING PROCEDURES

The Safety & Occupational Health Specialists, Barbara Jobe & Annette Kubinec, are responsible for the compliance of their laboratories by working directly with the Area Safety Representatives and staff members.

#### 01. SITE SPECIFIC COMPLIANCE REGULATIONS BY STATE

a. MASSACHUSETTS - The Woods Hole Laboratory is a "Very Small Quantity Generator" (VSQG) and is regulated by Massachusetts Hazardous Waste regulations found in 310 CMR 30.00. As a VSQG it must never generate any acutely hazardous waste listed or otherwise described in 310 CMR 30.136. A VSQG must never exceed generation of more than 100 kilograms (220 lbs. or approximately 25 gallons) of hazardous waste per month and never accumulate 600 kilograms (approximately 165 gallons) or more of total hazardous waste on site at any one time. VSQGs in Massachusetts are exempt from many state and Federal regulations. However, they have to comply with additional city and/or town regulations. Therefore, they must comply with on-site accumulation, container, container management, inspection requirements and numbers 1-3 in Section 04 of this chapter of the special requirements for incompatible wastes for all generators. Other criteria, requirements, and options for VSQGs are described further in Compliance Regulations for Very Small Quantity Generator in Section 02 of this chapter.

b. RHODE ISLAND AND NEW JERSEY - The Narragansett Laboratory is regulated by the Rhode Island Department of Environmental Management (DEM). The current regulations are known as "Rules and Regulations for Hazardous Waste Generation, Transportation, Treatment, Storage and Disposal". Under these regulations Rhode Island has adopted many "more stringent" requirements.

The Howard Laboratory is a "Fully Regulated Generator" regulated by the New Jersey Department of Environmental Protection (DEP). The current regulations are known as "Hazardous Waste Regulations N.J.A.C. 7:26-1 through 17". Under these regulations New Jersey has also adopted many "more stringent" requirements.

The laboratories in these states do not qualify for the small quantity generator exclusion therefore, they have only 90 days to dispose of hazardous waste and must comply with all Large Quantity Generator requirements. They must also comply with all of the on-site accumulation, container, container management, containment storage area, inspection requirements and the special requirements for incompatible wastes found in Section 04 of this chapter.

c. ADDITIONAL REQUIREMENTS FOR RHODE ISLAND AND NEW JERSEY ARE AS FOLLOWS:

1. The state of Rhode Island only:

- has an identification system that incorporates a "degree of hazard" approach;
- additional information required on the label of the hazardous waste drum;
- Transporters are responsible for placarding;
- There are three classes of landfills;
- Certain types of waste are prohibited from disposal in certain classes of landfills;

2. The states of Rhode Island and New Jersey

- Have 90 days, from the starting accumulation date, to dispose of central storage area waste regardless of the quantity per month or total volume generated (40 CFR 262.34);
- They must also comply with all on-site accumulation requirements (Subpart I or J of 40 CFR Part 265);
- Transporters need a permit, and transport vehicles must be inspected once a year;
- Must use uniform manifests (40 CFR 264.70) and retain copies for a minimum of three years and must send copies of the manifest to the State agency;
- Submit annual or biennial (40 CFR 264.75) reports to the state and retain copies for a minimum of three years;
- They must have a contingency plan (40 CFR 265.50 - 265.56) and training plan (40 CFR 265.16) for spill prevention and remediation.
- Owners/operators of Treatment Storage and Disposal (TSDF) facilities must have financial insurance for sudden and accidental occurrences.

d. CONNECTICUT - The Milford Laboratory is classified as a "Conditionally Exempt Small Quantity Generator" by the Connecticut Department of Environmental Protection (DEP) in their handbook entitled "Hazardous Waste Management Regulations 22a-449(c)-100 through 110 and 22a-449(c)-11". They must generate less than 100 kilograms (25 gallons) of hazardous waste per month, and never accumulate 1000 kilograms (264 gallons) or more of total hazardous waste on site at any one time. The Milford Laboratory must comply with all

of the on-site accumulation, container, container management, containment storage area, inspection requirements and numbers 1-3 of the special requirements for incompatible wastes.

e. **LABORATORY GENERATOR STATUS CONCLUSION** - In order to establish some continuity among our laboratories and comply with the various city, town, state and federal hazardous materials and waste regulations, we have, in some instances, gone beyond the letter of the law. All of our laboratories use the uniform manifest and comply with the regulations for manifests, labeling, transportation, Contingency Plans and training requirements. They must also comply with all of the on-site accumulation, container, container management, containment storage area, inspection requirements and 1-3 or 1-4 of the special requirements in Section 04 for incompatible wastes. The accumulation times and storage limits for each generator has been summarized for your convenience and can be found on Table 4.1 on page 4-4.

TABLE 4.1

GENERATOR STORAGE LIMITS AND ACCUMULATION TIMES

	Milford Lab Conditionally Exempt Small Quantity Generator (CESQG)	Woods Hole Lab Very Small Quantity Generator (VSQG)	JJ Howard & Narragansett Labs Large Quantity Generator (LQGs)
Hazardous Waste Generation Rate	<100 kg/mo.	generate <100 kg/mo	>1000 kg/mo
Acutely Hazardous Waste Generation Rate	<1 kg/mo.  (1 quart)	Not Allowed to Generate	>1 kg/mo.  (1 quart)
Residue Generation Rate*	<100 kg/mo	<100 kg/mo No Acutely Hazardous	>100 kg/mo
Hazardous Waste Accumulation Rate	<1000 kg at any one time	<600 kg/mo	>1000kg at any one time
Acutely Hazardous Waste Accumulation Rate	<1 kg at any one time	Not Allowed to Accumulate	>1 kg at any one time
<p>*Residue from spills provided there is no more than a total of 1 kg of acutely hazardous waste contained in that residue.</p> <p><u>NOTE:</u></p> <p>Remember that 100 kg is approximately 25 gallons, and 1,000 kg is approximately 250 gals. (5-55 gallon drums) for a waste with a weight similar to water. The quantity limits apply to the total of all types of hazardous wastes generated or accumulated on site.</p> <p>State regulations allow accumulation of one 55 gal. drum of each waste, must dispose of waste within 90 days from fill start date.</p>			

## 02. COMPLIANCE REGULATIONS FOR VERY SMALL QUANTITY GENERATORS (VSQG) IN MASSACHUSETTS

### a. VERY SMALL QUANTITY GENERATOR (VSQG) CRITERIA

VSQGs must observe the following criteria:

