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Introduction
Back pain and injuries related to lifting and material handling are some of the most frequent types of injuries, both on and off the job. While some factors that contribute to the potential for injury cannot be controlled, others can be reduced or minimized. Poor physical fitness, obesity, smoking, poor posture, and medical/physical deficiencies are personal factors that may contribute to back pain. Workplace factors may include inadequate workplace design, improper or defective material handling equipment, improper manual or mechanical handling methods, and inadequate training. Investing time in an effective Back Care Program yields improved productivity, morale, and reduces potential lost work time due to injury.

Scope and Application
The Occupational Safety and Health Administration (OSHA) applies the General Duty Clause (see Section F1, Introduction to OSHA) to workplace conditions likely to cause back injuries. Departments that have jobs or tasks that require frequent handling of packages, objects, or materials are responsible for ensuring that adequate controls and procedures are in place to minimize the possibility of back injuries.

Program Description
Back pain may appear suddenly but is often the result of numerous small abuses to the back involving improper sitting or lifting over a long period of time. While no approach has been found for totally eliminating back injuries, a back care program can minimize their occurrence by identifying back injury risk factors and developing means of reducing their impact.

Workplace Layout
Several factors should be considered in workstation design. The height of the work to be performed should allow workers to sit or stand erect, rather than leaning forward. Leaning forward for long periods may cause fatigue, increasing the likelihood of pain or injury. Long-term standing places excessive stress on the back and legs. Where long-term standing is necessary, a footrest or rail, resilient floor mats, height-adjustable chairs or stools, and opportunities for workers to change positions should be provided. Where workers are seated for long periods, chairs used should be fully adjustable, support the lower back, and be equipped with arm rests.
When seated, knees should be supported slightly higher than hips for good circulation. A foot rest may be used for added height.

The height of materials to be lifted should be carefully considered. Lifting that occurs below knee level or above shoulder height is more strenuous than lifting between these limits. Adjusting the height of a shelf or pallet, or providing a warehouse ladder, may be necessary to achieve better lifting conditions.

**Mechanical Aids**
Mechanical aids should be installed where necessary. Pneumatic lifts, conveyors, and automatic material handling equipment are examples of mechanical aids that can be used to reduce the amount of lifting workers may be expected to do.

**Training**
Individuals who engage in lifting and material handling as a part of their work should receive training, including the following:

- Performing stretching exercises and warm-ups prior to lifting,
- Using the right personal protective equipment (e.g. gloves, safety shoes, etc.)
- Taking time to size up the load (e.g. too large or heavy for one person to lift, is the lift necessary, etc.)
- Using proper lifting techniques (e.g. good grasp, object close to the body, back straight, lift with legs, etc.)
- Techniques to use for difficult lifting jobs (e.g. oversized loads, lifts over the shoulders or below the knees, etc.)

Individuals who are expected to perform manual lifting should also be encouraged to maintain their fitness level by regularly exercising and controlling their weight.

**Back Belts**
The goal of back belts is to impose a fixed posture on the wearer, making it difficult or impossible to bend or twist when lifting. There is significant disagreement on the use of back belts, however, with much contradictory evidence regarding their effectiveness. Back belts are not considered personal protective equipment by OSHA and are not specifically covered by existing regulations. Departments that choose to allow their workers to use back belts should develop a policy on back belt use while considering the following:
Back Care Program

- Back belts are not needed if workers understand and use back care methods, proper lifting techniques, and stay physically fit;
- Information on the pros and cons of back belts should be made available to workers prior to purchasing the belt;
- Participation in any back belt program should be strictly voluntary;
- Back belt use should be permitted only after the worker has received and understood training in back care, safe lifting, exercise, and belt use.

Roles and Responsibilities

Department
- Identify operations involving lifting or material handling that may place individuals at risk for back injuries.
- Institute appropriate engineering controls to reduce injury potential.
- Provide worker training in proper material handling methods and techniques.
- Provide workers with personal protective equipment.
- Establish back belt use policy.

Supervisors
- Ensure workers are trained.
- Ensure workers use proper lifting techniques.
- Enforce back belt use policy.

Safety Office
- Provide assistance in the evaluation of material handling tasks.
- Perform evaluations of lifting or material handling operations.
- Provide training when requested.

Individual
- Attend training.
- Use proper lifting techniques.
- Strengthen the back through regular exercise and good physical fitness.

For More Information
Contact the SOSU safety office at 745-2868.
Several informational handouts on back care, safe lifting, and back belts are available through the safety office. Additional references include:

- *Avoiding a Painful Back*, University of Virginia
- *General Duty Clause*, Occupational Safety and Health Act, Section 5(a)(1)
- *Personal Protective Equipment*, 29 CFR 1910 Subpart I
Section-B

Blood-borne Pathogen Exposure Control Plan

Scope of Exposure Control Plan

In accordance with the OSHA Blood-borne Pathogen Standard, 29CFR1910.1030, Southeastern Oklahoma State University has developed the following exposure control plan:

Exposure Determination

The Standard requires employers to perform an exposure determination concerning which employees may incur occupational exposure to blood or other potentially infectious materials. The exposure determination is made without regard to the use of personal protective equipment. This exposure determination is required to list all job classifications in which all employees may be expected to incur such occupational exposure, regardless of frequency. At Southeastern Oklahoma State University, the following job classifications are in this category:

- Student Health Service Employees
- University Police Officers
- Athletic Trainers
- Coaches
- Custodial Staff
- Food Services*
- Auxiliary Services Maintenance Employees
- Physical Plant Plumbing Employees
- Equestrian Center Director

* Food services are contracted through Aramark Food Service. Aramark is responsible for training and offering vaccinations to its employees.

In addition, if the employer has job classifications in which some employees may have occupational exposure, then a listing of those classifications is required. Since not all the employees in these categories would be expected to incur exposure to blood or other potentially infectious materials, tasks or procedures that would cause these employees to have occupational exposure are also required to be listed in order to clearly understand which employees in these categories are considered to have occupational exposure. The job classifications and associated tasks/procedures for these categories are as follows:
**Section-B**

**Blood-borne Pathogen Exposure Control Plan**

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<thead>
<tr>
<th>Job Classification</th>
<th>Task/Procedure</th>
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<tbody>
<tr>
<td>Student Health Service</td>
<td>Patient exams, blood samples, wound care, other health care duties</td>
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<tr>
<td>University Police officers</td>
<td>Auto accidents, room and vehicle searches, transport and custody</td>
</tr>
<tr>
<td>Athletic Trainers</td>
<td>Athletic injuries</td>
</tr>
<tr>
<td>Coaches</td>
<td>Athletic injuries</td>
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<td>Food Services</td>
<td>Utensils and food preparation equipment</td>
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<tr>
<td>Auxiliary Services</td>
<td>General Dorm Maintenance</td>
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<tr>
<td>Physical Plant Plumbers</td>
<td>General Plumbing Operations</td>
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<tr>
<td>Equestrian Center Director</td>
<td>Shot administration to horses</td>
</tr>
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</table>

**Implementation Schedule/Methodology/Methods**

OSHA also requires this plan include a schedule and method of implementation for the various requirements of the Standard. The following complies with this requirement:

Universal precautions will be observed at Southeastern Oklahoma State University in order to prevent contact with blood or other potentially infectious material. All blood or other potentially infectious material will be considered infectious regardless of the perceived status of the source individual.

Engineering and work practice controls will be utilized to eliminate or minimize exposure to students and employees at Southeastern Oklahoma State University. Where occupational exposure remains after institution of these controls, personal protective equipment shall also be utilized. The following engineering controls will be utilized:

- Hand washing
- Contaminated needle/sharp disposal procedures
- Regulated waste disposal procedures

The above controls will be examined and maintained by the Department of Safety and Security.
Hand washing facilities are also available to the employees who incur exposure to blood or other potentially infectious materials. OSHA requires these facilities to be readily accessible after incurring exposure. Hand washing facilities are located throughout Southeastern’s campus and are readily available to both University students and employees.

Where hand washing facilities are not feasible, the Standard allows for antiseptic cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes for use. Employees will be required to wash hands with soap and running water as soon as possible.

After removal of personal protective gloves, employees shall wash hands and any other potentially contaminated skin areas immediately or as soon as feasible with soap and water.

If employees incur exposure to their skin or mucous membranes, then those areas shall be washed or flushed with water as appropriate as soon as possible following contact.

**Needles**

Contaminated needles and other contaminated sharps will NOT be bent, recapped, remove, sheared or purposely broken. OSHA allows an exception to this if the procedure would require the contaminated needle be recapped or removed and no alternative is feasible and the action is required by the medical procedure. If such action is required then the recapping or removal of the needle must be done by the use of a mechanical device or a one-handed technique.

Recapping or removal using the appropriate mechanical device or one-handed technique is only allowed by University medical staff.

