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Serving Electric, Water & Wastewater Needs Since 1886

STOUGHTON UTILITIES POLICIES APPROVED BY THE STOUGHTON UTILITIES COMMITTEE AND THE STOUGHTON COMMON COUNCIL

October 22, 2002 Stoughton Utilities Chemical Hygiene Program

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CHEMICAL HYGIENE PROGRAM

STOUGHTON UTILITIES

Utility name: Stoughton Utilities	
Program name: Chemical Hygiene Program	**Date: 10-22-2002**
Prepared by: Brian Erickson	**Date: 8-2-2010**
Revised by: MEUW SCRSC	
Coordinator: Brian Erickson	
Alternate Coordinator: Roger Thorson	
Assisting Coordinator: Chris Belz MEUW SCRSC	

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I. Introduction:

The purpose of the Chemical Hygiene Plan (CHP) is to:

- Inform laboratory employees of the potential health and safety hazards in their workplace.
- Inform laboratory employees of the precautions and preventative measures that have been established to protect employees from workplace injury or illness.
- Inform laboratory employees of the required safety rules and procedures established by **Stoughton Utilities** to meet the requirements of 29 CFR 1910.1450 and 29 CFR 1910.1200.
- To observe PEL's (permissible exposure limits) and TLV's (threshold limit values) as set forth by OSHA and ACGIH.

The Chemical Hygiene plan is available for review and is available to all employees. Copies of the plan are located in the following areas:

1. **Wastewater Treatment Plant Break room**

2. **Stoughton Utilities Operations Building Employee Break room**

This CHP will be reviewed annually by **Brian Erickson or his designee** and updated as necessary. **Brian Erickson** is designated as the Chemical Hygiene Officer.

II. General Principles for Work with Laboratory Chemicals:

A. *It is prudent to minimize all chemical exposures.*

- Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals should be adopted, rather than specific guidelines for particular chemicals. Skin contact with chemicals should be avoided as a cardinal rule.

B. *Avoid underestimation or risk.*

- Even for substances of no known significant hazard, exposure should be minimized.
- For work with substances which present special hazards, special precautions should be taken.
- One should assume that any mixture will be more toxic than its most toxic component.
- All substances of unknown toxicity are toxic.

C. *Provide adequate ventilation.*
- The best way to prevent exposure to airborne substances is to prevent their escape into the working atmosphere by using hoods and other ventilation devices.

D. *Institute a Chemical Hygiene Program.*
- A mandatory chemical hygiene program designed to minimize exposures is needed.
- This should be a regular, continuing effort, not merely a standby or short-term activity .
- Its recommendations should be followed.

E. *Observe PEL's and TLV's*
- The Permissible Exposure Limits of OSHA and the Threshold Limit Values of the American Conference of Governmental Industrial Hygienists should not be exceeded.

III. **Chemical Hygiene Responsibilities:**

A. **Brian Erickson** is designated as the Chemical Hygiene Officer for **Stoughton Utilities**. The Chemical Hygiene Officer is responsible for:
- Working with administrators and other employees to develop and implement appropriate chemical hygiene policies and practices.
- Monitor procurement, use and disposal of chemicals used in the lab.
- See that appropriate audits are maintained.
- Seek ways to improve the chemical hygiene plan.

B. The Laboratory Supervisor, who has overall responsibility for chemical hygiene in the laboratory is responsible for:
- Ensuring that workers know and follow the chemical hygiene rules.
- Ensuring that workers utilize the appropriate personal protective equipment when working in the lab.
- Ensuring that appropriate training has been conducted and documented.
- Providing regular, formal chemical hygiene and housekeeping inspections including routine inspections of emergency equipment.
- Understanding the current legal requirements concerning regulated substances.
- Determining the levels of personal protective equipment which must be worn.

- Ensuring that facilities and training for use of any material being ordered is adequate.

C. The Laboratory worker is responsible for:
- Planning and conducting each operation in accordance with the chemical hygiene procedures.
- Developing good personal chemical hygiene habits.
- Using the required personal protective equipment.
- Following all applicable rules and guidelines as outlined in operational rules and policies.

IV. The Laboratory Facility:

A. *Design. The laboratory should have:*
- An appropriate general ventilation system with air intakes and exhausts located so as to avoid intake of contaminated air.
- Adequate, well-ventilated stockrooms/storerooms.
- Laboratory hoods and sinks.
- Other safety equipment including eyewash fountains, drench showers and chemical spill clean up equipment.
- Arrangements for waste disposal.