1. **Do not** generate 100 kilograms (approx. 25 gallons) or more of regulated recyclable material or non-acutely hazardous waste in a calendar month.
2. **Must never exceed** accumulation of 600 kilograms (approx. 165 gallons) or more of regulated recyclable material or non-acutely hazardous waste.
3. **Never** generate or accumulate **ANY** acutely hazardous waste (described in 310 CMR 30.136).
4. **Never** generate any residue, contaminated soil, water or other debris from the cleanup of any acutely hazardous waste or acutely hazardous regulated recyclable material listed or otherwise described in 310 CMR 30.136.
5. **Never** generate any inner liners from containers which held acutely hazardous wastes or acutely hazardous regulated recyclable materials listed or otherwise described in 310 CMR 30.136.
6. Handle all hazardous waste in a manner which is safe and environmentally sound.
7. Register with the DEP by notifying of the activity involving hazardous waste or regulated recyclable material. Comply with regulations regarding change of status requests.
8. Determine whether the waste generated is hazardous.
9. Comply with requirements regarding recordkeeping (manifests, analysis results, exception reports). Obtain a receipt for waste, or a copy of the manifest. Retain records for at least three years (or for the duration of any enforcement action) of the type, quantity, date and method of treatment or disposal of your waste. NMFS policy is to retain these records indefinitely.
10. Comply with regulations regarding international shipments and special requirements for PCB-containing wastes.
11. Comply with the container storage, inspection and container management requirements for all generators of hazardous waste (e.g., label containers and tanks with the identity and hazards associated with the waste being stored and with the words

"Hazardous Waste", etc, see section 04: Storage Site Requirements).

**b. VERY SMALL QUANTITY GENERATORS TREATMENT & DISPOSAL OPTIONS**

As a registered VSQG you can use the following options, under the direct supervision of the Safety & Occupational Health Specialist (SOHS), for handling waste:

1. You may recycle or treat your waste, provided the process you describe in your registration is acceptable to DEP.
2. You may transport your waste to another generator who is in compliance with regulations and who will count your waste as part of his waste.
3. You may transport your waste to a licensed treatment, storage or disposal facility, community hazardous waste collection center, or permitted recycling facility (with the permission of your SOHS).
4. You may also use a licensed transporter and manifest (requires an EPA ID number).

**c. VERY SMALL QUANTITY GENERATORS SELF TRANSPORTATION OPTION**

As a registered VSQG you may transport your own hazardous waste, under the direct supervision of the SOHS, under the following conditions:

1. You transport only the waste that is generated on your premises.
2. You do not transport more than 55 gallons at one time.
3. You do not transport incompatible waste in the same shipment.  
Example: alkaline cleaner with battery acid
4. Your waste is in containers that are tightly sealed, labeled as "HAZARDOUS WASTE" with the name of the chemical(s) and type of hazard, and are tightly secured to the vehicle.

Note: Some types of waste will require a shipping paper, as specified by the Federal Department of Transportation (DOT), placards or labels.

5. You keep a copy of your registration as a VSQG in the vehicle while transporting your waste.
6. You are in compliance with all DOT and Mass Dept. of Public Safety (DPS) requirements.

For example, liquids with a flashpoint of less than 100°F can be transported in DPS - approved containers up to 7 gallons in volume, in total quantities of no greater than 21 gallons, without a permit from the Fire Marshal. Such liquids include gasoline and many other solvents.

7. In the event of a spill or a leak of hazardous waste that may threaten human health or the environment, notify DEP or the State Police (see back of your registration for number to call).

### **03. COMPLIANCE REGULATIONS FOR FULLY REGULATED GENERATORS**

a. Although the laboratories in Rhode Island and New Jersey do not generate more than 100 kg/month, accumulate over 1000 kg on site at any one time, or generate more than 1 kg of acutely hazardous waste, the states they are located in do not allow the conditionally exempt or very small quantity generator exclusion. Therefore, they have only 90 days to dispose of hazardous waste and must comply with all large quantity generator requirements. They must also comply with all of the on-site accumulation, container, container management, container storage area, inspection requirements, the special requirements for incompatible wastes and all reporting requirements.

### **04. ON-SITE ACCUMULATION REQUIREMENTS**

#### **a. CENTRAL STORAGE AREAS AND SATELLITE ACCUMULATION AREAS**

Central storage areas and satellite accumulation areas are distinctly different. The reason for the distinction between the two types of storage areas is that each is regulated slightly differently. The satellite accumulation regulations allow large and small quantity generators more flexibility on the time limit for storing hazardous waste on site. The regulation allows generators to store hazardous waste in a satellite accumulation area without complying with the 90 or 180 day time limit, provided the specific requirements for satellite accumulation are complied with (40 CFR 262.34(c)(1)).

**Central Storage Area:** A Central Storage area, is an area of a generator's facility where he/she stores more than one container of hazardous waste at a time, and which is not in the actual area where the hazardous waste is generated (i.e., any accumulation area which is not a satellite accumulation area).

**Satellite Accumulation Areas:** Satellite accumulation areas are those at which hazardous wastes are accumulated in containers at, or near, each specific point of generation and are under the control of the operator or the process generating the waste. An example of a satellite accumulation container could be a one gallon bottle kept in the laboratory to collect waste solvent. The requirements for satellite accumulation areas are listed below:

1. The waste must be accumulated at or near the point of generation.

2. Each satellite accumulation area must be directly under the control of the key staff individual directly responsible for the process generating the waste.
3. For each specific point of generation only one container for each type of waste with a maximum volume of 55 gallons of non-acute or one quart of acutely hazardous waste may be stored.
4. Containers must be properly marked and labelled (40 CFR 262.34(c)(1)(ii)) as follows:
  - (a) Containers must be marked with the words "Hazardous Waste"
  - (b) The hazardous waste(s) identified in words (e.g., acetone, toluene). If more than one waste is in the container the percentage of each waste (e.g. 50% water and 50% acetonitrile)
  - (c) The type of hazard(s) associated with the waste(s) indicated in words (e.g., ignitable, toxic, water reactive, etc.),
  - (d) Do not date the container while it is in the satellite accumulation area.
  - (e) When the container is full the generator should initial the container and date it when moving it out to the Central Storage area.

