CHEMICAL HYGIENE PLAN
Environmental Engineering Laboratory Room EB0051

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1. University Policy
This chemical hygiene plan has been established to assure that students and laboratory employees are familiar with the hazards of the chemicals with which they are working as well as to ensure that proper provisions are in place to control exposures to hazardous chemicals to safe levels. This plan will outline the procedures which will be taken in this laboratory to assure that the stated goals are accomplished.

2. Chemical Procurement
Before a chemical is received at the laboratory, information concerning the proper handling, storage, and disposal of the chemical must be requested. The manufacturer or distributor of the chemical will be required to supply the Chemical Hygiene Officer (CHO) with a material safety data sheet (MSDS) for all chemicals purchased (Appendix B). This will give adequate information for students and employees to understand the hazards of the chemical and protective measures that are required in handling the chemical.

No container will be used in the laboratory without an adequate label identifying the product.
3. Stockrooms/Storerooms
In order to minimize hazard potential to employees, the chemical storage cabinets shall not be used as preparation or repackaging areas. All stock removed from a storage cabinets shall be under the control of the laboratory manager, laboratory instructor, laboratory teaching assistant or other person authorized to work in the lab, in order to assure that the stock is appropriately labeled and accounted for.

The storage cabinets will be monitored weekly in order to assure that containers are not leaking or otherwise deteriorating which could cause leakage or spillage of chemicals while stored.

Storage of chemicals in individual laboratory areas at this facility will be kept to a minimum in order to minimize potential problems in work areas from the chemicals leaking or being spilled. Each supervisor must review the supplies in order to discard unneeded chemicals bi-annually.

4. Standard Operating Procedures
Standard operating procedures have been developed for this laboratory relevant to safety and health considerations for the chemicals used.

The procedures for this laboratory are as follows:

a. **Eye/Skin contact:** The eye wash station will be checked weekly by the CHO or laboratory TA to assure that they are functioning properly. The area of contact with chemicals will be flushed for at least 15 minutes. The student's supervisor or CHO will assure that immediate medical attention is arranged for the student.

   Where there is a likelihood of splashing chemicals in the eye, the employee will wear chemical protective goggles. Lab coats, aprons, gloves, and other protective equipment will be provided to the employee or students as required. The CHO will review all chemicals used in this laboratory and determine the appropriate protective devices needed. Appendix C of this plan contains information on the proper protective equipment to use when working with specific chemicals.

b. **Cleanup:** All spills of chemicals will be promptly cleaned up. Students will promptly report spillage of chemicals to the laboratory instructor, the CHO or storeroom personnel. The individual designated to clean up the chemical spill will wear appropriate protection during the cleanup operation.

c. **Work Practices:** Employees and students are to avoid unnecessary contact with chemicals.

   a. Employees and students are not to eat, drink, or smoke in the laboratory.

   b. Food and beverages are not to be stored in laboratory refrigerators or other
areas where chemicals are stored. Employees and students are to wash hands prior to eating, drinking, or smoking in order to avoid contamination by chemicals which may be present on their hands.

c. Mouth pipetting is not to be performed.

d. Because of the potential of foot contamination from chemical spillage, bare feet or the wearing of sandals or skirts or cutoffs will not be permitted in the laboratory when working with hazardous substances.

e. Work areas will be maintained in an orderly manner in order to avoid spillage and mistakes in the use of chemicals.

d. **Containers:** The following procedures will be followed for containers of chemicals in the laboratories which must be left unattended for periods of time due to the nature of the process:

   a. All containers will be labeled as directed below based on whether they are used for course experiments or research projects. In addition, the labels will state if the substance is classified as poison, carcinogen, mutagen, or reproductive hazard.

      i. *Course experiments* - hand prepared labels will list the course number, experiment number, chemical contents, the date the container was filled.

      ii. *Research projects* - hand prepared labels will list the contents of the container, the date the container was filled, and the name of the individual filling the container.

   b. Unlabeled or open containers shall never be left overnight.

   c. Students will not prepare solution or transfer chemicals from one container without specific instructions from either the laboratory instructor or laboratory manual.

   d. Laboratory fume hoods and containment devices will be used when working with designated chemicals. Chemicals and processes which must be conducted under a fume hood will be specified in writing by either the laboratory instructor or laboratory manual.

   e. **Waste Disposal:** Laboratory waste will be handled in the following manner: Refer to Appendix F.