B. *Maintenance*
- Chemical-hygiene-related equipment should undergo continual appraisal and be modified if inadequate.
- The work conducted in the laboratory and its scale must be appropriate to the physical facilities available and, especially, to the quality of ventilation.

C. *Ventilation*

1. *General laboratory ventilation*
   - This system should provide a source of air for breathing and for input to local ventilation devices.
   - It must not be relied upon for protection from toxic substances released into the laboratory.
   - The system shall direct air flow into the laboratory from non-laboratory areas and out to the exterior of the building.
2. *Hoods*
   - 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.
   - Each hood should have a continuous monitoring device to allow convenient confirmation of adequate hood performance before use.

- If this is not possible, work with substances of unknown toxicity should be avoided or other types of local ventilation devices should be provided.
- Laboratory hoods must be evaluated on an annual basis to ensure they are operated with a minimum average 100 feet per minute face velocity at full open or marked sash position or operated in accordance with documented principles of good practice (COMM. 32.24 (6)(c).

3. *Other local ventilation devices*
   - Ventilated storage cabinets, canopy hoods, etc. should be provided as needed.
   - Each canopy hood should have a separate exhaust duct.

4. *Modifications*
   - Any alteration of the ventilation system should be made only if thorough testing indicates that worker protection from airborne toxic substances will be adequate.

5. *Performance*
   - 4-12 room air changes/hour is normally adequate general ventilation if local exhaust systems such as hoods are used as the primary method of control.

6. *Quality*
   - General air flow should not be turbulent and should be relatively uniform throughout the laboratory.
   - There should not be any high velocity or static areas.
   - Air flow into and within the hood should not be excessively turbulent.
   - Hood face velocity should be adequate (typically 100 lfm).

7. *Evaluation*
   - Quality and quantity of ventilation should be evaluated on installation and regularly monitored (at least every 3 months).
   - Ventilation shall be reevaluated whenever a change in local ventilation devices is made.

V. <u>Components of the Chemical Hygiene Plan:</u>

A. Basic rules and procedures

- Recommendations for these are found in section VI.

B. *Chemical Procurement, Distribution, and Storage*

1. *Procurement*
   - Before a substance is received, information on proper handling, storage, and disposal should be known to those who will be involved.
   - No container should be accepted without an adequate identifying label.
   - Preferably, all substances should be received in a central location.
   - A Material Safety Data Sheet (MSDS) shall accompany all products received.

2. *Stockrooms/storerooms*
   - Toxic substances should be segregated in a well-identified area with local exhaust ventilation.
   - Chemicals which are highly toxic or other chemicals whose containers have been opened should be in unbreakable secondary containers.
   - Stored chemicals should be examined at least annually for replacement, deterioration, and container integrity.
   - Chemicals should be stored according to compatibility.
   - Stockrooms/storerooms should not be use as preparation or repackaging areas.

C. *Environmental Monitoring*

Regular instrumental monitoring of airborne concentrations is not usually justified or practical in laboratories but may be appropriate when testing or redesigning hoods or other ventilation devices or when a highly toxic substance is stored or used regularly (e.g., 3 times/week).

D. *Housekeeping, Maintenance, and Inspections*

a. Cleaning
   - Floors should be cleaned regularly.

b. Inspections
   - Formal housekeeping and chemical hygiene inspections should be held at least quarterly for laboratory's which have frequent personnel changes and semiannually for others.
   - Informal inspections should be continual.

c. Maintenance
   - Emergency eyewash units and drench showers shall be activated weekly and this activation, documented.
   - Procedures to prevent restarting of out-of-service equipment shall be established.

d. Passageways

- Stairways and hallways shall not be used as storage areas.
- Access to exits, emergency equipment, and utility controls should never be blocked.

E. Medical Program

a. Compliance with regulations

- Regular medical surveillance should be established to the extent required by regulations.

b. Routine Surveillance

- Anyone whose work involves regular and frequent handling of toxicologically significant quantities of a chemical should consult a qualified physician to determine on an individual basis whether a regular schedule of medical surveillance is desirable.

c. First Aid

- Personnel trained in first aid should be available during working hours.