The satellite accumulation container must be marked with the date it became full and moved to a Central Storage area. Once in the Central Storage area, the waste must be stored in compliance with all applicable regulations for a Central Storage area (Subpart I of 40 CFR 265). The container must then be shipped off site within 90 days of the date it was placed in the Central Storage area for a large quantity generator. The Area Safety Representative at the site is responsible to ensure that the 90 day time limit is not exceeded. A very small quantity generator (Woods Hole Lab) and a conditionally exempt generator (Milford Lab) may keep waste on site for an indefinite time period provided the accumulation limits are not exceeded (See Generator Storage Limits & Accumulation Times, preceding section).

b. **CONTAINER REQUIREMENTS** - All containers used to store hazardous waste must be in good condition, non-leaking and compatible with the wastes stored in the container. Containers which are used to ship waste off site as well as to store it on site must meet the Department of Transportation (DOT) packaging regulations. The waste material can generally (but not always) be stored in the container that the product, from which the waste was generated, came in. This guideline may not hold true if the waste material is very different from the original product or if the container is not in the same condition. If you have any questions, contact the appropriate SOHS for guidelines.

c. **MANAGEMENT OF CONTAINERS** - Subpart I of 40 CFR 264 and 40 CFR 265 establish



specific requirements for the management of containers of hazardous waste:

1. When hazardous waste is not being added to or removed from its container, the container must be closed unless Federal, state or local laws require that the container be vented. If a container is vented, it must be done in a manner that is not a threat to public health, safety, welfare, or the environment.
2. Containers of hazardous waste must not be opened, handled, or stored in a manner which would cause them to rupture or leak. Containers which are stacked must be stacked in a manner acceptable to the EPA and must be separated with pallets.
3. All containers must be stored such that the label identifying the contents must be clearly visible without having to move, in any way, the waste container.
4. The aisle spacing used for container storage of ignitable or reactive hazardous waste must meet the guidelines set forth in the National Fire Protection Association Flammable and Combustible Code (NFPA-30, Chapter 4).
5. The aisle spacing of other hazardous waste must be enough to allow easy inspection of containers, in compliance with 40 CFR 265.174. This requirement is generally interpreted to mean approximately 2.5 to 3 feet between rows of drums. Hazardous waste must also be stored in separate aisles from virgin materials.
6. Indoor satellite accumulation area containers (Very Small Quantity Generators in Massachusetts) must have simple drip pan under the container.
7. Spillage must be promptly removed, and contaminated material disposed of according to EPA regulations. Spill remediation materials must be available in the area and emergency instructions for spill remediation posted.
8. Employees should be trained in specific procedures to follow when filling containers and when spillage occurs.

d. CONTAINMENT REQUIREMENTS IN STORAGE AREAS - According to Subpart I of 40 CFR 264.175 containment areas must have a containment system that is designed and operated in accordance with paragraph (b) of that section, except as otherwise provided by paragraph (c) of that section. These requirements are described below:

1. A base must underlie the containers and be free of cracks and gaps and be sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;

2. The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;

3. The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;

4. Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in paragraph (3) of this section to contain any run-on which might enter the system;

5. Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system;

6. Container storage areas holding only hazardous wastes which do not contain free liquids or polyhalogenated aromatic hydrocarbons are not required to have containment systems as described in Items 1 and 2 above if one of the following applies: (1) the area is sloped, designed, or operated to drain and remove liquid resulting from precipitation; or (2) the containers are elevated or otherwise protected from contact with accumulated liquid (e.g., stored on pallets);

7. All areas must be operated with appropriate security measures to prevent unknowing and unauthorized entry and must be protected from vehicular traffic;

8. All areas must have a sign with the words "HAZARDOUS WASTE" in capital letters at least one inch high posted at all times. The sign must comply with the National Fire Protection Association (NFPA) Code No. 704 (regarding legibility);

9. All storage areas must be marked (e.g., lines on floor, gate, fence, sign, etc.) to clearly distinguish them from satellite accumulation areas and all areas on site where wastes are not generated or stored;

10. All storage areas must be protected from weather by buildings, tarps, walls or a roof and be grounded electrically to prevent sparking; and

11. Inspected at least once a week as required by 40 CFR 265.174 or more frequently if required by State regulations.

e. INSPECTIONS - All generators who store hazardous waste in containers must inspect the containers in satellite locations and the Central Storage area at least once per week (Howard

Lab must inspect on a daily basis). During this inspection, the inspector should look at the condition of the containers, and look for signs of leaks, spills, deterioration, etc. The inspector must also ensure that labels are in place and correct and that all waste stored is in compliance with all hazardous waste management requirements.

All inspections must be documented by recording the results in an inspection log. The inspection log should include spaces for the name or initials of the inspector, the date of the inspection, the inspector's observations and a notation to indicate that any observed problems have been corrected.

#### **f. SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVE, INCOMPATIBLE, AND POLYHALOGENATED AROMATIC HYDROCARBON HAZARDOUS WASTES**

Large quantity generators are required to comply with the requirements of 40 CFR 265.177 for storing ignitable, reactive, incompatible, and polyhalogenated aromatic hydrocarbon hazardous waste in containers in a central storage area. Small quantity generators are required to comply with only items 1 through 3 below. These requirements do not apply to containers in satellite accumulation areas.

1. Containers which hold ignitable hazardous waste must be located at least 15 meters (approximately 50 feet) from the facility's property line. Small quantity generators are allowed to locate these wastes in compliance with local regulations if the 15 meter requirement cannot be met.
2. Incompatible hazardous wastes or materials incompatible with hazardous wastes cannot be placed in the same container unless this storage does not create a hazard (unless 40 CFR 265.17(b) is complied with).
3. Hazardous waste shall not be placed in an unwashed container that previously held a waste or material incompatible with the added hazardous waste, unless 40 CFR 265.17(b) is complied with.
4. Containers which hold hazardous waste which is incompatible with other waste or material stored nearby in other containers must be separated by means of a dike, berm, wall, or other device.

### **05. PROCEDURES FOR HAZARDOUS WASTE MANAGEMENT**

a. HAZARDOUS WASTE DETERMINATION - Make the determination that the substance is hazardous waste. Before a new procedure is initiated, scientists/chemists/technicians must consult with the regional Safety & Occupational Health Specialist (SOHS) to determine if the resulting waste should be classified as hazardous waste. The generator must also indicate the

volume per month of waste which will be generated. The SOHS must be consulted if the substance to be disposed of is an outdated chemical or a chemical which is no longer needed.