5. **Eye Protection**

   Protective eye glasses or goggles will be worn at all times when handling chemicals.

6. **Training**

   Training for employees will be conducted prior to working with new chemicals. Training shall also be provided to employees at the time that new information is available concerning
the hazards of the chemical (Appendix E).

Refresher training will be provided to employees and students each semester. The training will be conducted by the laboratory instructor, the CHO or an online or classroom training session based on the employee or students assignment. The training will be conducted using some combination of a presentation, online course, training video, pamphlets, or handouts.

The training will include:


b. The location and content of the chemical hygiene plan,

c. Hazards of chemicals with which the employees are working,

d. The location and availability of known reference material, including material safety data sheets.

e. The OSHA permissible exposure limits for the hazardous substances with which the employees are working (see material safety data sheets),

f. Signs and symptoms associated with exposure to the hazardous chemicals with which the employee is working,

g. Methods that will be used to detect the presence or release of hazardous chemicals,

h. Protective measures that the employees can take such as work practices, emergency procedures, and personal protective equipment that can be used.

7. Operations Requiring Approval

Any laboratory operation not specified in the laboratory manual for the assigned experiment requires prior approval from the laboratory instructor or the CHO.

8. Medical Examinations

Medical examinations will be provided to employees in the following circumstances:

- whenever employees develop signs or symptoms associated with exposures to hazardous chemicals in the laboratory,

- whenever there is a spill, leak, or other occurrence which would result in a hazardous exposure. Such occurrences are to be reported immediately to the CHO who will make prompt arrangements for a medical consultation and examination. Medical exams and consultations for employees in this laboratory will be performed by Health Services. Emergency spills, leaks, and other occurrences should also be reported to University Police at 911.

9. Engineering Controls

The following measures will be taken to assure that the exposures to employees and students are kept to a minimum.
a. In addition to the work practices stated above, the fume hoods used will be checked annually to assure that they are functioning properly.

b. Fume hoods shall be kept closed when not required to be open. This will help control contamination of the general lab environment.

c. The following additional controls will be used to control exposures in this laboratory: (not applicable)

d. The CHO will assure that the following provisions are implemented to assure that exposures are maintained within acceptable levels in the laboratory: (not applicable)

10. Additional Provisions for Particularly Hazardous Chemicals

The chemicals encountered in this laboratory will normally not require additional provisions to ensure employee or student protection. In the event that a hazardous chemical is required to complete a laboratory experiment or research project, additional provisions will be specified by the laboratory instructor or the CHO prior to handling the hazardous chemical.

Compounds containing arsenic or cyanide plus elemental bromine will require additional provisions to ensure employee or student protection since these chemicals are considered particularly hazardous because they are select carcinogens, reproductive hazards, or have a high degree of acute toxicity. Elemental fluorine will not be used in any laboratory without first conducting a safety survey in coordination with Emergency Management and Safety office.

Additional provisions are as follows:

1) The following chemicals will only be used in the corresponding work area: *Arsenic, cyanide, and bromine will only be handled in the fume hood.*

2) Fume hoods, glove boxes or other containment devices will be used with the following chemicals: *Arsenic, cyanide, and bromine require the use of the fume hood, using rubber gloves, and safety glasses or goggles.*

3) The following procedures have been established to handle contaminated waste from the laboratory: *All chemical waste will be temporarily stored in properly labeled bottles. Waste will be separated according to the instructions in Appendix F.*

4) The following procedures have been established concerning decontamination of students and employees and surfaces contaminated with chemicals:

   a) When chemicals are spilled, students will take immediate action to limit hazard posed to individuals.

      i) Spills of organic chemicals and strong acids and bases should be immediately
covered with Vermiculite or soda ash. Allow the chemical to soak into the absorbent material before sweeping it up. Dispose of contaminated absorbent in plastic bags or buckets. Use hazardous waste labels to mark the containers and contact hazardous waste personnel for disposal.

ii) Depending on the individual hazards associated with the spilled chemical, contact the lab manager or CHO for assistance in spill clean-up before attempting to clean up any absorbent material. If irritating fumes are present, clear the area of all people and contact the lab manager immediately. Protective masks or self-contained breathing apparatus is probably required.