**Sharps Containers/Reusable**

Contaminated sharps that are reusable are to be placed immediately, or as soon as possible, after use into appropriate sharps containers. Each sharps container is puncture resistant, labeled with a biohazard label, and is leak proof. Locations for reusable sharps containers are located in the following areas:

- Student Health Services
- University Police
- Designated Restrooms
- Athletic Department Training Rooms
- Equestrian Center
Sharps containers shall be emptied at regular intervals

**Work Area Restrictions**

In work areas where there is a foreseeable exposure to blood or other potentially infectious material, employees are not to eat, drink, apply cosmetics or lip balm, smoke or handle contact lenses. Food and beverages are not to be kept in refrigerators, freezers, shelves, cabinets, on counter tops or bench tops where blood or other potentially infectious material are present. Mouth pipetting/suctioning of blood or other potentially infectious material is **PROHIBITED**.

All procedures will be conducted in a manner which will minimize splashing, spraying, splattering and generation of droplets of blood or other potentially infectious material.

**Specimens**

Specimens of blood or other potentially infectious material will be placed in a container which prevents leakage during the collection, handling, processing, storage and transport of the specimens.

The container used for this purpose will be labeled or color-coded in accordance with the requirements of the Standard.

**NOTE**: The Standard provides for an **exemption** for specimens from the labeling/color coding requirement providing workers use **universal precautions** in the handling of specimen containers and if the containers are recognizable as containing specimens. This **exemption** applies only to in-house specimen containers.

Any specimen which could puncture a primary container will be placed within a secondary container which is puncture resistant.

If outside contamination of the primary container occurs, the primary container shall be placed within a secondary container which prevents leakage during the handling, processing, storage, transport or shipping of the specimen.

**Contaminated Equipment**

Equipment which has become contaminated with blood or other potentially infectious material shall be examined prior to servicing or shipping and shall be decontaminated as necessary unless the decontamination of the equipment is not feasible.
Personal Protective Equipment

All personal protective equipment (PPE) used at Southeastern Oklahoma State University will be provided at NO COST to employees. Personal protective equipment will be chosen based on the anticipated exposure to blood or other potentially infectious material. Personal protective equipment will be considered appropriate only if it does not permit blood or other potentially infectious material to pass through or reach the employees’ clothing, skin, eyes, mouth, or other mucous membranes. This standard applies to use under normal conditions, and for the duration of time which the protective equipment will be used.

All PPE will be cleaned, laundered, and disposed of at NO COST to University employees. All repairs and replacements will also be made at NO COST to employees.

All garments which are penetrated by blood shall be removed immediately or as soon as feasible. All PPE will be removed prior to leaving the work area. The following protocol has been developed to facilitate leaving the equipment at the work area:

Gloves shall be worn where it is reasonably anticipated employees will have hand contact with blood or other potentially infectious material, non-intact skin, and/or mucous membranes. Gloves shall be worn by all employees performing the following tasks:

a. Student Health Services
   - Administering first aid and other medical procedures
b. University Police Officers
   - Vehicle searches, room searches, rendering first aid, transport/custody of contaminated material
c. Athletic Trainers
   - Administering aid to athletes
d. Custodial Services
   - Contact with unknown or potentially infectious material
e. Auxiliary Services Employees
   - Contact with unknown or potentially infectious material
f. Physical Plant Plumbers
   - Performing job duties involving septic pipes or potential contact with infectious material
g. Equestrian Center Director
   - Administering shots to horses
Disposable gloves are not to be washed or decontaminated for re-use and are to be replaced as soon as practical when they become contaminated, torn, punctured, or when their ability to function as a barrier is compromised. Utility gloves may be decontaminated for re-use provided the integrity of the glove is not compromised. Utility gloves will be discarded if they are cracked, peeling, torn, punctured, or exhibits other signs of deterioration that could degrade their ability to function as a barrier is comprised.

Masks in combination with eye protection devices, such as goggles or glasses with solid side shield, or chin length face shields, are required to be worn whenever splashes, spray, splatter, or droplets of blood or other potentially infectious material may be generated and eye, nose, or mouth contamination can reasonably be anticipated. This type of PPE will only be used as directed by individual departmental policies and procedures with universal precaution in mind.

The Standard also requires appropriate protective clothing to be used, such as lab coats, gowns, aprons, clinic jackets, or similar outer garments. This type of PPE will only be used as directed by individual departmental policies and procedures with universal precaution in mind.

All contaminated work surfaces will be decontaminated after completion of procedures and immediately or as soon as feasible after any spill of blood or other potentially infectious material, as well as the end of the work shift if the surface may have become contaminated since the last cleaning.

Decontamination will be accomplished by utilizing the following materials: 1:10 to 1:100 bleach solution or EPA registered germicides.

All bins, pails, cans, and similar receptacles shall be inspected by Custodial Services during normal cleaning and decontaminated if found to contain potentially infectious material.

Any broken glassware which may be contaminated will not be picked up directly with the hands. University employees will use a brush, dust pan, forceps and/or tongs when picking up any type of potentially contaminated glass.

**Regulated Waste Disposal**
All contaminated sharps shall be discarded as soon as feasible in sharps containers which have been placed in the following locations:

- Student Health Services
Section-B

Blood-borne Pathogen Exposure Control Plan

- University Police Department
- Designated Restrooms
- Athletic Department Training Areas
- Equestrian Center

Regulated waste, other than sharps, shall be placed in appropriate containers, i.e., red bags or containers marked with the Bio-Hazard Label. Such containers are in the following locations:

- Student Health Services
- University Police Department
- Designated Restrooms
- Athletic Department Training Areas
- Equestrian Center

Each of the departments are responsible for the proper care and disposal of Hazard waste. Waste collection point is the University Student Health office.

Laundry Procedures

Laundry contaminated with blood or other potentially infectious material will be handled as little as possible. Such laundry will be placed in appropriately marked bags at the location where it was used. Laundry will not be sorted or rinsed in the area of use.

All employees who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or other potentially infectious material.

Hepatitis "B" Vaccine

All employees who have been identified as having exposure to blood or other potentially infectious material will be offered the Hepatitis "B" Vaccine, at NO COST to the employee. The vaccine shall be offered within ten (10) working days of their initial assignment to work involving the potential for occupational exposure to blood or other potentially infectious material unless the employee has previously had the vaccine or who wishes to submit to antibody testing which shows the employee to have sufficient immunity.

Employees who decline the Hepatitis "B" Vaccine will sign a waiver which uses the wording in Appendix "A" of the OSHA Standard and this Exposure Control Plan.

Employees who initially decline the vaccine but who later wish to have it may then have the vaccine provided at NO COST. The vaccine will be
administered by Student Health Services. The Department of Safety and Security is responsible for ensuring the vaccine has been offered, and waivers signed for each employee.

**Post-Exposure Evaluation and Follow-Up**

When an employee incurs an exposure incident, it shall be reported to the Department of Safety and Security. They have the responsibility for maintaining records involving exposure incidents.

All employees who incur an exposure incident will be offered post-exposure evaluation and follow-up in accordance with the OSHA Standard. This follow-up shall include the following:

- Documentation of the route of exposure and the circumstances related to the incident.
- If possible, the identification of the source individual and, if possible, the status of the source individual. The blood of the source individual shall be tested, after consent is obtained, for HIV/HBV infectivity.
- Results of testing of the source individual will be made available to the exposed employee with the exposed employee informed about the applicable laws and regulations concerning disclosure of the identity and infectivity of the source individual. Southeastern Oklahoma State University may modify this provision according to local laws on this subject. Modifications shall be listed below:
  - a.
  - b.
  - c.

- The employee shall be offered the option of having their blood collected for testing concerning their HIV/HBV serological status. The blood sample will be preserved for at least ninety (90) days to allow the employee to decide if the blood should be tested for HIV serological status. However, if the employee decides prior to that time, testing will be conducted.
- The employee shall be given appropriate counseling concerning precautions to be taken during the period after the exposure incident. The employee will also be given information on what potential illnesses to be alert for and to report any related experiences to appropriate personnel.
- The employee shall be offered post exposure prophylaxis in accordance with the current recommendations of the U.S. Public Health Service.
The Department of Safety and Security has been designated to insure the policy outlined here is effectively carried out and all records pertaining to this policy are maintained.

**Interaction with Health Care Professionals**

A written opinion shall be obtained from Student Health Services or the employees Primary Care Physician. Written opinions will be obtained in the following instances:

- When the employee is sent to obtain the Hepatitis "B" Vaccine
- Whenever the employee is sent to a health care professional following an exposure incident.

Health care professionals shall be instructed to limit their opinions to:

- Whether the Hepatitis "B" Vaccine is indicated and if the employee has received the vaccine, for evaluation following an exposure incident and the employee has been informed of the results of the evaluation
- The employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious material. This opinion shall not reference any personal medical information.

**Employee Training**

Training for all employees will be conducted prior to initial assignment to tasks where occupational exposure may occur. Training shall be conducted by the Department of Safety and Security and shall include an explanation of:

- OSHA Standard 29CFR1910.1030
- Epidemiology & symptomatology of blood borne diseases
- Modes of transmission of blood borne pathogens
- Exposure Control Plan
- Procedures which might cause exposure to blood or other potentially infectious material
- Control methods which will be used to control exposure to blood or other potentially infectious material
- Personal Protective Equipment availability & requirements
- Post Exposure Evaluation & Follow-up
- Signs and Labels in use
- Hepatitis "B" Vaccine Program

All employees shall receive annual refresher training within one (1) year of their previous training date.
All training material and training outline are located at the Department of Safety and Security.