The SOHS will consult state and federal guidelines to determine if the waste is hazardous waste.

b. SATELLITE ACCUMULATION SITES - The SOHS will decide to either set up an accumulation area near the site of generation (satellite location), or to remove the chemicals directly to the hazardous waste storage area. As an example, a chemical analysis for pesticides results in 500 ml per day of methylene chloride. The 500 ml can be poured daily into a gallon bottle and retained at the satellite location until filled.

c. HAZARDOUS WASTE STORAGE SITES - Storage sites will be different for each laboratory. Specific requirements are outlined in Section 01. They must be inspected on a daily or weekly basis, depending on state regulations. The SOHS will designate an employee to inspect the storage site and to verify this inspection by completing a checklist. Inspectors will be trained by the SOHS to check for specific problems and safeguards (such as the condition of the drums, and that drums are secured), and precautions to take if a problem arises. This training will be in addition to the normal training on the Chemical Hygiene Plan given to all staff members.

d. ACCUMULATION OF HAZARDOUS WASTE - The Area Safety Representative (ASR) will monitor the accumulation of hazardous waste and keep an updated inventory so that regulated accumulation times and amounts are not exceeded. The updated inventory will be sent by the ASR to the SOHS on a regular basis. If chemicals must be poured into larger containers (e.g. 30 or 55 gallon drums) in order to reduce disposal expenses, precautions must be taken so that employees are not exposed to chemicals when pouring. Pouring guidelines can be found in Section 06 of this chapter.

e. PROCUREMENT OF DISPOSAL CONTRACTS - When the stored amounts of hazardous waste approach accumulation or time limits, the SOHS will collaborate with procurement to determine the type of procurement action to use. There are numerous disposal companies and methods of disposal to be considered. The bid must be as specific as possible, delineating the concentration of chemicals and the size of containers to be removed.

Once a bid is accepted, the SOHS will contact the company chosen with any questions concerning the contract.

The SOHS will establish a timeframe for pre-removal lab-packing, sampling, and final removal. In some cases, everything can be accomplished with one visit.

f. REMOVAL OF HAZARDOUS WASTE FROM THE SITE - Whenever the contractors

who have been awarded the bid are on site, the SOHS and ASR will be present to verify that all procedures are carried out according to regulations.

The contractor will prepare the Uniform Hazardous Waste Manifest(s). The SOHS will scrutinize the manifest(s), sign it and make any necessary copies for the files.

After the contractor has removed all hazardous waste, the SOHS and ASR will ensure that all remaining debris is removed and that the hazardous waste area is returned to its former clean condition.

The SOHS will forward the proper Uniform Hazardous Waste Manifests to the designated state hazardous waste departments. The originals will be filed at each facility, with copies having been made for the SOHS to file in her home lab. When the final signed copies are returned from the Treatment Storage and Disposal facilities, they will also be copied and filed for a minimum of three years. We recommend retaining these files indefinitely.

## **06. GUIDELINES FOR POURING HAZARDOUS CHEMICALS INTO DRUMS**

a. **PRE-POURING PREPARATIONS** - Ensure that emergency communication is available, such as a telephone or walkie-talkie. Check that an eyewash is available and is in good working condition. Have a fire extinguisher on hand or ensure that the location of the nearest extinguisher is known to employees. Check the area to ensure that no one is smoking within 50 feet of the drum. Gather and check all equipment, such as respirators, safety glasses or goggles, gloves, labcoat, drum lifters, bung wrench, funnel, hazardous waste labels, indelible marker, masking tape, and spill control materials. Turn on exhaust fan and lights, where available.

b. **DRUM PREPARATIONS** - Place masking tape on the top of the each drum to record the number of gallons poured into each drum. On the tape write the name of the chemical to be poured into the drum (e.g. methylene chloride). If the bottle contains more than one waste, be sure to include the percentage of each waste. Turn the drums to ensure that the fill hole is toward the operator, so he/she will not have to reach across the drum to pour. If the drum is outside, the operator should position the drum so the operator is standing upwind of the fill hole. Complete Hazardous Waste labels and place them on the upper third of the drum. Date the label with the accumulation start date (the date that any liquid was first poured into the drum). Ground the first drum and all subsequent drums before pouring. Also ground the container from which you are pouring, even non-metallic containers. Do not forget to move the grounding cable when pouring into the next drum.

c. **PERSONAL PROTECTIVE EQUIPMENT** - Before handling any bottles or partially filled drums, put on labcoat, gloves, respirator (when determined by the hazard of the chemical), and goggles or safety glasses.

d. **THE POUR** - Move a preset number of bottles close to the drum. This will make it easier to keep track of the volume poured. Open the bung with a bung wrench. Place the funnel in the filling bung hole and begin pouring slowly to avoid splashing. Do not fill drums completely. An inch or two of space must be left to allow for expansion. When filling more than one drum, close the first drum, using the bung wrench, and transfer the grounding wire before proceeding to the next drum.

e. **SEPARATING SEDIMENTS FROM LIQUIDS** - Follow same procedure as above, with the addition of a mesh screen placed in the funnel. When the liquid has drained from the solids, place solids into a prelabeled open-head drum, preferably no larger than 30 gallons in size. Larger drums of sediments are hard to handle. It is also permissible to put tissue into a doubled trash bag for dumpster disposal.

f. **CLEANUP** - All empty bottles should be placed in the glass recycling bin or in the trash can, depending on state regulations. Wash all equipment used and return to proper storage area. Used respirators should be thoroughly washed and stored with the canisters removed. Make a notation of how long the canisters were used.

## **07. ANNUAL AND BIENNIAL REPORTING**

Regulations (40 CFR 264.75) require that generators subject to full regulation must prepare and submit an annual or biennial report. The state of Rhode Island requires a biennial report, which is completed and submitted by the SOHS, to the State Regional Administrator by March 1 of each even numbered year. The state of New Jersey requires an annual report, which is completed and submitted by the SOHS. These reports must be submitted on the form supplied by the state and must cover facility activities during the previous calendar year.

## **CHAPTER 5**

### **CONTINGENCY AND EMERGENCY EVACUATION PLANS**

Each laboratory of the Northeast Fisheries Science Center is required, by Center policy, and the New Jersey and Rhode Island regulations, to have a Contingency and Emergency Evacuation Plan available to all employees. Plans are site specific and therefore vary according to location. A Contingency Plan is available at each laboratory.

Contingency Plans are designed to minimize hazards to human health and the environment. Such hazards stem from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water. The plan outlines duties and responsibilities of key facility personnel in emergency situations, as well as the appropriate response procedures. It outlines duties and responsibilities of police departments, fire departments, and HAZMAT teams in emergency situations. Each plan also includes lists of emergency telephone numbers, locations of spill equipment, and chemical inventories.

The Emergency Evacuation Plans, which are Appendix A of the Contingency Plans, address issues involving employee safety during an emergency, such as fire, explosion, spill of hazardous materials/wastes, accident, or natural disaster. It outlines duties and responsibilities of facility personnel as well as local fire and police departments. The Plan details designated exit routes, assembly points of evacuated personnel, personnel accountability, methods of reporting a fire or other emergency, etc. Plans also include site maps and floor plans.

Local fire and police departments have received copies of both plans and are familiar with facility layouts.