F. Protective Apparel and Equipment

The laboratory should include the following:

a. Protective apparel compatible with the required degree of protection for substances being handled.
b. An easily accessible drench-type safety shower.
c. An eyewash fountain.
d. A fire extinguisher.
e. Respiratory protection, fire alarm and telephone for emergency use should be available nearby.
f. Any other items designated by the Laboratory Supervisor.

G. Records

a. Accident records should be written and retained.
b. Chemical Hygiene Plan records should document that the facilities and precautions were compatible with current knowledge and regulations.
c. Medical records must be retained as required by state and federal regulations.

H. Signs and Labels

Prominent signs and labels of the following types should be posted:

a. Emergency telephone numbers of emergency personnel/facilities, supervisors, and laboratory workers.
b. Identity labels, showing contents of containers and associated hazards.

c. Location signs for safety showers, eyewash stations, other safety and first aid equipment, exits, and areas where food and beverage consumption and storage are permitted.
d. Warnings at areas or equipment where special or unusual hazards exist.

I. *Spills and Accidents*
   a. *Written emergency plan*
      - Must be established and communicated to all employees
      - Must include procedures for ventilation failure, evacuation, medical care, reporting and drills.
   b. *There should be an alarm system* to alert people in all parts of the facility.
   c. *A spill control policy* should be developed and should include consideration of prevention, containment, cleanup, and reporting.
   d. *All accidents and near misses* should be carefully analyzed.

J. *Information and Training Program*
   The aim of the information and training program is to assure that all individuals at risk are adequately informed about the work in the laboratory, its risks, and what to do if an accident occurs.
   a. *Emergency and Personal Protection Training*
      - Every laboratory worker should know the location and proper use of available personal protective equipment and apparel.
      - Lab personnel should be trained in the proper use of emergency equipment and procedures.
      - Such training as well as first aid instruction should be available to and encouraged for everyone who might need it.
   b. *Receiving and stockroom/storeroom personnel* should know about hazards, handling equipment, protective apparel, and relevant regulations.
   c. *Frequency of training.*
      - The training and education program should be a regular, continuing activity, not simply an annual presentation.
   d. *Literature/consultation*
      - Literature and consultation advice concerning chemical hygiene should be readily available to lab personnel.
      - Lab personnel should be encouraged to use these information resources.

K. *Waste Disposal Program*
   The aim of the waste disposal program is to assure minimal harm to people and the environment that will result from the disposal of waste laboratory chemicals.

a. *Content*
   - The waste disposal program must specify how waste is to be collected, segregated, stored, and transported.
   - The waste must include consideration of what materials can be incinerated.
   - Transport from the institution must be in accordance with DOT regulations.

b. *Discarding Chemical Stocks*
   - Unlabeled containers of chemicals and solutions should undergo prompt disposal.
   - If partially used, they should not be opened.

c. *Frequency of Disposal*

d. Waste should be removed from laboratories to a central waste storage area at least once per week and from the central waste storage area at regular intervals.

Method of Disposal
   - Incineration in an environmentally acceptable manner is the most practical disposal method for combustible laboratory waste.
   - Indiscriminate disposal by pouring waste chemicals down the drain or adding them to mixed refuse for landfill burial is unacceptable.
   - Hoods should not be used as a means of disposal for volatile chemicals.
   - Disposal by recycling or chemical decontamination should be used when possible.

VI. Basic Rules and Procedures for Working with Chemicals:

The Chemical Hygiene Plan should require that laboratory workers know and follow its rules and procedures. In addition to the procedures of the sub programs mentioned above, these should also include the rules listed below:

A. General Rules

The following should be used for essentially all laboratory work with chemicals:

1. *Accidents and spills*
   - Eye contact: Flush eyes with water for 15 minutes and seek medical attention.
   - Skin contact: Promptly flush the affected area with water. Consult the MSDS for further first aid/medical procedures.
   - Spills: Refer to the MSDS for cleanup procedures, PPE to be utilized, and disposal procedures.