**Recordkeeping**

The Department of Safety and Security will maintain all records concerning the OSHA Standard on Blood borne Pathogens.

Records shall be established & maintained for each employee in accordance with 29CFR1910.20 and 1910.1030. All medical & training records shall be made available to subject employee, to person(s) having written consent from subject employee, and to the Assistant Secretary in accordance with 29CFR1910.20.
## Training Plan Form

### Contents of Training

- ___ OSHA Standard 29CFR1910.1030
- ___ Epidemiology & Symptomology
- ___ Modes of transmission of blood borne pathogens
- ___ Exposure Control Plan
- ___ Hazardous procedures
- ___ Control methods
- ___ Personnel Protective Equipment
- ___ Post Exposure Evaluation & Follow-up
- ___ Signs & labels
- ___ Hepatitis B Vaccine Program

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<th>Job Title and Dept.</th>
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<th>Signature</th>
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Section-B

Blood-borne Pathogen Exposure Control Plan
Hepatitis B Vaccine Declination Form

I understand that due to my occupational exposure to blood or other potentially infectious material that I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious material and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccine at no charge to me.

Signature______________________

Title__________________________

Date__________________________
# Section-B

**Blood-borne Pathogen Exposure Control Plan**

---

### Blood-borne Pathogen Exposure Log

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Exposed</th>
<th>Incident</th>
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Section-C

Computer Workstations

Introduction
Individuals who use computers for extended periods of time may experience eye fatigue and pain or discomfort in the hands, wrists, arms, shoulders, neck or back. This is usually caused by poor work habits, poor workstation design or improper use of workstation components. In most cases, corrective measures are relatively simple and inexpensive.

Scope and Application
While the guidelines described in this program can benefit anyone who uses a computer, they are primarily intended for departments with individuals using desktop computers. Most of the guidelines will not apply to laptop computers that are designed only for short-term use and cannot be sufficiently adjusted.

Program Description

Workstation Assessment
A survey of actual computer use will help supervisors determine which workstations and individuals should be targeted for further evaluation. Highest priority should be given to those individuals who experience symptoms and spend more than 2 hours per day at a computer. The workstation evaluation should be completed with the individual at the workstation following the ergonomic guidelines below. An employee handout, Ergonomic Suggestions for Your Comfort, may be referenced, duplicated and given to the individual during the evaluation.

Ergonomic Guidelines
The following guidelines are intended to help supervisors understand and reduce health risks associated with computer workstations. Since no two bodies are identical, different styles, models, and sizes of furniture and accessories may be needed. Since a wide variety of products are available to suit individual and departmental needs, no specific product recommendations are made here. The best results are usually achieved when the individual is involved in the selection process.

- The work surface should be of sufficient area to accommodate the computer and all associated materials. There should be adequate space beneath this surface for the operator’s legs and feet.
- The keyboard and mouse should be directly in front of the operator at a height that favors a neutral posture (23 to 28 inches). When
placed at standard desk height of 30 inches, they are too high for most people. Raising the chair solves this problem for some individuals. An adjustable keyboard holder with mouse deck is usually the best solution. The objective is a posture with upper arms relaxed and wrists straight in line with the forearm. Wrist rests may also help and are built into most keyboard holders. For some people alternative keyboard and mouse designs may need to be considered.

- The monitor should be positioned at a distance of approximately arm’s length and directly in front of the operator. The top of the screen should be no higher than eye level. A monitor placed on top of the computer can easily be lowered by relocating the computer. Stackable monitor blocks can be used to achieve the desired height. Adjustable monitor arms enable easy height adjustment for workstations with multiple users.

- A well designed chair will favorably affect posture, circulation, the amount of effort required to maintain good posture, and the amount of strain on the back. An adjustable seat back is best for support in the lumbar region. The user should be able to adjust seat height and seat pan angle from a seated position. Armrests are not recommended for computer use.
Additional accessories can improve operator comfort. Document holders can minimize eye, neck and shoulder strain by positioning the document close to the monitor. A footrest should be used where the feet cannot be placed firmly on the floor. Task lamps will illuminate source documents when room lighting is reduced.

- Glare should be eliminated through methods that include reduction of room lighting; shielding windows with shades, curtains or blinds; positioning the terminal at a right angle to windows; and tilting the monitor to avoid reflection from overhead lighting. Glare screens are not normally necessary.
- All computer users should receive basic training in potential health effects that may result from poor posture and work habits, early warning symptoms, workstation adjustment, and other self-help protective measures. Supervisors should receive similar training to easily recognize problems and know what corrective measures to take. Training sessions are available through the Safety Office.

Roles and Responsibilities

Department
- Survey the workplace to identify individuals at risk.
- Plan ahead for workstation improvement expense in annual budgets.
- Plan for all workstation components before purchasing new or replacement computers.
- Call Safety at 745-2868 for ergonomic evaluations and training.

Supervisor
- Instruct computer operators on workstation adjustment and proper posture.
- Arrange workload to provide for alternative work breaks.
- Be aware of and watch for signs and symptoms of injury.
- Refer employees with injury symptoms to the Office of Health Services or their Doctor.
- Refer students with injury symptoms to Student Health Services.

Safety
- Evaluate workstation ergonomics upon request.
- Provide group training upon request.

Individual
- Adjust workstation components to maintain a neutral posture.
- Use accessories as recommended in training and instruction.
- Report work station and physical problems to supervisor promptly.
Employee Health
- Provide medical evaluations, consultations and treatment.

Purchasing
- Provide specific product information and recommendations.
- Purchase furniture and accessories (including installation).

For More Information
Contact Health and Safety Specialist at 745-2868 to schedule a review of your workstation or for additional information.

A Computer Workstation Self-Audit Checklist is available through the Safety Office.
Section-D

Cutting and Welding (Hot Work) Operations

Introduction
Cutting and welding operations (commonly referred to as hot work) are associated with machine shops, maintenance, and construction activities, as well as certain laboratory-related activities, such as glass blowing and torch soldering. Potential health, safety, and property hazards result from the fumes, gases, sparks, hot metal and radiant energy produced during hot work. Hot work equipment, which may produce high voltages or utilize compressed gases, also requires special awareness and training on the part of the worker to be used safely. The hazards associated with hot work can be reduced through the implementation of effective control programs.

Scope and Application
The Occupational Safety and Health Administration (OSHA) prohibits cutting and welding operations unless appropriate steps are taken to minimize fire hazards, such as removal or guarding of combustible materials and, when possible, restricting hot work to specially designated areas. Departments where hot work is performed are responsible for ensuring that adequate controls and procedures are in place before work begins.

Program Description
Cutting and welding operations often are found in maintenance, but can also occur in research settings. Adequate controls and procedures must be used to minimize the hazards associated with these activities.

General Cutting and Welding Controls
Areas where hot work is done should be properly designated and prepared. Combustible and flammable materials within the work area should be protected against fire hazards and the operation should not pose a hazard to others in nearby areas. To help achieve this, the following controls should be used:

- Cutting and welding operations restricted to authorized, properly trained individuals;
- If possible, hot work performed in a properly designed shop area equipped with all necessary controls and adequate ventilation;
- Move combustible materials at least 35 feet from the work site. If this is not possible, protect combustible materials with metal guards or by flameproof curtains or covers (other than ordinary tarpaulins);
• Cover floor and wall openings within 35 feet of the work site to prevent hot sparks from entering walls or falling beneath floors or to a lower level;
• Fire resistant curtains and/or tinted shields used to prevent fire, employee burns, and ultra-violet light exposure.

Ventilation and Atmospheric Testing
Hot work should not be conducted in the presence of explosive mixtures of flammable gases, vapors, liquids, or dusts or where explosive mixtures could develop inside improperly prepared tanks or equipment. Atmospheric testing and monitoring for combustible gases and vapors should be done before work begins and at regular, predetermined intervals thereafter. Ventilation of the work site, either through local or general exhaust ventilation, should be adequate for the work performed.

Fire Protection
A person other than the operator should perform fire watch duties and remain at the work site for at least 30 minutes after hot work operations have ended. Additionally, the following steps should be taken:

A fire extinguisher rated at not less than 2-A:20-B:C must be available in shop areas where hot work is performed;

• A fire extinguisher rated at not less than 2-A:10-B:C must be attached to all portable cutting and welding carts;
• If a building or area is equipped with a sprinkler system, then that system must be operational when hot work is performed;

Personal Protective Equipment
Personal protective equipment specifically designed for hot work should be provided to and used by. The potential for toxic fume emissions from the material being worked on or surface coatings should be considered and appropriate steps should be taken to provide for respiratory protection.

Cutting and Welding in Confined Spaces
When cutting or welding is to be done in confined spaces, appropriate entry procedures should be followed. A model Confined Space Entry Program is available through the Office Safety.