Both plans can be found in the office of the Officer-in-Charge and the Area Safety Representative (ASR) and Safety & Occupational Health Specialist (SOHS). In addition, the facility Alternate Emergency Coordinator shall have the plans and be familiar with them.

## CHAPTER 6

### TRAINING

#### 01. INTRODUCTION

All employees, students and non-NOAA employees are required to have training to satisfy the Occupational Safety & Health Administration (OSHA), Resource Conservation and Recovery Act (RCRA), Department of Commerce (DOC) and Department of Transportation (DOT) regulations, however the extent of training will depend on the duties of the employee. All workers are required to be given a program of introduction upon hiring, followed by an annual review of the initial training. The regulations also require that facility management maintain training records including job titles, position descriptions, the amount and type of training provided for each employee, and dates of training completed. Training records are to be maintained until facility closure. These records will be kept on file at each laboratory with copies maintained by each Safety & Occupational Health Specialist (SOHS).

#### 02. CATEGORY OF TRAINING

Table 6.1, page 6-6, identifies recommended minimum training for all classifications of employees and the category of training to be given. The following categories of training are required by numerous regulatory authorities:

- a. CONTINGENCY PLAN AND EMERGENCY EVACUATION PLAN - Specific measures have been taken to ensure the safety of laboratory employees, beginning with proper training. As new employees arrive they will receive an employee orientation that will include a full review of both plans including procedures for fire drills, fire extinguishers, emergency telephone numbers, designation of Emergency and Alternate Emergency Coordinators, and the location of the Plans. Updates will be presented to all employees as changes are made to the Plans, or if a Plan fails during an emergency.
- b. OSHA SAFETY TRAINING - New employees will receive orientation training to include the DOC Policy Statement on Occupational Safety and Health, Executive Order 12196 of February 26, 1980 Occupational Safety and Health Programs for Federal Employees, instructions for reporting unsafe or hazardous working conditions, accident reporting procedures, and other emergency and evacuation procedures. On an annual basis additional safety topics will be presented using video tapes and discussion.
- c. SPILL RESPONSE TRAINING - Spill response training is required by numerous regulatory authorities for employees who handle and/or manage hazardous materials and/or waste.

1. Basic Training - A basic knowledge of spill response is required for all employees to



insure that they know the proper response if they see a spill, i.e. who to call, when, why and how. Training will be given using videos, discussion and tests, with a biennial refresher.

2. Full Training - Spill response training will be given to employees who handle/manage hazardous materials and waste to include videos, discussion, tests and practice sessions in practice rescue (Rescue, Alert, Contain and Evacuate). A review of the initial training will be conducted on an annual basis.

d. OSHA LABORATORY STANDARD TRAINING - Occupational Safety and Health Administration's (OSHA's) Laboratory Standard (Chemical Hygiene Plan) required training is to protect laboratory employees from harm due to chemicals while they are working in a laboratory. Personnel must successfully complete a program of classroom instruction and on-the-job training.

1. Laboratory workers will receive initial training which will include a video, test and review of the Chemical Hygiene Plan.

2. Laboratory workers will receive a 15 minute update whenever there are additions or revisions or if there is a failure of the Chemical Hygiene Plan.

e. OSHA HAZARD COMMUNICATION STANDARD TRAINING - The Hazard Communication Standard requires that employers shall provide Right-To-Know (RTK) training to all personnel exposed to, or potentially exposed to, hazardous chemicals, at the time of their assignment to such work and whenever a new hazard is introduced into their work area (29 CFR 1910.1200). For the purpose of this instruction, all personnel includes students, volunteers, permanent and temporary employees and casual laborers. That training should ensure that the hazards of all chemicals produced or imported are evaluated, and that information concerning their hazards is transmitted to employers and employees.

1. All new hires and casual laborers will receive initial training which will be incorporated into the new employees orientation. The RTK training will be accomplished by lectures, use of video tapes, discussions and hand-outs and will include the following:

- (a) A discussion of labels and Material Safety Data Sheets (MSDS);
- (b) Instruction to employees on the hazards of chemicals that they are exposed to;
- (c) Ways to detect the presence of these hazards;
- (d) Measures employees can take to protect themselves; and
- (e) The details of the laboratory's hazard communication program.

2. Whenever a new chemical is introduced into their work area the employee shall be provided with information and training on the hazards of that chemical.

f. HAZARDOUS WASTE TRAINING - All employees required to handle hazardous waste shall receive training to include basic hazardous waste regulations, i.e. labeling, storage, container management, etc. New employees will be trained by using videos, discussion and tests. They will receive an annual refresher of the initial training.

g. WORKERS COMPENSATION TRAINING - All employees will receive training based on the Workers' Compensation Guide created by Annette Kubinec and Barbara Jobe. The video tape distributed by the Eastern Administrative Support Center will be included with this training. This will facilitate compensation claims which may arise due to an accident or illness which occurs during the course of duties. All employees will receive updates if any changes occur.

### **03. TRAINING FOR DESIGNATED HAZARDOUS WASTE AND SAFETY PERSONNEL**

a. Safety and Occupational Health Specialists and Area Safety Representatives must receive specialized training. They are required to have initial training within six months of assignment to their positions. In order to qualify as trainers for the topics in this chapter, they will receive additional training.

#### **1. Safety and Occupational Health Specialists (SOHS):**

(a) Are required to receive 40 hours each of Occupational Safety & Health Administration (OSHA) Safety and Occupational Health Training and Hazardous Materials Management Training within six months of assignment to their position.

(b) Are required to receive 40 hours of annual OSHA safety training at the OSHA Institute or equivalent. This training should also include chemical compatibility, chemical inventory management and other laboratory related material.

(c) Annual Training - A minimum of 40 hours hazardous materials management training is recommended. This training should include a minimum of 16 hours (per state) of regulatory update that is state specific, 8 hours HM181 Department of Transportation (DOT) regulations (DOT training is required only every three years), 8 hours spill response, 8 hours respirator training, and 8 hours of Environmental Protection Agency (EPA) regulatory update. If the SOHS is managing PCB's and/or radioactive materials, 8 hours of training on each subject is recommended.

#### **2. Area Safety Representatives (ASR):**

(a) Are required to receive 40 hours each of OSHA Safety training and Hazardous Materials Management training within six months of assignment to their position.

(b) Are recommended to receive 40 hours of annual OSHA safety training at the OSHA Institute or equivalent. This training should also include chemical compatibility, chemical inventory management, and other laboratory related material.

(c) Annual Training - Are recommended to receive 8-16 hours of state specific regulatory update, and 2-4 hours of spill response. They are required to receive 2-4 hours of DOT (HM 215A) training every three years.