iii) In the event of a serious spill that is producing irritating or poisonous vapors and cannot be controlled, clear the entire building by activating the fire alarm. Call 911 and ask for medical and fire department assistance. Tell them there are hazardous or poisonous fumes in the chemistry lower level of the Engineering Building. Give them the location of the spill and the chemical(s) involved.

iv) Floors, cabinets, and counters tops will be decontaminated using soap and water or an appropriate solvent. Eye protection, rubber gloves, and masks (if required) will be used.

b) Chemicals spilled on bare skin or clothing will be taken care of immediately.

i) Remove the contaminated clothing and rinse it thoroughly with water. Do not put this clothing back on until it has been thoroughly machine washed. In some cases the clothing may be considered too contaminated in which case it will be bagged up and labeled as hazardous waste.

ii) Use the eye wash fountain to rinse chemical spills from the eyes or face and neck area. Assistance will be required to hold your eye lids open. Wash the area for at least fifteen minutes. Call for medical assistance immediately by calling 911.

iii) Use the overhead showers or standard sink faucet to wash chemicals from your arms, legs, and torso. Wash the affected area for at least fifteen minutes. Call 911 for medical assistance if required.

c) All spills will be reported to the lab manager immediately.

11. **Chemical Hygiene Officer**

The designated chemical hygiene officer for authorized activities in this laboratory is defined as follows:

1. For laboratory courses scheduled in this room - Civil Engineering department’s Laboratory Specialist. This person will assume the duties of the CHO with general responsibility for carrying out the terms of this Plan.

2. For research projects using the room - the principal investigator for the research project. This person will assume the duties of the CHO for activities related to the project.
12. **Plan Review**
This plan will be reviewed and updated on an annual basis. The review will be conducted by the CHO in conjunction with the Hazardous Waste Management Department. The review will be documented.

The CHO will review laboratory compliance with all provisions of this Chemical Hygiene Plan on a periodic basis. The CHO will document compliance with the Plan Activity.

The chemical hygiene plan is available to students at the laboratory bench nearest the exits.

13. **Employee Access**
Employees have access to any records of environmental or medical monitoring in accordance with OSHA standard 29 CFR 1910.20.

14. **Comments**
Comments concerning the chemical hygiene plan should be directed to the CHO.

15. **Responsibility**
The CHO is responsible for implementing the overall chemical hygiene plan. Each individual laboratory supervisor is responsible to assure that the plan is effectively implemented on a continual basis.

(Signature)       (Date)
APPENDIX A

EXTRACT FORM ILLINOIS STATUTES CHAPTER 48- EMPLOYEEMENT

137.3.  Employer's Duties - Employee's Duties - Rules

3. (a) It shall be the duty of every employer under this Act to provide reasonable protection to the lives, health and safety and to furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

(b) It shall be the duty of each employer under this Act to comply with Occupational health and safety standards promulgated under this Act.

(c) It shall be the duty of every employer to keep his employees informed of their protections and obligations under this Act, including the provisions of applicable standards.

(d) It shall be the duty of every employer to furnish its employees with information regarding hazards in the workplace, including information about suitable precautions, relevant symptoms and emergency treatment.

(e) It shall be the duty of every employee to comply with such rules as are promulgated from time to time by the Industrial Commission pursuant to this Act, which are applicable to his own actions and conduct.

(f) The industrial commission shall, from time to time, make, promulgate and publish such reasonable rules as will effectuate such purposes. Such rules shall be clear, plain and intelligible as to those affected thereby and that which is required of them, and each such rule shall be, by its terms, uniform and general in its application whenever the subject matter of such rule shall exist in any business, occupation or enterprise having employees, and which rules, when applicable to products which are distributed or used in interstate commerce, are required by compelling local conditions and do not unduly burden interstate commerce.

Amended by P.A. 76-1297, 58, eff. March 4, 1975. For further information contact:

Industrial Service Hygienist Division of Safety Inspection and Education

Illinois Department of Labor

Springfield, IL (217) 782-4102
APPENDIX B

MATERIAL SAFETY DATA SHEETS (MSDSs)

As required by the Hazard Communication Standard, as OSHA regulation found in 29 CFR 1910.1200, and as required by similar regulations in some states, material safety data sheets are references to be used principally for the training for workers concerning the hazards and precautionary measures applicable to those particular chemicals that workers will handle in the workplace.