2. *Avoidance of routine exposure*
    - Develop safe habits when handling chemicals in order to avoid routine exposures to chemicals by any route. For example:
        - do not taste or smell chemicals
        - inspect PPE before use.
        - use fume hoods
3. *Choice of chemicals*
    - Use only those chemicals for which the quality of the available ventilation system is appropriate.
4. *Eating, drinking, smoking, etc.*
    - Avoid eating, drinking, smoking, gum chewing or application of cosmetics in areas where laboratory chemicals are present.
    - Always wash hands before conducting these activities.
    - Avoid storage, handling, or consumption of food or beverage in storage areas, refrigerators, glassware, or utensils which are also used for laboratory operations.
5. *Equipment and glassware*
    - Handle and store laboratory glassware with care to avoid damage.
    - Do not use damaged glassware.
    - Use equipment only for its intended purpose
    - Glassware shall be stored clean.
6. *Exiting*
    - Wash areas of exposed skin well before leaving the laboratory.
7. *Horseplay*
    - Avoid practical jokes or other behavior which may startle, confuse, or distract other workers.
8. *Mouth suction*
    - Do not use mouth suction for pipeting or starting a siphon.
9. *Personal apparel*
    - Confine long hair and loose clothing.
    - Do not wear sandals in the lab.
    - Always wear appropriate personal protective equipment in the lab (see PPE hazard assessment).
10. *Personal housekeeping*
    - Keep the work area clean and uncluttered.
    - Keep chemicals and containers properly labeled.
    - Clean up the work area upon completion of an operation and at the end of the day

11. *Personal Protective Equipment (PPE)*
    - Always wear the appropriate personal protective equipment
    - Always reference the personal protective equipment hazard assessments to ensure the proper PPE is being utilized.
    - Reference chemical material safety data sheets (MSDS) to understand what PPE is necessary when working with a specific chemical or chemical product.
12. *Planning*
    - Seek information and advice about hazards
    - Plan appropriate protective procedures.
13. *Unattended operations*
    - All operations should be attended at all times.

14. *Use of hood*
    - Use the hood for operations which may result in the release of toxic chemical vapors or dust.
    - Use the hood or other local ventilation device when working with any appreciably volatile substance with a threshold limit value (TLV) of less than 50ppm.
    - Confirm adequate hood performance prior to use.
    - Keep hood closed at all times except when adjustments within the hood are being made.
    - Keep materials stored in hoods to a minimum and do not allow them to block vents or airflow.
    - Leave the hood "on" when it is not in active use if toxic substances are stored in it or if it uncertain whether adequate general laboratory ventilation will be maintained when it is "off".
15. *Vigilance*
    - Be alert to unsafe conditions and see that they are corrected when detected.
16. *Waste disposal*
    - Deposit chemical waste in appropriately labeled receptacles and follow all other waste disposal procedures of the chemical hygiene plan.
    - Do not discharge to the sewer, concentrated acids or bases, highly toxic, or any substances which might interfere with the biological activity of wastewater treatment plants, create fire or explosion hazards, cause structural damage or obstruct flow.
17. *Working alone*

- Avoid working alone in a building
- Do not work alone in a laboratory if the procedures being conducted are hazardous.

VII. MATERIAL SAFETY DATA SHEETS (MSDS):

The role of the MSDS is to provide detailed information on each hazardous chemical, including its potential hazardous effects, its physical and chemical characteristics, and recommendations for appropriate protective measures.

MSDS's must be readily accessible to employees when they are in their work areas during their work shifts. The MSDS binder is kept in the Supervisors Office.

Each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes. "Exposure" or "exposed" under the hazard communication rule means that "an employee is subjected to a hazardous chemical in the course of employment through any route of entry and includes potential exposure"

VIII. EMPLOYEE INFORMATION AND TRAINING:

Stoughton Utilities shall provide employees with information and training to ensure that they are apprised of the hazards of chemicals present in their work area. Such information shall be provided upon initial assignment to a work area where hazardous chemicals are present and prior to assignments involving new exposure situations.

Employees shall be informed of:

- The contents of the Chemical Hygiene standard, 1910.1450 and appendices.
- The location and availability of the utilities Chemical Hygiene Plan.
    - **Wastewater Treatment Plant Break Room**
    - **Main Utility Building Employee Break Room**
- The permissible exposure limits for OSHA regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable OSHA standard.
- Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.

- The location and availability of known reference material on the hazards, safe handling, storage and disposal of hazardous chemicals found in the laboratory including, but not limited to, Material Safety Data Sheets received from suppliers.

IX. TRAINING:

Employee training shall consist of the following:

a. Methods and observations that may be used to detect the presence or release of a hazardous chemical (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released).
b. The physical and health hazards of chemicals in the work area.
c. The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

In addition, employees shall be trained on the applicable details of the written Chemical Hygiene plan.