(d) If they manage PCB's or radioactive materials they must receive adequate training to manage these materials.

**04. SPECIALIZED TRAINING (as necessary)** - Occasionally employees are required to don a respirator, sometimes to contain a spill, but more often to pour hazardous chemicals into drums for disposal. These employees are required to have specialized training.

a. **POURING HAZARDOUS CHEMICALS INTO DRUMS** - Employees responsible for pouring hazardous chemicals for disposal will be given specific training to include step by step pouring procedures and required equipment, as described in Chapter 4 of this document. This training will be documented.

b. **RESPIRATORS** - Employees responsible for spill response and/or pouring hazardous chemicals for disposal or managing/handling hazardous chemicals which require the use of a respirator will receive specialized training on the proper use and care of respirators. This will be accomplished by using videos, discussion, and tests. According to the DOC Occupational Safety and Health Manual, employees are required to have an annual physical and respirator fit testing. The fit testing will be done by the area SOHS. A Respiratory Protection Program, which is required by OSHA regulations, will be developed at a future date.

## **05. TRAINING RECORDS**

Training records shall be maintained in the training file in the ASR's office and copies in the SOHS's office. The following page is an example of the safety training form to be used.



TABLE 6.1  
TRAINING REQUIREMENTS

Category of Training	Top Management	Scientific (Lab)	Scientific (non-Lab)	Clerical	Maint/Janitorial
CP/Emergency Evacuation	X	X	X	X	X
* OSHA Safety	X	X	X	X	X
Spill Response (Basic)	X		X	X	
Spill Response (Full)		X			X
Chemical Hygiene Plan	X	X			
Hazard Communication Plan			X	X	X
Hazardous Waste	X	X			
Workers Comp	X	X	X	X	X

\* See DOC Safety and Occupational Health Manual for specific number of training hours required.

## **06. LESSON PLANS**

### **a. HAZARD COMMUNICATION TRAINING (RIGHT TO KNOW) LESSON PLAN**

LESSON OBJECTIVE FOR EACH STUDENT: To acquaint employees with information regarding hazards of chemicals to which they may be exposed under normal conditions of use or in a foreseeable emergency.

DESIRED LEARNING OUTCOMES (PERFORMANCE OBJECTIVES):

1. Recognize chemical hazards in their area;
2. Respond to emergency spills;
3. Know what a Material Safety Data Sheet (MSDS) is and how to use it;
4. Know what Personal Protection Equipment (PPE) is required;
5. Safely handle, use and store chemicals.

INSTRUCTIONAL AIDS: Video tapes, easel, paper and marking pens, sample containers and labels.

STUDENT PREPARATION: Classroom discussion

HANDOUT MATERIALS: Student Handbook, 29 CFR 1910.1200, and/or a copy of Laboratory's Hazard Communication Program.

PLAN OF PRESENTATION: Lecture with use of video tapes on specific classes of chemicals being used. Class discussion on specific problems in work areas.

MEANS OF EVALUATION: Test

Additional information about hazard communication training and information may be obtained from the Area Safety Representative.

After attending the orientation and receiving training each employee will sign a form verifying that he/she received the training, received written materials, and understood the agency's policies on hazard communication.

Prior to a new hazardous chemical being introduced into any section of this facility, each employee of that section will be given information as outlined above. First line supervisors are responsible for ensuring that a MSDS on the new chemical(s) is available.

#### **I. INTRODUCTION**

- A. Purpose of Training. To acquaint employees with information regarding written hazard

communication program and hazards of chemicals to which they may be exposed under normal conditions of use or in an emergency.

B. Format of Training Program. The program consists of a student workbook and videotapes. Each lesson will be followed by a short discussion and work exercise/quiz. It is suggested that you take notes. Feel free to write down questions regarding any information you do not understand. Your student workbook may help to answer some of your questions. A test will be given at the end of the course.

Your Workbook contains instructional and practical information that correlates with the material that is being presented in each videotape lesson.

## II. TOPICS OF TRAINING PROGRAM

### A. Lesson One: Introduction to The Hazard Communication Standard

Introduction: This lesson introduces employees to the Standard issued by the Occupational Safety and Health Administration (OSHA) and adopted by DOC and other Federal agencies. It identifies the goals of the Hazard Communication Standard and describes each of the actions required.

Show Videotape Segment 1 - The Federal Hazard Communication Training Program and discuss. Application Exercise 1 can be used as a workshop or a quiz.

Present specific site information on:

1. How to obtain MSDS
2. Location and availability of Hazardous Chemical Inventory and written Hazard Communication Program
3. Training on specific chemical hazards

### B. Lesson Two: Chemical Forms and Exposure Hazards

Introduction: This lesson describes the forms that chemical materials can take. It helps you recognize potential sources of exposure to chemicals in the workplace, and it describes how chemicals can enter your body when exposure occurs.

Show Videotape Segment 2A - Chemical Forms and discuss. Application Exercise 2A-1 2A-2 can be used as a workshop or a quiz.

Show Videotape Segment 2B - Routes of Exposure and discuss. Application Exercise 2B can be used as a workshop or a quiz.

C. Lesson Three: Types of Physical and Health Hazards

Introduction: Chemical materials can present risks, or hazards, to either your physical safety or your health. This lesson describes specific types of chemical hazards in each category and helps you understand the risks associated with each type.

Show Videotape Segment 3A - Types of Physical Hazards and discuss. Application Exercise 3A-1 and 3A-2 can be used as a workshop or a quiz.

Show Videotape Segment 3B - Types of Health Hazards and discuss. Application Exercise 3B-1 and 3B-2 can be used as a workshop or a quiz.

D. Lesson Four: Controlling Chemical Hazards

Introduction: This lesson introduces you to the ways in which chemical hazards can be controlled. It describes engineering/mechanical controls, types of personal protective equipment, and various administrative/procedural controls. Then it tells you about ways that you can detect uncontrolled chemical hazards in your workplace.

Show Videotape Segment 4A - Engineering Controls and Personal Protective Equipment and discuss. Application Exercise 4A can be used as a workshop or a quiz.

Show Videotape Segment 4B - Administrative Controls and discuss. Application Exercise 4B can be used as a workshop or a quiz.

E. Lesson Five: Introduction to MSDS and MSDS Physical Hazard Information

Introduction: Material Safety Data Sheets (MSDS) are required by law to identify chemical materials, describe important physical properties, report known hazards, and identify required controls. This lesson shows you how to use those sections of the MSDS that identify chemical materials, physical properties, physical hazards, ways of controlling physical hazards, and correct procedures to follow if a fire, spill, or leak occurs.