Compressed Gas Cylinder Storage and Handling
Storage and handling of compressed gas cylinders are important parts of many cutting and welding operations. The following should be observed:
• Oxygen and fuel gas cylinders should be stored separately with the protective valve caps in place. Except when in use, oxygen and fuel gas cylinders should be stored at least 20 feet apart or separated by a noncombustible wall at least 5 feet high;
• Cylinder carts equipped with a cylinder restraint, such as a chain or strap, should be used for all transporting of compressed gas cylinders;
• Cylinders should be secured from tipping, in an upright position;
• Regulators must be compatible with the cylinder and its contents. Many regulators are similar in design and construction. Check the regulator’s model number and compare that with the cylinder’s requirements.

Hot Work Permits
Hot work permits should be developed by departments where cutting or welding is performed. Hot work permits can help minimize the risk of fire during cutting and welding activities by serving as a checklist for operators and those performing fire watch duties. The person responsible for issuing permits should be qualified to examine the work site and ensure that appropriate protective steps, such as those listed in this section, have been taken. A hot work permit should be issued at the beginning of each shift for each specific operation.

Training
All persons performing hot work should be trained in proper equipment operation, handling and storage of welding materials, compressed gas safety, chemical hazards, and in working procedures, including the written hot work permit. Additional training may also be necessary in the proper selection and use of personal protective equipment. Training in confined space entry is necessary before working in such areas.

Roles and Responsibilities

Department
• Develop a hot work permit.
• Provide workers with specific training on hot work procedures.

Supervisors
• Issue hot work permits.
• Ensure procedures are followed.

Safety Office
• Provide general training on hot work procedures.
• Provide a periodic audit of hot work procedures.

**Individual**
• Attend training.
• Follow hot work procedures.

**For More Information**
Contact the University Safety Office 745-2868.

*An Welding and Cutting (Hot Work) Operations Self-Audit Checklist* is available through the Safety Office. The checklist is available through the Safety Office.

• Hot work permit
• Confined Space Entry Program
• Personal Protective Equipment Hazard Assessment

The following references are available through the Safety Office:

• *Workers Deaths in Confined Spaces, A Summary of Surveillance Findings and Investigative Case Reports*, National Institute for Occupational Safety and Health, 1994
• *American National Standard Safety Requirements for Confined Spaces*, American Society of Safety Engineers, 1989
• *Welding, Cutting and Brazing*, 29 CFR 1910 Subpart Q
• *Personal Protective Equipment*, 29 CFR 1910 Subpart I
• *Permit Required Confined Spaces*, 29 CFR 1910.146
Section-E
Fire Extinguisher Training

The Fire Triangle
Three things must be present at the same time to produce fire:

- Enough OXYGEN to sustain combustion
- Enough HEAT to reach ignition temperature
- Some FUEL or combustible material

Together, they produce the CHEMICAL REACTION that is fire. Take away any of these things and the fire will be extinguished.

Classification of Fuels
Not all fires are the same, and they are classified according to the type of fuel that is burning. If you use the wrong type of fire extinguisher on the wrong class of fire, you can, in fact, make matters worse. It is therefore very important to understand the four different fire classifications.

Class A - Wood, paper, cloth, trash, plastics
Solid combustible materials that are not metals. (Class A fires generally leave an Ash.)

Class B - Flammable liquids: gasoline, oil, grease, acetone
Any non-metal in a liquid state, on fire. This classification also includes flammable gases. (Class B fires generally involve materials that Boil or Bubble.)

Class C - Electrical: energized electrical equipment
As long as it's "plugged in," it would be considered a class C fire. (Class C fires generally deal with electrical Current.)

Class D - Metals: potassium, sodium, aluminum, magnesium
Unless you work in a laboratory or in an industry that uses these materials, it is unlikely you'll have to deal with a Class D fire. It takes special extinguishing agents (Metal-X, foam) to fight such a fire.

Most fire extinguishers will have a pictograph label telling you which classifications of fire the extinguisher is designed to fight. For example, a simple water extinguisher might have a label like the one below, indicating that it should only be used on Class A fires.
Types of Fire Extinguishers

Different types of fire extinguishers are designed to fight different classes of fire. The three most common types of fire extinguishers are:

- Water (APW)
- Carbon Dioxide (CO2)
- Dry Chemical (ABC, BC, DC)

Water (APW) Fire Extinguishers

- APW’s extinguish fire by taking away the “heat” element of the Fire Triangle.
- APW’s are designed for Class A fires only: Wood, paper, cloth.
- Using water on a flammable liquid fire could cause the fire to spread.
- Using water on an electrical fire increases the risk of electrocution. If you have no choice but to use an APW on an electrical fire, make sure the electrical equipment is un-plugged or de-energized.
- APWs will be found in older buildings, particularly in public hallways, as well as in Residence Halls.
- They will also be found in computer laboratories. It is important to remember, however, that computer equipment must be disconnected from its electrical source before using a water extinguisher on it.

Carbon Dioxide Fire Extinguishers

- CO2 cylinders are red. They range in size from 5 lbs. to 100 lbs. or larger. On larger sizes, the horn will be at the end of a long, flexible hose.
- The pressure in a CO2 extinguisher is so great, bits of dry ice may shoot out of the horn!
- CO2s will frequently be found in laboratories, mechanical rooms, kitchens, and flammable liquid storage areas.
- CO2’s are designed for Class B and C (Flammable Liquids and Electrical Sources) fires only!
- In accordance with NFPA regulations (and manufacturers’ recommendations), all CO2 extinguishers at SOSU undergo hydrostatic testing and recharge every 5 years.
- CO2 is very cold as it comes out of the extinguisher, so it cools the fuel as well.
- Carbon dioxide is a non-flammable gas that takes away the oxygen element of the fire triangle. Without oxygen, there is no fire.
- Class A materials may also smolder and re-ignite.
Section-E

Fire Extinguisher Training

- A CO2 may be ineffective in extinguishing a Class A fire because it may not be able to displace enough oxygen to successfully put the fire out.

Dry Chemical (ABC) Fire Extinguishers
- The powder also works to interrupt the chemical reaction of fire. These extinguishers are very effective at putting out fire.
- Dry chemical extinguishers put out fire by coating the fuel with a thin layer of dust. This separates the fuel from the oxygen in the air.
- At SOSU, “ABC” fire extinguishers are filled with a fine yellow powder. The greatest portion of this powder is composed of monoammonium phosphate. The extinguishers are pressurized with nitrogen.
- ABC extinguishers are red. On campus, they range in size from 5 to 20 lbs.
- You may see them labeled:
  - DC (for “Dry Chemical”)
  - ABC (can be used on Class A, B, or C fires)
  - BC (designed for use on Class B and C fires)
- Dry chemical extinguishers come in a variety of types...
- An “ABC” extinguisher will have a label like this, indicating it may be used on Class A, B and C fires.
- It is extremely important to identify which types of dry chemical extinguishers are located in your area!
- You don’t want to mistakenly use a “BC” extinguisher on a Class A fire thinking that it was an “ABC” extinguisher.
- Dry chemical extinguishers with powder designed for Class B and C fires (“BC” extinguishers) may be located in places such as commercial kitchens and areas with flammable liquids.
- On campus, you will find ABC’s in public hallways of new buildings, in laboratories, break rooms, offices, chemical storage areas, mechanical rooms, University vehicles, etc.

Rules for Fighting Fires
Fires can be very dangerous and you should always be certain that you will not endanger yourself or others when attempting to put out a fire. For this reason, when a fire is discovered:

- Assist any person in immediate danger to safety, if it can be accomplished without risk to yourself.
- Activate the building fire alarm system or notify the fire department by dialing 911 (or designating someone else to notify them for you).
When you activate the building fire alarm system, it will automatically notify the fire department and get help on the way. It will also sound the building alarms to notify other occupants, and it will shut down the air handling units to prevent the spread of smoke throughout the building.

Only after having done these two things, if the fire is small, you may attempt to use an extinguisher to put it out.

However, before deciding to fight the fire, keep these rules in mind:

**Know what is burning.**

If you don’t know what is burning, you don’t know what type of extinguisher to use. Even if you have an ABC extinguisher, there may be something in the fire that is going to explode or produce highly toxic smoke. Chances are, you will know what’s burning, or at least have a pretty good idea, but if you don’t, let the fire department handle it.

**The fire is spreading rapidly beyond the spot where it started.**

The time to use an extinguisher is in the incipient, or beginning, stages of a fire. If the fire is already spreading quickly, it is best to simply evacuate the building, closing doors and windows behind you as you leave.

**Do Not Fight the Fire If:**

- **You don’t have adequate or appropriate equipment.** If you don’t have the correct type or large enough extinguisher, it is best not to try to fight the fire.
- **You might inhale toxic smoke.** If the fire is producing large amounts of smoke that you would have to breathe in order to fight it, it is best not to try. Any sort of combustion will produce some amount of carbon monoxide, but when synthetic materials such as the nylon in carpeting or foam padding in a sofa burn, they can produce highly toxic gases such as hydrogen cyanide, acrolein, and ammonia in addition to carbon monoxide. These gases can be fatal in very small amounts.
- **Your instincts tell you not to.** If you are uncomfortable with the situation for any reason, just let the fire department do their job.