Training will be conducted by MEUW Safety Coordinator. Training sessions shall consist of videos, power points, lecture, hands-on, etc. All training shall be documented and include the date of the training, the topic(s) covered, the name and credentials of the trainer, and a signature of the employee.

X. MEDICAL CONSULTATION AND MEDICAL EXAMINATIONS:

1. The **Stoughton Utilities** shall provide all employees who work with hazardous chemicals an opportunity to receive medical attention, including any follow-up examinations which the examining physician determines to be necessary, under the following circumstances:

   i. Whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory, the employee shall be

provided an opportunity to receive an appropriate medical examination.

ii. Where exposure monitoring reveals an exposure level routinely above the action level (or in the absence of an action level, the PEL) for an OSHA regulated substance for which there are exposure monitoring and medical surveillance requirements, medical surveillance shall be established for the affected employee as prescribed by the particular standard.

iii. Whenever and event takes place in the work area such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure, the affected employee shall be provided an opportunity for a medical consultation. Such consultation shall be for the purpose of determining the need for a medical examination.

2. *All medical examinations* and consultations shall be performed by or under the direct supervision of a licensed physician and shall be provided without cost to the employee, without loss of pay and at a reasonable time and place.

3. *Information provided to the physician.* **Stoughton Utilities** shall provide the following information to the physician:

iv. The identity of the hazardous chemical(s) to which the employee may have been exposed;

v. A description of the conditions under which the exposure occurred including quantitative exposure data, if available; and

vi. A description of the signs and symptoms of exposure that the employee is experiencing, if any.

4. *Physician's written opinion.*

a. For examination or consultation required under the standard, the **Stoughton Utilities** shall obtain a written opinion from the examining physician which shall include the following:

- Any recommendation for further medical follow-up
- The results of the medical examination and any associated tests
- Any medical condition which may be revealed in the course of this examination which may place the employee at increased risk as a result of exposure to a hazardous workplace; and

- A statement that the employee has been informed by the physician of the results of the consultation or medical examination and any medical condition that may require further examination or treatment.

5. The written opinion shall not reveal specific findings of diagnoses unrelated to occupational exposure.

XI. HAZARD IDENTIFICATION:

1. With respect to labels and material safety data sheets:
   - **Stoughton Utilities** shall insure that labels on incoming containers of hazardous chemicals are not removed or defaced.
   - **Stoughton Utilities** shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees.
2. The following provisions shall apply to chemical substances developed in the laboratory:
   - If the composition of the chemical substance which is produced exclusively for the laboratory's use is known, the **Stoughton Utilities** shall determine if it is a hazardous chemical. If the chemical is determined to be hazardous, the employer shall provide appropriate training as previously cited.
   - If the chemical produced is a byproduct whose composition is not known, the **Stoughton Utilities** shall assume that the substance is hazardous.
   - If the chemical substance is produced for another user outside of the laboratory, the **Stoughton Utilities** shall comply with the Hazard Communication Standard (29 CFR 1910.1200) including the requirements for preparation of material safety data sheets and labeling.

XII. USE OF RESPIRATORS

Where the use of respirators is necessary to maintain exposure below permissible exposure limits, the **Stoughton Utilities** shall provide, at no cost to the employee, the proper respiratory equipment. Respirators shall be selected and used in accordance with the requirements of 29 CFR 1910.134 and the Stoughton Utilities Respiratory Protection Program.

XIII. RECORDKEEPING

Stoughton Utilities shall establish and maintain for each employee, an accurate record of any examinations including tests or written opinions required by this standard. The **Stoughton Utilities** shall assure that such records are kept, transferred, and made available in accordance with 29 CFR 1910.1020.

XIV. PRIOR APPROVAL FOR SPECIFIC LAB OPERATIONS

Certain laboratory procedures which present a serious chemical hazard require prior approval by **Wastewater Treatment Plant Supervisor** before work may begin. For this facility, these procedures include:

- Work with select carcinogens
- Work with reproductive hazards
- Work with neurotoxins
- Work with unknown chemicals
- Work using new procedures
- Work with excessively large quantities of hazardous chemicals

These chemicals include: **Note:** This laboratory does not utilize, at this time, any chemicals which are sufficiently hazardous to require prior approval before they are used".