Show Videotape Segment 5A - Physical Characteristics Information and discuss. Application Exercise 5A-1 and 5A-2 can be used as a workshop or a quiz.

Show Videotape Segment 5B - Physical Hazard Information and discuss. Application Exercise 5B-1 and 5B-2 can be used as a workshop or a quiz.

F. Lesson Six: MSDS Health Hazard Information

Introduction: This lesson shows you how to use information on the MSDS that describes health hazards, and protective equipment required to guard against exposure to these health hazards. It



also covers special precautions given on the MSDS, such as correct procedures for handling and storing the material safely.

Show Videotape Segment 6 - Health Hazard Information and discuss. Application Exercise 6-1 and 6-2 can be used as a workshop or a quiz.

G. Lesson Seven: Using Labels and the Hazardous Chemical Inventory

Introduction: The Hazard Communication Standard requires every workplace to use warning labels and maintain a Hazardous Chemical Inventory. This lesson identifies the information that each resource must contain and shows you how to use these documents to help protect yourself from chemical hazards.

Show Videotape Segment 7 - Using Labels and the Hazardous Chemical Inventory and discuss. Application Exercise 7-1 and 7-2 can be used as a workshop or a quiz.

H. Lesson Eight: The Laboratory's Written Hazard Communication Program

Introduction: This lesson covers the written Hazard Communication Program for each National Marine Fisheries Service Laboratory in the Northeast Fisheries Science Center. Now that you have learned what is required by the Hazard Communication Program, let's look at our site specific written plan.

Show copy of your plan to employees. This can be done by using overheads or handing out copies. Discuss each section of the written program; show samples of both manufacturer and secondary labels used in the work area; discuss site specific MSDS's and inventory list; and discuss emergency clean-up procedures.

## **CHAPTER 7**

### **OSHA SAFETY**

It is Department of Commerce policy to provide a safe and healthful work environment for all employees, ensured through a comprehensive and effective program. Many general safety issues are not covered by the Laboratory or Hazard Communication Standards, but are defined in 29 CFR 1910, and further defined by the "Department of Commerce Occupational Safety and Health Manual". In order to implement a hazard control program, topics such as safety inspections, accident reporting and safety committees must be included.

#### **01. INSPECTIONS**

Oversight inspections are conducted by an Eastern Administrative Support Center (EASC) Regional Safety Manager (RSM) every three years. Laboratory Area Safety Representatives (ASR), safety committee members, and other designated personnel are responsible for all other types of inspections. All inspection reports shall be submitted to EASC in a timely manner and in a format recommended by the EASC RSM.

a. ANNUAL INSPECTIONS - Once during each fiscal year, the ASR will inspect the entire facility, including outside property, storage areas, and all buildings. In addition to physical inspections, processes and operations in the laboratories and maintenance shops must be observed. General things to look for include:

1. Exit access and egress - keeping work spaces and walkways clear
2. General office safety, including ceiling tiles, furniture, extension cords, and housekeeping
3. Fire Extinguishers, including monthly inspections and proper installation
4. Chemical compatibility - proper storage and segregation of chemicals
5. Electrical
6. Ladders
7. Compressed gases - including proper storage and grounding
8. Personal protective equipment, such as safety glasses, hearing protection, eyewashes, and emergency showers

Reports of annual inspections are to be submitted to the Officer-in-Charge (O-I-C) and the Northeast Fisheries Science Center (Center) Facility Manager for approval, and a copy to the Safety & Occupational Health Specialist (SOHS), before forwarding to the EASC RSM.

b. **QUARTERLY INSPECTIONS** - High hazard areas, such as laboratories and maintenance shops, are to be inspected on a quarterly basis by the laboratory ASR. Each ASR will maintain a list of facility high hazard areas. Reports of these inspections are to be submitted to the Officer-in-Charge and the Center Facility Manager, and a copy to the Safety & Occupational Health Specialist (SOHS), before forwarding to the EASC RSM.

c. **MONTHLY/WEEKLY INSPECTIONS** - The ASR or a designated employee will perform routine maintenance/inspections for the following items:

1. Fire extinguishers are to be inspected monthly for cracked hoses, fill level, and integrity of seal.
2. Hoods are to be measured monthly, by anemometer, for face velocity
3. Emergency showers must be tested monthly using buckets and/or shower testers.
4. Eyewashes are to be flushed weekly.
5. Hazardous waste storage areas (satellite and central storage) are to be inspected either daily or weekly in accordance with the state regulations (see Chapter 4).

All of the above will be verified by initialing attached hangtags, checklists, or completing logs.

d. **ABATEMENT REPORTS** - Each annual inspection must be resubmitted to report on the progress of abatements, and forwarded to the Center Facility Manager and the EASC RSM and a copy to the Safety & Occupational Health Specialist (SOHS).

## **02. ACCIDENTS/ILLNESSES**

a. **FORMS** - If an accident or illness occurs while an employee is at work, he/she must complete standard forms to report the accident, file for medical claims, and/or receive continuation of pay. Each accident may require different forms. In order to complete the proper forms, the supervisor or ASR should call the Department of Commerce Workers Compensation Branch at (800) 693-2667. Most of the forms are available from the ASR or central forms storage area. It is the responsibility of the supervisor to assist the employee in completing the accident forms, but the ultimate responsibility is the employee's. The employee must be careful to complete the proper forms in a timely manner and to honor requests from the Department of Labor and the Department of Commerce Worker's

Compensation Office. At a minimum, the following steps must be taken:

1. Report of Accident/Illness Form (CD-137) - This form must be completed for all accidents or illnesses, even if no medical treatment is required. The employee is responsible for completing the top portion of the form and the supervisor must complete the lower section. All four copies must then be submitted to the ASR for review and distribution. All injuries, no matter how trivial, should be documented with a CD-137.
  2. If medical attention is required, the employee and supervisor must complete the CD-137 and CA-1, and the personal section of the CA-16 and HCFA-1500 (the standard insurance billing form). The CA-16 and HCFA-1500 should be taken with the employee to the doctor or emergency room. If time permits, before leaving the laboratory, the supervisor should sign Block #8 of the CA-16. The physician should be instructed to return the CA-16 and the HCFA-1500 to the employee. The CA-1 and CD-137 should be completed within two days of the accident (if possible) and given to the ASR. The employee should make copies of all forms and give the originals to the ASR for review and distribution.
- b. WORKERS' COMPENSATION - If the Department of Labor approves a claim, the employee will be reimbursed for any out-of-pocket expenses, and medical bills will be paid directly.
- c. REPORT OF POSSIBLE SAFETY/HEALTH HAZARD FORM (CD-351) - Any employee (anonymous, if preferred) can complete this form to notify the Center and EASC of a potential hazard. The form must be submitted to the ASR for action.
- d. OSHA 200 LOG - Accident/Illness Experience summaries for each laboratory are prepared on a quarterly and annual basis by EASC. The annual report is to be posted in a conspicuous location for review by all employees.
- e. COMPLETE AND EASY GUIDE TO WORKER'S COMPENSATION - For more information see the two page guide at the end of this section starting on page 7-5.