OSHA requires that, for every hazardous chemical on the premises, a MSDS be readily available for employees' or student's perusal. Because there is some level of hazard associated with every chemical, OSHA generally interprets all chemicals as hazardous. OSHA imposes no restriction on the sources of the material safety data sheets that are made available to the workers, but it does require all suppliers of hazardous chemicals to furnish copies of material safety data sheets for their customers. Therefore, this is the usual source of MSDSs for the employers' or students. In some states, the MSDS must be from the supplier to fulfill the state legal requirements.

A MSDS also describe other hazardous characteristics of a chemical or mixture. Thus, if a chemical can be absorbed through the intact skin, the MSDS will so state and will also prescr8be the use of protective equipment such as gloves or full protective clothing, as appropriate, of the MSDS does not describe the material (e.g., rubber, neoprene, polyethylene, for gloves) the supplier may be able to suggest a suitable material.

Known and anticipated carcinogens recognized as such by competent authorities must be identified in MSDSs. But, there is as yet no corresponding recognized basis of authority for the identification of mutagens (substances capable of causing permanent, transmissible alterations in the genetic coding) or teratogens (agents interfering with normal prenatal development causing abnormalities the fetus). Hence, a MSDS may be silent concerning mutagenic, teratogenic, neurotoxic or nephritic hazards due to lack of information.

OSHA has prepared a suggested format for a MSDS, but any format that supplies the OSHA required information is acceptable. This includes information stored in a computer database provided that the information can be accessed readily. The principal parts required in an MSDS include physical data, fire and explosions hazards, toxicity hazards, other health hazards, propensity to react vigorously (often called an incompatible chemicals or reactivity list), spill and leak cleanup procedures, and above all, precautionary measures which, if taken, will materially reduce the probability of harm when the chemical issued. Therefore, when properly prepared, a MSDS is a useful tool in the training of users, including students, who will use that chemical in their laboratory work. Note that although OSHA has no authority to require the training of students concerning hazardous chemicals, faculty can take advantage of the active MSDSs that are furnished by chemical suppliers and use these in the training.
of students concerning chemical safety and health hazards and precautions.

As an example, an MSDS for acetone is reproduced on the following pages.
APPENDIX C

PERSONAL PROTECTIVE EQUIPMENT

Protective Clothing

Aprons, lab coats, gloves, and other protective clothing, preferably made of chemically inter
material, should be readily available and used. Table 1 compares the properties of a number of
different clothing materials. Note that most lab coats and aprons are made of substances that will
burn. Experiments or processes involving corrosive or reactive materials, such as strong acids or
bases, require use of goggles and perhaps face shields. Gloves must provide sufficient arm protection
to minimize the chance of spilled chemicals making contact with the skin. Examine the
manufacturers' claims and test data carefully and use the gloves only under the conditions and with
the chemicals for which they are intended. Protection for legs and feet should be provided by lab
clothing or apron and shoes, and in some cases, boots.

Eye Protection

The use of proper eye protection is a minimum requirement for everyone who enters a chemical
work area. The type of eye protection needed depends on the circumstances (Chart 1). There is
always a danger of splashing chemicals or flying particles. Therefore goggles or other forms of eye
protection that protect both the front and sides of the eyes are mandatory. Side shields offer some
protection from objects that approach for the side, but do not provide adequate protection from
chemical splashes, which can drop behind glasses. Face shields and goggles may be appropriate
when working with glassware under reduced or elevated pressure and with glass apparatus used in
combustion or other high-temperature operations. Face shields alone are not considered adequate
eye protection according to ANSI Z 87.1-1989 and must be used in conjunction with other eye
protection. Goggles should be worn when working with compressed gases.

Normally, contact lenses should not be worn in the laboratory or workplace and they are never a
substitute for eye protection. If contact lenses are permitted, fitted goggles must also be worn at all
times. Gases and vapors can concentrate under the lenses and cause permanent eye damage. Soft
contact lenses may pose an even greater hazard than hard contact lenses in this regard. Contact
lenses can also trap particulate foreign matter in the eye and thereby produce abrasion of the cornea.