The final rule is to always position yourself with an exit or means of escape at your back before you attempt to use an extinguisher to put out a fire. In case the extinguisher malfunctions, or something unexpected happens, you
need to be able to get out quickly, and you don't want to become trapped. Just remember: **always keep an exit at your back.**

**How to Use a Fire Extinguisher**

It's easy to remember how to use a fire extinguisher if you can remember the acronym **PASS**, which stands for **Pull, Aim, Squeeze, and Sweep.**

1. **Pull the pin.**
   This will allow you to discharge the extinguisher.

2. **Aim at the base of the fire.**
   If you aim at the flames (which is frequently the temptation), the extinguishing agent will fly right through and do no good. You want to hit the fuel.

3. **Squeeze the top handle or lever.**
   This depresses a button that releases the pressurized extinguishing agent in the extinguisher.

4. **Sweep from side to side**
   Continue until the fire is completely out. Start using the extinguisher from a safe distance away, and then move forward. Once the fire is out, keep an eye on the area in case it re-ignites.
Fire Training Quiz

First Name: __________________________
Last Name: __________________________
Student/Staff ID: _____________________
Dept./Class: _________________________

1. An example of two "Class B" fuels would be:
   A. Cardboard, newspapers
   B. Lamp, hot plate
   C. Grease, paint thinner

2. An APW (water extinguisher) is safe to use on an electrical fire.
   A. True
   B. False

3. Carbon Dioxide extinguishers are designed for which types fuels?
   A. Class B and C
   B. Class A, B, and C
   C. Class A and C
   D. Class A and B

4. Which type of extinguisher has a hard horn on the end of a flexible hose or metal arm?
   A. APW (Air Pressurized Water)
   B. CO2 (Carbon Dioxide)
   C. ABC (Dry Chemical)

5. As a general rule, you should not attempt to fight a fire if it is spreading rapidly.
   A. True
   B. False

6. ABC fire extinguishers extinguish fire by cooling it down.
   A. True
   B. False
7. Water will not extinguish most flammable liquid fires.
   A. True
   B. False

8. You should always keep an exit or means of escape at your back when trying to fight a fire.
   A. True
   B. False

9. The three elements of the fire triangle are:
   A. Water, a heat source, and fuel
   B. Oxygen, water, and fuel
   C. Oxygen, fuel, and a heat source
   D. Fuel, oxygen, and earth

10. Do you know where the nearest fire extinguisher is in your work area?
    A. Yes
    B. No

NOTE! Please print two copies of this test. One copy goes to your supervisor/instructor, and one should be sent to Steve Harman, Safety Office 301 University Blvd., (for SOSU employees only).

SIGN YOUR NAME HERE: _________________________________________

Date: _________________________________________________________
Section-F

NHTSA Action Plan for 15-Passenger Van Safety

Introduction
There is growing concern regarding the crash involvement and safety of 15-passenger vans and the resulting injuries and fatalities. There were approximately 500,000 registered 15-passenger vans in 2001, an increase of over 280 percent since 1990. Between 1990 and 2001, 1,441 15-passenger vans were involved in fatal crashes that resulted in 1,003 fatalities. Six hundred and one (601) of the crashes were single vehicle crashes, of which 316 rolled over. Heavily loaded 15-passenger vans are particularly susceptible to rollover. Confounding this problem, the rate of safety belt use among occupants of large vans involved in fatal crashes is very low compared to other types of vehicles. While this plan focuses on 15-passenger vans, the actions identified also relate to 12-passenger vans which are similar to vans configured for 15 passengers in terms of design, handling characteristics, and safety problems. NHTSA defines vehicles designed to carry more than 10 persons as buses for purposes of the Federal Motor Vehicle Safety Standards (FMVSS).

Background
Crashes involving large vans, especially rollover crashes and the resulting fatalities and injuries, have raised the level of public and NHTSA attention to this issue. In 2001, 130 occupants of 15-passenger vans died in crashes involving these vehicles. Single vehicle crashes represented 42 percent of fatal crashes. Eighty-seven percent of people who died in single vehicle rollovers of these vehicles were not wearing safety belts. Between 1990 and 2001, 15-passenger vans represented .25 percent of the passenger vehicle fleet, .26 percent of passenger vehicles involved in fatal crashes, and .25 percent of all passenger vehicle occupant deaths. During this time, 8 percent of belted occupants in these vehicles in fatal single vehicle crashes were killed, compared to 22 percent of unbelted occupants.

In October 2002, NHTSA management briefed staff from the Senate Commerce, Science and Transportation Committee and staff from the office of Senator Olympia Snowe (R-Maine) on NHTSA actions pertinent to the safety of these vehicles in the areas of research and consumer information. A rollover crash in Maine killed 14 occupants of a van in 2002. In March 2003, Senator Snowe introduced S.717 to address 15-passenger van safety. A similar bill was introduced in the House, H.R. 1641, by Representative Mark Udall. Senator Snowe’s bill called on NHTSA to develop a dynamic test to assess rollover risk for 15-passenger vans and to issue the results as
consumer information; to test these vehicles at different loading levels as part of the New Car Assessment Program (NCAP); to test stability control and other technologies to assess effectiveness in reducing rollovers; and called on the Federal Motor Carrier Safety Administration (FMCSA) to apply Federal motor carrier safety regulations (FMCSR) to the commercial operation of 15-passenger vans.

Since November 2002, the National Transportation Safety Board (NTSB) has issued nine recommendations that relate to these vehicles. These recommendations encompass vehicle countermeasures, consumer information, driver programs, working with FMCSA, and cooperating with outside groups to promote the safety of these vehicles. This Plan references these recommendations under specific action areas.

The Senate Commerce, Science and Transportation Committee is considering provisions addressing these vehicles for the reauthorization of the highway programs, namely: issue a final regulation no later than September 30, 2004 to include 15-passenger vans up to 10,000 pounds gross vehicle weight rating (GVWR) in the dynamic rollover testing program mandated by the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act; require 15-passenger vans up to 10,000 pounds GVWR to comply with all existing and prospective FMVSS for occupant protection and vehicle crash avoidance; by September 30, 2004 include vehicles up to 10,000 GVWR in the NCAP rollover resistance test program, at various load conditions; require the FMCSA to implement a final rule requiring the application of the FMCSR to 15-passenger vans used for commercial purposes; and require NHTSA to evaluate and test, in conjunction with van manufacturers, the potential of technological systems (particularly electronic stability control (ESC) systems and rear-view mirror-based rollover warning systems) to assist drivers in maintaining control of the vans.

NHTSA has initiated actions in the past and is implementing new strategies to address the safety of these vehicles. This Plan describes past, current, and planned activities in the areas of Problem Identification, Consumer Information and Education, Countermeasure Research, and Vehicle Countermeasures.

**NHTSA Actions and Plans**

**I. Problem Identification**

**Prior Research:**
A 2001 NHTSA study included three different analyses addressing whether 15-passenger vans, especially loaded 15-passenger vans, are unusually
susceptible to rollover. The results from State Data System analyses indicated that the rollover propensity for 15-passenger vans was slightly less than for the overall light truck and van (LTV) group, that rollover propensity increases with the occupancy level of the 15-passenger van, and that higher occupancy levels caused crash severity to increase from property damage only (PDO) to injury and fatal crashes. Analysis of state data also found that rollover rates for 15-passenger vans did not show any significant correlation to driver age and that fatalities occurred disproportionately to rear seat occupants, while injuries were proportional between front and rear seat occupants. An assessment also was conducted comparing the static stability factor (SSF) of a 15-passenger van to a 7-passenger full size van and a minivan when lightly loaded (driver only) and fully loaded to GVWR. This analysis found that the SSF for all three vehicles decreased (higher likelihood of rollover) when fully loaded. Based on a limited number of crashes, heavily loaded 15-passenger vans appear to have a higher rollover rate compared to when these vehicles are lightly loaded (with fewer occupants).

The agency also performed computer modeling to assess the handling of these vehicles. The modeling predicted understeer for 15-passenger vans when lightly loaded, similar to minivan behavior. However, when heavily loaded, it predicted understeer at low lateral acceleration, but oversteer at higher lateral accelerations. This transition to oversteer may pose safety problems for drivers who are unfamiliar with this characteristic. Loading 15-passenger vans to gross vehicle weight (GVW) also moved center of gravity rearward, increasing vertical load on rear tires.

**Current and Planned NHTSA analyses for problem identification:**

*Assessment of Crashes, Fatalities, and Injuries in 15-Passenger Vans:* The National Center for Statistics and Analysis (NCSA) is updating the crash data analysis portion of the 2001 work. The study is taking a comprehensive approach to analyzing the safety of 15-passenger vans in recent crash data. The analysis is evaluating the experience of 15-passenger vans in fatal crashes as compared to other vehicle types and the experience of 15-passenger vans in the State Data System. A report on these results will be released in conjunction with a Consumer Advisory (See Consumer Information section).