### **03. SAFETY COMMITTEE**

Each Laboratory of the Center will maintain a Safety Committee consisting of, at minimum, the O-I-C, ASR, Maintenance Foreman, and one representative from each Investigation. The Committee will meet quarterly and discuss topics relating to safety, chemicals, and hazardous waste. Minutes will be posted in a conspicuous location, and forwarded to the SOHS and EASC RSM.

### **04. RECORDKEEPING**

All inspection reports, accident reports, and minutes will be kept on file in the office of the ASR and the SOHS for an undetermined period of time. These records will be available for RSM and OSHA inspectors upon request, but will not be available for employee review due to the confidential nature of some information.

## THE COMPLETE AND EASY GUIDE TO WORKERS' COMPENSATION

The following is an attempt to clarify the confusing business of filing the proper forms when an employee is injured or becomes ill on the job. See your Area Safety Representative for blank forms.

### SECTION 1 FORMS

CA-16 - You complete the front, and the doctor completes side two. (This form is not necessary if you are treated at the hospital.) Try to get the doctor to complete it while you wait. If he cannot, he must mail it to you.

HCFA-1500 (OWCP-1500) - This is a standard form that most medical providers use to send bills to insurance companies, as well as to the Department of Labor.

CA-1/CA-2 - Every section must be completed by you and your supervisor. If no time is lost, put NA in the appropriate spaces. Send originals to Washington (see address below) and keep copies for you and your ASR. Use Form CA-2 if yours is an occupational illness and not a one-time injury.

CD-137 - Send the original front copy to EASC (see address below) and distribute the colored copies as they indicate.

CA-20 - Must be completed by you and the physician for any visits after the initial examination.

### SECTION 2 PROCEDURES

1. Get medical help immediately. If you go to a doctor, take forms CA-16 and HCFA-1500 (OWCP-1500) with you. Your supervisor must sign the CA-16 before you leave. See above for hints and tips on how to fill these out.
2. If you go to a hospital, the HCFA-1500 is not necessary. The hospital must bill you on Form UB-92, but you must ask them to do so. You will be asked by the Department of Labor to obtain your hospital (chart notes), so try to obtain them as soon as possible. You can do this by going to the Medical Records Department at the hospital and asking them to copy your chart notes.
3. Tell all medical providers that this is a Federal workers' compensation case.
4. No later than three days after the accident, complete forms CA-1 (or CA-2 for an illness) and CD-137. See above for hints and tips.
5. Give the CA-1 and CD-137 to your supervisor to complete. He/she must fill out his/her

sections within 2 days and return to you the employee. Supervisors should complete every section. Put NA if a section is not applicable (see above). If the supervisor has questions, he/she should call the DOC Washington office of workers' compensation at 202-273-3325.

6. Give copies of all paperwork to your ASR. The ASR must send copies to the appropriate Safety and Occupational Health Specialist (Annette Kubinec or Barbara Jobe).

7. Send all paperwork (except the CD-137) to:

Department of Commerce  
Office of Labor and Employee Relations  
Workers' Compensation Branch  
Room H-5011  
14th and Constitution Ave., N.W.  
Washington, D. C. 20230  
Phone - 202-273-3325

8. Send the CD-137 (white copy only) and a copy of the CA-1 to:

Robert Vazquez  
Regional Safety Manager  
DOC EASC  
200 World Trade Center  
Norfolk, VA 23510  
Phone - 757-441-6297

9. You will be assigned a contact in Washington based on the alphabet (first letter of your last name). That person will forward your paperwork to the Department of Labor in New York or Boston.

10. Write letters to all of your medical providers to remind them that yours is a Federal workers' compensation case. Keep copies.

11. Within 1-3 months you will receive a postcard from the Department of Labor in New York or Boston. This postcard has your case number on it. Write this number down where you will not lose it.

12. The responsibility for all paperwork is yours - the employee. Your local ASR and supervisor can help but will not complete your forms.

13. For questions about sick leave, continuation of pay (COP), replacement of sick leave, and salary, please talk to your timekeeper and the personnel department at EASC.

## CHAPTER 8

### RADIATION SAFETY PROGRAM

#### 01. INTRODUCTION

As required by the Nuclear Regulatory Commission (NRC) in 10 CFR 31, the users of radioactive devices in gas chromatographs will abide by the terms specified for general licensees. The Howard Laboratory is not required to have its own NRC license because the only radioactive materials used are electron capture detectors (ECDs) containing Nickel 63. The Hewlett Packard Company holds the NRC license under which this lab qualifies as the end user.

#### 02. RADIATION SAFETY PROGRAM

- a. All ECDs will be used in the Organic Suite (Rooms 219A-D) of the Laboratory Building of the Howard Laboratory.
- b. The serial numbers of Hewlett Packard ECDs at the laboratory are:
  - F7649
  - F4976
  - S11207
  - F6252
  - S9036
- c. All detectors must be labeled with the Hewlett Packard (HP) metal tag. This tag states that removal of the tag/label is prohibited.
- d. Leak tests (wipe tests) must be performed every six months, whether the device is in the instrument or in storage. Leak tests will be performed by Dr. Ashok Despande and/or Dr. Bruce Dockum.
- e. Records showing results of wipe tests, dates performed, name of person performing the test and name of person installing, servicing, and removing devices from an instrument will be maintained in the Organic Suite, with copies being maintained in the Safety Office of Annette Kubinec. See the following pages for inventory sheets for each ECD.
- f. Wipe test results must be maintained for three years.
- g. Upon failure of a detector, or a wipe test result of greater than 0.005 microcurie, operation will be suspended and the detector will be repaired by returning to Hewlett Packard. Hewlett Packard may issue a replacement detector with a different serial number.
- h. Detectors shall not be abandoned.



- i. Spare detectors must be stored only in the original shipping container or in a container providing equivalent radiation protection.
- j. When needing services of any sort from Hewlett Packard, a letter will be sent on company letterhead specifying the required service (i.e. disposal, cleaning, transfer, etc.) and identifying the serial number of the detector.
- k. While a designated Radiation Safety Officer is not required by regulation, Dr. Ashok Deshpande is designated as the end user, and, as such, will be responsible for all requirements under the General License.





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