Further, in the event of a chemical splash into the eye, capillary action tends to hold the offending
substance under the contact lens and against the surface of the cornea. At the same time, the removal
of the contact lens to achieve immediate irrigation is made nearly impossible by involuntary spasm
of the eyelid. Person attempting to irrigate the eyes of an unconscious victim may be unaware that
contact lenses are in place, thereby reducing the effectiveness of the wash.

A U.S. Food and Drug Administration (FDA) regulation requires that all eyeglass and sunglass
lenses sold to the general public be of shatter resistant material. Although this regulation improves
the protection to the general public, such eyeglasses cannot be considered adequate for laboratories
and shops, which require industrial quality eye protective devices. ANSI Z 87.1-1989, Practice for
Occupational Safety and Educational Eye and Face Protection, requirements should be considered the minimum protection. The ANSI standard requires hardened glass or plastic lenses with a minimum thickness of 3 mm, lens retaining, nonflammable frames, and other attributes not covered by the FDA regulation.

Considerable discomfort and damage to the eye can result from exposure to UV light. Absorption of this radiation by the outer layers of the eye (cornea and conjunctiva) produces conjunctivitis. Protective glasses should be worn by all personnel whenever they may be exposed to erythemally effective radiation. Use of lasers requires special care.
APPENDIX E

SAFETY TRAINING

Responsibility for Training

Academic institutions have the moral and professional responsibility to train students in safe laboratory practices. The institution is responsible for the training not only of the students who are taking the various laboratory courses, and of the assistants provided by the department, but also for other employees working with or exposed to chemicals. Students are expected to adhere to all safety rules and to participate conscientiously in any training exercises. Furthermore, students have the responsibility to seek advice and guidance whenever they are in doubt about safety procedures or potential hazards in their laboratory work.

Instruction should be given to students and staff members regarding hazards of the chemical being used in a particular course and the manner in which these chemicals are to be handled and disposed of safely. The information provided by labels and material safety data sheets should be understood.

Evacuation and Fire Drills

Each student should know the location of the fire exits, alarms (and their operation), and emergency telephones available during regular school hours as well as after hours. Instruction in fire drill should be scheduled on a regular basis (at least annually or as otherwise specified by local regulations).

Safety Showers and Eye Washes

Every student should know the location of the nearest safety shower and eye wash and how to operate them.

The components of a training program for personnel in laboratories and a selection of audio-visual materials and books that are available through Hazardous Waste Management are listed on the following pages.
COMPONENTS OF TRAINING PROGRAM FOR PERSONNEL IN
CVIL ENGINEERING LABORATORIES AT SIUE

(From: Personnel Training, 35 Ill. Adm. Code part 725.116) The training program should include the following:

Procedures for Handling Hazardous Chemicals: Flammables, Corrosives, Reactives, Health Toxins

1. Procedures for Handling Spills Acids, Bases, Organic Solids, Organic Liquids
2. Procedures for Storing Chemicals in Laboratories
3. Procedures for Disposing of Waste Chemicals from Labs
4. Chemical Safety Measures:
   
   Protective Apparel, Safety Equipment, Emergency Procedures, First Aid
5. Hazard Communication Standard:
   
   Right-to-Know Law, Material Safety Data Sheets (MSDS)
6. Emergency Procedures:
   
   Use and Care of Emergency Equipment, Alarm Systems, Response to Fires or Explosives
7. Record Keeping:
   
   Records that document that training has been given to laboratory personnel
   
   Log of weekly safety checks
   
   Log of weekly container checks

A formal written report should be made for all accidents and a copy kept on file by the CHO.
APPENDIX F

WASTE CHEMICAL HANDLING PROCEDURES

DEPARTMENT OF CIVIL ENGINEERING

SOUTHERN ILLINOIS UNIVERSITY OF EDWARDSVILLE

These procedures apply to all personnel performing work in any of the laboratories or stock rooms of the department.

The primary goal of the procedures is to minimize the amount of chemical waste that is generated. Federal, State, and local laws covering the handling of chemical waste are intended to protect people and the surrounding environment from the hazards associated with chemical waste. By their nature, these laws place restrictions on what we can do with the chemicals we handle on a daily basis and sometimes are perceived as a burden or something that does not apply to the academic community.

There is no doubt that the laws developed for the handling of chemical waste apply to everyone working with or supervising individuals who work with chemicals. One can be cited individually for a violation, and there are cases where this has been done.