- Complete analysis and agency review: September 2003
- Release report: October 2003
Section-F

NHTSA Action Plan for 15-Passenger Van Safety

Survey Tire Pressure and Condition in the 12- and 15-Passenger Van Fleet and Analyze the Role of Tires in Rollover Causation: As part of NHTSA’s development of long-term performance requirements for tire pressure-monitoring systems, NTSB recommends (August 2003) NHTSA adopt more stringent detection standards than 25 or 30 percent below manufacturer-recommended levels. This recommendation is based on the NTSB’s view that pressures at those levels may have an adverse effect on the handling of vehicles, such as 12- and 15-passenger vans. Work is currently being conducted at the NHTSA Vehicle Research and Test Center (VRTC) on the relationship of tire pressure in front and rear tires, loading conditions, and handling for a 15-passenger van (see Countermeasure Research section for detail). The agency believes that more information is needed on the level of tire pressure under-inflation and tire wear conditions for 15-passenger vans in use for potential utilization in consumer information, vehicle solutions, or other actions. To this end, NCSA will conduct a study, based on methods used in a recent light vehicle TPMS survey, to collect tire pressure and condition information on this class of vehicle. In-house analysis also will be done to examine the involvement of tires in rollover crash data.

- In-house analysis of rollover crash data and tires: October 2003-January 2004
- Complete tire pressure and condition survey: June 2004
- Publish results of in-house analysis and survey: July 2004

Crash Mechanisms in 12- and 15-Passenger Vans: More information is needed on what happens in crashes involving these vehicles to help formulate potential vehicle solutions. NHTSA crash data will be analyzed for information on crash dynamics and injury mechanisms to inform decisions on future actions.

- Complete analysis: May 2004
- Issue final report: June 2004

Assess the Definition and Classification of this Vehicle Type: NTSB recommendation H-03-12 calls for NHTSA, in cooperation with the FMCSA, to revise its definitions of buses and commercial motor vehicles to apply consistently to 12- and 15-passenger vans, taking into account the unique operating characteristics and multiple functions of these vans. NHTSA will cooperate with the FMCSA to revise its definitions of buses that are used in interstate commerce. Both agencies have assigned staff to work jointly in assessing the definitions and how best to revise them. As an adjunct to this effort, an analysis is planned to identify how this type of vehicle is classified at the state and other jurisdictional levels. In some cases, legal loopholes
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exist at the state level as a result of classifying this type of vehicle as a bus (for example, exemption from laws requiring use of child restraints). The output of this analysis will be a list of the laws in the 50 states and the District of Columbia that apply to this class of vehicle and an assessment of the implications of these classifications and laws on safety and a recommendation on how to proceed regarding the development of uniform classification.

Complete study of state laws  April 2004
Issue final report  July 2004

Develop Information on the Ownership and Usage of These Vehicles: Little is known about the approximately 500,000 vehicles of this type on the road, namely: who owns them, who drives them, who uses them, for what purposes, their frequency of use and whether safety belt use is higher or lower with certain populations using this type of vehicle. NHTSA will work with the American Association of Motor Vehicle Administrators to determine if this information is available and not cost-prohibitive to collect, as well as not in violation of privacy regulations. In addition, information is needed on whether certain groups (e.g., church, school, college, military, government, migrant workers) are over or under-represented in crashes, injuries and fatalities, especially in rollover crashes. This information is needed in order to develop effective, targeted programs for the relevant groups.

Complete study  May 2004
Issue final report  July 2004

II. Consumer Information and Education

Prior NHTSA Actions:
In April 2001, NHTSA issued a Research Note and Consumer Advisory on 15-passenger van safety. The Research Note covered the findings from the three part study conducted by NHTSA (described in the Problem Identification section above). The April 2001 Consumer Advisory informed the public that 15-passenger vans should be operated by "experienced drivers" and noted that a commercial driver's license (CDL) is required to transport 16 or more people for commercial purposes. The Consumer Advisory urged drivers to be familiar with the handling of fully loaded 15-passenger vans and urged institutions using 15-passenger vans to require safety belt use at all times. In April 2002, Dr. Runge reissued the 2001 Consumer Advisory at a news conference, together with a flyer on 15-passenger van safety and a hang tag to leave in 15-passenger vans that provided information on the risk of
rollover, tips for preventing rollover, buckling up for safety and other tips for safe driving.

NHTSA’s policy is that pre-school and school aged children should not be transported in these vehicles due to safety concerns. In February 2002, just prior to NHTSA reissuing the 2001 Consumer Advisory on 15-passenger van safety, NHTSA sent a letter to each state president of the National Automobile Dealers Association (NADA) reminding them of the Federal requirements that apply to the sale or lease of vehicles used to transport students to and from school and school-related activities. Letters were also sent to state directors of pupil transportation as well as to independent education groups outlining these Federal requirements and NHTSA’s school bus safety standards. Similar letters were sent to these groups in 1995 and 1997. Enclosed with each of these letters was a fact sheet, "School Buses: The Safest Choice for Student Transportation," explaining why school buses are safer than 15-passenger vans for transporting children. In August 2003, NHTSA issued new regulations amending the school bus safety rules to encourage churches and other groups to use buses instead of vans.

In November 2002, NHTSA, in partnership with the Health Resources and Services Administration (HRSA) and the American Academy of Pediatrics (AAP), announced a training program for child care providers called Moving Kids Safely in Child Care. The two-day training program educates child care providers about how to safely transport children using the appropriate child restraints for their ages as well as the benefits of transporting children in school buses versus 15-passenger vans. This training program is available through the state highway safety offices. To date, over 2,900 child care providers across the country have completed this training program.

**Current and Planned Actions:**

**Consumer Information Advisory:** Develop Consumer/Media Advisory to inform the public that only "experienced" drivers should operate 15-passenger vans and the importance of safety belt use in all vehicles, especially 15-passenger vans.

Issue Consumer/Media Advisory October 2003

**Revise Consumer Information Hangtag:** The Reducing the Risk of Rollover Crashes in 15-Passenger Vans hangtag will be modified to summarize messages that will be simple and straightforward (checklist format). This revised hangtag will be distributed to our partners, including AAA, Automotive Service of Excellence (ASE), Jiffy Lube, National Association of Independent Insurers (NAII), and National Credit Unions, among others. This
can be done quickly, prior to development of a vehicle label. (See Vehicle Countermeasures)

Issue revised hangtag

October 2003 (in conjunction with the Consumer Advisory and Research Report)

Disseminate Warning Messages: Include cautionary warning messages to users of 15-passenger vans on the safety issues regarding these vehicles and the importance of wearing safety belts, in existing and future communications resources. Methods of distribution include a CART partnership distribution of our materials at its races and existing NHTSA mechanisms, namely, the NHTSA Hotline and the new NHTSA web site on Rollover at [http://www.nhtsa.dot.gov/hot/rollover/Index.html](http://www.nhtsa.dot.gov/hot/rollover/Index.html).

Add information to new Rollover section of the NHTSA website October 2003

Outreach Actions: Actions include two initiative areas.

Technical Assistance: Include 15-passenger van safety information in relevant Departmental efforts and regional outreach activities. NHTSA attends trade shows, conventions, etc., throughout the year, and these events offer opportunities to reach a varied audience and promote vehicle safety messages. Utilize existing partnerships with National Collegiate Athletic Association (NCAA) and umbrella church and youth organizations.

- NHTSA has existing partnerships with many organizations to implement traffic safety and injury control programs. Throughout FY 2004, NHTSA will work with the following organizations to provide technical assistance for their efforts to develop programs and policies to address 15-passenger van safety and provide them with NHTSA materials to disseminate throughout their organization:
  - National Automobile Dealers Association (NADA)
  - Auto manufacturers
  - Governors Highway Safety Association
  - Education and school transportation organizations
  - Branches of the military (they have expressed interest in developing a training program for their drivers)
  - Religious groups
  - Colleges and universities
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- Rental van fleets
- YMCA and summer camp organizations
- Organizations that focus on migrant workers
- Head Start and day care provider organizations

**Training and Education:** The focus of NHTSA’s driver training program is on novice teenage drivers. NHTSA has a cooperative agreement with the highway safety center at Indiana University of Pennsylvania to develop novice driver training programs and driver education curriculums. Commercial uses of 15-passenger vans typically involve experienced drivers, and, because of liability issues within this industry, many commercial operators require their drivers to take training. A majority of the highly publicized crashes involving 15-passenger vans have involved inexperienced drivers for private organizations such as churches and YMCAs. Because of the infrequent use of these vehicles for these purposes, drivers are less likely to have taken formal training. In addition, many of these organizations operate programs with volunteers and with limited budgets.

Several program efforts are being planned including development of educational materials focused on the safe use of 15-passenger vans; a 15 minute video showing the risks of and tips for reducing the risks associated with driving a 15-passenger van including, but not limited to, operating in a heavily loaded condition, emergency braking, tire-blowouts, tire pressure and maintenance and the importance of buckling up; and, as part of the Interagency Agreement with OSHA, NHTSA will include a section on 15-passerenger van safety in a traffic safety handbook for employers.

- Develop 15-passenger van section for handbook: December 2003
- Develop video: April 2004
- Develop educational materials: October 2004

III. Countermeasure Research

**Prior Research**
NHTSA’s April 2001 Research Note & paper is described under Problem Identification.

**Current and Planned Research**
In response to the NTSB recommendation on tire pressure monitoring systems with regard to the potentially adverse effect marginally low tire pressures can have on 15-passenger van handling (H-03-17), NHTSA is adding
tests for these vehicles to a tire testing program at VRTC to see the effect on vehicle handling from different front and rear tire pressures.

Complete testing October 2003
Final Report January 2004

Dynamic Rollover Resistance and Handling Evaluation of 15-Passenger Vans:
Testing is underway at VRTC to see whether it is appropriate to use the rollover resistance maneuvers developed for the NCAP rollover ratings program to assess the dynamic rollover resistance of two 15-passenger vans. Specifically, the Slowly Increasing Steer, NHTSA J-Turn, and NHTSA fishhook maneuvers will be used. The minimum maneuver entrance speed capable of producing two-wheel lift, the maximum lateral acceleration, and understeer gradient of each vehicle, under 3 load configurations (5, 10, and 15 occupants) will be documented in a report. While NHTSA is not including these tests as part of NCAP, their results will be posted on the NHTSA website.

Complete testing November 2003
Final Report February 2004

Evaluate Electronic Stability Control (ESC) in 15-Passenger Vans: In November 2002 the NTSB recommended that NHTSA "evaluate, in conjunction with the manufacturers of 15-passenger vans, and test as appropriate, the potential of technological systems, particularly electronic stability control systems, to assist drivers in maintaining control of 15-passenger vans." NHTSA will evaluate the dynamic rollover resistance of one 15-passenger van with enabled and disabled stability control using J-Turn and fishhook rollover resistance maneuvers. Only GM and Ford produce 15-passenger vans. At this time, only GM intends to implement ESC on these vehicles. It is anticipated ESC will be available on GM 15-passenger vans in mid-to-late October 2003.

Complete testing December 2003
Final Report February 2004

IV. Vehicle Countermeasures

Current and Planned Actions:
Vehicle Labeling: Prior NHTSA consumer research and information developed for the 2002 hangtag will be used to develop a warning label that might be required for new 15-passenger vans. Candidate information includes warnings about loading, handling and proper tire pressure.
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Evaluate previous work on rollover labels/investigate feasibility of labels June 2004

FMVSS 208, Occupant Crash Protection: Anton’s Law, signed into law in December 2002, requires lap and shoulder belts (3-point belts) at all seating positions (notably the center rear seat) for vehicles with a GVWR of 10,000 pound or less. 15-passenger vans have bench seats with seating for three or four passengers, but usually only the outboard seats have lap and shoulder belts. NHTSA published an NPRM on August 6, 2003 that would require lap and shoulder belts in rear center seats in all vehicles up to 10,000 pounds GVWR. One practical way to install lap and shoulder belts in all 15-passenger van seating positions (and to stiffen seat backs) might be to use integrated seats. This activity relates to NTSB H-03-15.

Final rule December 2004

FMVSS 214, Side Impact Protection: The agency is planning to upgrade FMVSS No. 214. The proposed upgrade will apply to all passenger cars, and trucks, buses and multipurpose passenger vehicles with a GVWR of 10,000 pounds or less. Some of NTSB’s concerns about additional head impact protection may be addressed by this upgrade.

NPRM to upgrade FMVSS 214 May 2004

Part 571.3, Definitions: NHTSA is in the process of revising the definition of "designated seating position" to include a formula based on the width of a row of seats. The agency is concerned that if occupants are too squeezed together, they would not be able to access or use the shoulder part of the 3-point belt. So as not to adversely impact big van safety, NHTSA is considering whether to apply a different formula to 12-15 passenger vans that would require more space per position on seats designed to hold more than three passengers. This would make it more likely that each passenger would be able to use – and not just have – a safety belt.

NPRM December 2003

FMVSS 216, Roof Crush Resistance: The planned upgrade of this standard will expand its coverage to vehicles up to 10,000 pounds GVWR (with certain exceptions). This action relates to NTSB recommendation NTSB H-03-16. The agency’s proposed upgrade will provide more uniform protection for 15-passenger van occupants. Agency testing of 15-passenger vans will test roof crush for the front seat occupant positions. Testing at VRTC has shown that these vehicles barely pass the current FMVSS 216 requirements and would require stronger roofs to pass the upgraded requirements. In the upgrade
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Currently under development, there are no plans to modify the test procedure by moving the test plate toward the rear of the roof. It is currently not clear whether there is a need to develop a test for the rear positions from a safety problem perspective. Current data analysis suggests that the problem of roof crush is largely a front seating position problem in terms of roof contact and that safety for occupants in rear seating positions is more dependent on belt use/ejection. However, this problem will be studied to determine if a modified test from FMVSS 220, School Bus Rollover Protection is needed, which would test roof strength for rear positions by applying horizontal forces.

Study of rear seating positions as part of Crash Mechanisms in 12- and 15-Passenger Vans (see Countermeasure Research)

February 2004

NPRM for FMVSS 216 upgrade

Conclusions

NHTSA will pursue the actions included in this plan within the parameters of available staff, resources, and safety priorities. The recently published NHTSA Vehicle Safety Rulemaking Priorities and Supporting Research, 2003-2006 (July 2003) describes our top vehicle safety priorities aimed at reducing the greatest number of crashes, injuries, and fatalities in the coming years.

All Southeastern Oklahoma State University faculty and staff personnel must be trained before driving the 15 passenger. Refer to SOSU Public safety website for material to read and test. A driving time will be established by contacting the motor pool 745-2316.
**Section-G**

*Hazard Communication Program*

**Introduction and General Statement**

Almost every workplace contains some substances which could pose potential health problems to employees if exposed to them in concentrations or in a manner not prescribed. Southeastern Oklahoma State University recognizes that its employees have the right and need to know the properties and potential safety and health problems of substances to which they may be exposed. With this policy, Southeastern Oklahoma State University intends to ensure the transmission of necessary information to employees regarding substances in the workplace, pursuant to Title 40, Oklahoma Statutes, Section 401-424 and the Federal Occupational Safety and Health Act Hazard Communication Standard, 29 Code of Federal Regulations 1910.1200.

A hazardous substance is defined as any substance that is a physical hazard or a health hazard, i.e. compressed gases, explosives, flammables, oxidizers, carcinogens, toxins, irritants, or corrosives. Hazardous substances generally have a Material Safety Data Sheet (MSDS) provided by the manufacturer.

This policy is established to:

a. Ensure compliance with the applicable state and federal standard.
b. Safeguard the health and safety of employees of Southeastern Oklahoma State University.
c. Create guidelines to follow for implementation and maintenance of a hazard communication program.

The Hazard Communication Program for Southeastern Oklahoma State University shall be administered by the Director of Police and Safety Service.

Each SOSU Department will be responsible for developing and maintaining their own internal procedures.

**Chemical Inventory and Material Safety Sheets**

Annual updates of the Chemical Information Lists (CIL) beginning with the fiscal year July 1, 2005, are required. Individual department supervisors shall complete and mail Chemical Information Lists (CIL) to the Master Record Keeper, George Brewster Safety Office Box 4064, no later than August 1 of each year. CIL’s must be submitted in alphabetical order and shall be verified for completeness by the appropriate department head. Each CIL is subject to audit by the Master Record Keeper. The Master Record Keeper will provide
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Hazard Communication Program

copies of the CIL to the Local Fire Department and the Local Emergency Planning Committee.

A master CIL shall be created and maintained by the Master Record Keeper in a manner that will allow a listing of hazardous substances by building, room, department, and manufacturer.

Each building on campus shall have a CIL. The CIL shall include a listing of all hazardous substances present. The Master Record Keeper will develop an overall Building CIL by combining the individual lists supplied by each department/area in the building.

Each time a department receives a new hazardous substance, the substance must be added to the departmental CIL within 30 days. A copy of the CIL along with the original copy of the Material Safety Data Sheet (MSDS) for the new substance, must be sent to the Master Record Keeper, George Brewster, box 4064.

Material Safety Data Sheets (MSDS's) provide detailed information on a hazardous substance. The sheets include information such as product name (hazardous substance), chemical abstract service number(s), ingredients, physical data, fire and explosion hazard data, environmental and disposal information, health hazard data, first-aid instructions, and handling precautions.

Department Heads must assure that MSDS's for all hazardous substances in the workplace are obtained. A copy of the MSDS's must be kept in the department and be readily accessible to employees who work with the hazardous substances. The original copies of MSDS's must be sent to the Master Record Keeper to be placed in the master file. Copies of the MSDS's should be placed in a filing cabinet, notebook, etc., and marked with an MSDS label available from the Master Record Keeper.

Purchase Orders for any hazardous substance, regardless of the quantity ordered, shall require that an MSDS be obtained. It is the responsibility of the ordering department (Department Head) to make every effort to obtain an MSDS from the manufacturer. If difficulties are encountered, the Master Record Keeper can assist.