Compliance with good chemical handling procedures is needed to protect the faculty and students at the university from the real hazards posed by the chemical waste we generate. As a chemist, you are obligated to practice good laboratory procedures.

The procedures for handling chemical waste are intended to make compliance easier.

DEFINITIONS:


2. Chemical Waste: Usually a mixture of chemicals that is left over from a reaction or experiment. These chemicals will no longer be used in an experiment or series of reactions.

3. Excess chemical: Any single chemical that is still in its original condition but is no longer needed in the lab.

4. Chemical Name: The written name given to a substance.

5. Principal Investigator: The faculty member responsible for a particular lab or designated
area within a lab. In a research lab, it is the faculty member sponsoring and supervising the research project. In an undergraduate teaching lab, the principal investigator is the faculty member appointed as the lab coordinator for the course being taught.

RESPONSIBILITIES:

1. Principle investigators are directly responsible for the insuring that individuals in their lab are trained in the safe and proper techniques for handling the chemicals used in that lab.

2. Principle investigators are directly responsible for insuring that individuals working in their lab follow the proper procedures for handling waste chemicals.

3. The Department of Civil Engineering Safety Officer and Chair are responsible for insuring that proper training is available and given to all personnel working in any civil engineering lab.

PROCEDURES:

1. All containers will be stoppered or have the lids securely fastened unless they are actively being used to dispense or receive chemicals. It is improper and unsafe to leave containers of any type open in a lab or stockroom. Empty containers may still contain fumes or residue.

2. Whenever a chemical or mixture of chemicals is declared a waste chemical, it will be poured into a container that has been labeled for that type of waste.

3. Each research lab will have waste containers labeled for the following general categories: Halogenated organics, Non-halogenated organics, and Aqueous inorganic solutions. Inorganic cyanide and arsenic compounds and solutions containing them will be stored in bottle containing only those compounds and solutions. Each principle investigator will have to determine if other classifications are necessary in order to isolate other chemicals from these general groups. One example would be cyanide compounds. The chemical name of each chemical added to the waste bottle must be entered on the waste label. It is very important to know that contents of the waste container in order to avoid adding chemicals that will react with waste mixtures and produce dangerous fumes, heat, or a violent reaction. The label will be dated to show the start date waste was placed into the container.

4. Each undergraduate teaching lab will have waste containers labeled with the course number, experiment number, chemical names of all chemicals used in the experiment, and date the experiment(s) began. The teaching assistant, TA, for each lab section will instruct the students on what waste container to use for each experiment. The TA will monitor the waste container to insure that only the proper waste is poured into the container and also that the cap is securely fastened whenever the container is not being used. The TA will also insure that the container is not over filled. If it is over filled, the TA will initiate spill control procedures.

5. In the undergraduate teaching labs, the lab manage is responsible for insuring that waste
containers of the proper size are labeled for the experiment(s) being performed in the lab and are placed in the first fume hood. The waste containers will be monitored daily to see if they need to be replaced or new labels placed on them.

6. Full waste containers will be removed from the teaching lab by the lab manager and examined for content. Harmless inorganic salt solutions that have been neutralized as a result of the experiment maybe disposed of down the drain followed by an excess of water. Solutions that cannot be handled locally will be taken to the solvent room for storage until they can be picked up by the Office of Environmental Health and Safety for disposal. Chemical waste will not be stored for more than 90 days.

7. In research labs, the principal investigator will appoint a member of each research group to serve as a contact with the lab manager for waste from the research lab and process it according to proper procedures. Bottles that are not clearly and accurately labeled as to the contents of the waste container will not be picked up until the waste is identified.

8. When bottles of chemicals are family consumed, the bottle will be washed at least three times with a suitable solvent to remove any chemical residue. The washings will be put into the appropriate waste container. The bottle will then be left to dry in a fume head. When dry, the bottles will be placed next to the waste bottles. The lab manager will remove the cleaned and dry bottles from the lab on a routine basis.

9. Whenever waste bottles are taken to the solvent room, the lab manager will fill out a Hazardous Waste Disposal Request Form and send it to the Office of Environment Health and Safety in order to notify them that waste is ready for pick up.

10. Principal investigators and the lab manager will initiate procedures to minimize the amount of waste that must be processed for disposal. This can be accomplished by dissolving solids in an appropriate waste solvent, combining compatible solids into a single container, or changing an experiment to avoid generating the waste.