Areas that store hazardous substances for distribution to other departments must obtain MSDS's for these substances and prepare a CIL. When the storeroom sells or transfers a hazardous substance to another department, the storeroom supervisor must assure that the receiving department or individual receives a copy of the MSDS. Likewise, if the storeroom prepares a
substance by any process for distribution to another department or individual, then the storeroom has assumed the role of the manufacturer and must prepare an MSDS for the substance. The Department Head over the storeroom areas shall assure that the above steps have been completed.

Should the supervisor of an area dealing with hazardous substances become aware of any information that is significant in regard to the health hazard of a substance (that does not already appear on the MSDS), he/she must add the information to the MSDS within a period not to exceed 30 days. The supervisor must also report this information to the Master Record Keeper. The information will be added to the master file and reported in writing to the appropriate state agency for follow-up investigation with the chemical manufacturer.

**Signs and Labels**

All existing labels on containers of hazardous substances must remain intact. The labels must be legible and written in English. Where labels are not present or are not legible, a Hazardous Material Information System (HMIS) label will be affixed to those containers holding the hazardous substance.

It is the responsibility of the Department Heads to assure that each container of a hazardous substance in the workplace is marked, labeled or tagged with the...

a. Common/trade name of the substance.

b. Appropriate hazard warnings: Health, flammability, reactivity, and personal protective equipment.

c. Chemical abstract service number (CAS).

HMIS labels are available from the Master Record Keeper for this purpose.

Portable containers filled with hazardous chemicals transferred from a labeled storage container must be labeled if:

a. The material is not used within the work shift of the employee making the transfer.

b. The employee that made the transfer leaves the work area.

c. The container is moved to another work area and is no longer in possession of the employee who filled the container.

Labels on portable containers are not required if the employee who made the transfer uses all of the contents during the work shift.

Storage tanks must be labeled with the identity of the substances that it contains. The label must show the health, flammability, reactivity, and
physical hazards associated with the substance. The National Fire Protection Association (NFPA) rating system must be used to show these ratings.

Containers used by outside service contractors shall be properly labeled with either a manufacturer's label or an HMIS label prior to the use of the hazardous substance on SOSU property.

Employees that work in the storeroom areas, where sealed containers of hazardous substances are received for distribution to other departments, must assure that the manufacturer's labels are not defaced or removed. If the labels are removed or defaced, follow the procedure outlined in 3.02 for replacement of the labels. In addition, if a spill or leak occurs in a container of hazardous substance, the employees should leave the area, go to a place of safety, and Safety Department ext 2868 for assistance. MSDS's for all substances in the storeroom must be obtained and be readily accessible to employees for these substances.

In addition to the labeling requirement for containers of hazardous substances, the area where the hazardous substance is used or stored must be properly marked. In order to accomplish this requirement, the Master Record Keeper has obtained the Uniform Laboratory Hazard Signage (ULHS) system. The signs identify the areas where hazardous substances are used or stored through pictograph symbols. The signs will warn employees and visitors that proper precautions should be observed when entering the area. The ULHS signs are available from the Master Record Keeper.

Exclusions
These regulations do not apply to any substances which are foods, drugs, cosmetics, or tobacco products intended for personal consumption by the employees while in the workplace. Additionally, these regulations do not apply to any consumer products and food stuffs packaged for distribution to (and intended for use by) the general public. Consumer products are packaged and used as a normal consumer would use the product as defined in the Consumer Product Safety Act and Federal Hazardous Substances Act.

The term "laboratory" is intended to mean a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis. All research laboratories may be excluded from the standard except for the following requirements:

a. Complete a CIL and submit a copy to the Master Record Keeper.
b. Conduct a training and education program that shall be designed to inform employees of appropriate work practices, protective
measures, and emergency measures regarding hazardous materials in the workplace.

c. Supply employees with the chemical names of all hazardous substances.

d. Maintain MSDS's and make them readily accessible to employees.

e. Ensure that containers of hazardous substances bear a legible manufacturer's label or an HMIS label.

f. Develop and implement a written chemical hygiene plan and provide a copy to the Master Record Keeper. Use the OSU Laboratory Safety Manual as a guide to develop the Chemical Hygiene Plan. CFR 29 1910.1450.

Exposure
Exposure of exposed means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g. accidental or possible) exposure as referenced by the MSDS. When the employer discovers that an employee has received a potentially hazardous exposure to any substance or agent, the employer must immediately notify the employee and take such steps that may be necessary to provide medical evaluation, monitoring, or treatment. Likewise, an employee that has received a potentially hazardous exposure to a substance or agent must immediately notify the employer of such exposure.

After the appropriate safety and health precautions have been taken, it is the responsibility of the employee's supervisor to fill out an Employee Exposure Report (EER). EER forms are available from the Master Record Keeper. The completed EER should be submitted to the Master Record Keeper (original copy), with a copy retained at the department and a copy provided to the employee.

The Master Record Keeper will retain the original EER and send a copy to the Personnel Services Office. The Personnel Services Office will place the EER in the employee's permanent personnel file to be retained for the length of employment plus 40 years.

An affected employee (or designated representative) may make a request to the Master Record Keeper or employing department for access to copies of the appropriate CIL and MSDS's. Access to the appropriate CIL and MSDS's shall be granted within a reasonable time, place, and manner, but never later than one working day after the request for access is made. In addition, whenever an affected employee or designated representative requests a
copy of the CIL and/or MSDS's, the Master Record Keeper shall, within 15
days, assure that either a copy or a mechanical means to copy is provided.

An employee that has requested information as stated in section 5.04, and
has not received the requested information within the specified time period,
may refuse to work with the substances or refuse to work at the location for
which the request was made. An employer may not discharge or initiate any
adverse personnel action against any employee because the employee has
exercised his/her right to the requested information. Furthermore, an
employer may not request or require an employee to waive any rights under
this policy. Any such waiver executed shall be null, void, and unenforceable.

Employees working in areas where exposure(s) to hazardous substances
exist shall be required to perform their jobs in accordance with precautions
communicated to them during training and education programs. A
supervisor may take the appropriate disciplinary action when an employee
does not comply with the precautionary measure this policy indicates.

The Department Head or designee shall be responsible for providing the
following in all departmental areas having contact with hazardous
substances:

a. Chemical name of each hazardous substance.
   b. Correct labeling of each hazardous substance.
   c. Availability of any MSDS for each hazardous substance present in the
      immediate work area.
   d. Training and education of employees on work practices, protective
      measures, and emergency measures in the work place.

Periodic checks for program integrity will be made by means of an audit
team comprised of personnel from the Safety Office.

**Training**

The Master Record Keeper will present a Train-the-Trainer Program for
supervisors of campus departments. The supervisors of campus departments
will be responsible for the training of their employees on the Hazard
Communication Program.

All employees of Southeastern Oklahoma State University must receive
Hazard Communication training. All employees will include temporary, work-
study, part-time, graduate assistants, teaching assistants, and full-time
personnel.
Department supervisors shall inform their employees of the requirements of the Hazard Communication Standard, any operations in their department where hazardous substances are used, the location and availability of the MSDS's and CIL, and a review of the department Contingency Checklist. In addition, the training must cover the methods used to detect the presence of a substance released and the steps to take after the release is detected, the physical and health hazards in the department, the measures and equipment used for personal protection, and the details of the written plan for new. Any time a new hazard is introduced into the workplace, employees must be trained on the hazard; and an annual retraining session is required for all employees.

Training and education provided to employees and others must be documented with detailed records of training maintained by the department. The training records must be kept for the length of employment plus 40 years. A copy of all training records must be sent to the Master Record Keeper.

**Fire Safety**

The Master Record Keeper will create a building CIL package consisting of floor maps and rooms. The building CIL packages will be submitted to the Local Fire Department. The building CIL packages will be updated annually by the Master Record Keeper.

In addition to the annual update requirement for the CIL, each department/area on campus is required to complete and submit a Contingency Checklist. The Contingency Checklist should be completed and sent to the Master Record Keeper at the same time the annual CIL is sent. The Contingency Checklist is needed to prepare and update the Campus/County-wide Contingency Plan. The Contingency Checklist forms are available from the Master Record Keeper.

**Outside Contractor’s Responsibilities**

Any time an outside contractor brings a hazardous substance(s) into the workplace, a CIL and MSDS(s) for the substance(s) must be received. Similarly, a CIL and MSDS(s) for all hazardous substances in the area that the contractor will be working must be provided to the contractor. This exchange will be coordinated by whomever is granting the contract. A contractor safety form must be signed stating the contractor agrees to this provision.

Service contractors whose work or materials pose a health hazard to employees shall be responsible for the training and education requirements outlined under the training section of this policy.
The above cross-training must be documented and the records must be retained in the department where the work is performed. Copies of the cross-training records must also be sent to the Master Record Keeper.

Outside contractors must comply with all the provisions of the Hazard Communication Standard while serving on the SOSU campus. Periodic audits from the Master Record Keeper will be performed to assure compliance.

**Asbestos Notice and Labeling**

Pipes, boilers, storage vessels, structural members, or equipment with insulating material that might be removed, penetrated, damaged or otherwise disturbed by repair, remodeling, renovation, maintenance or other activity, shall be labeled with cautionary labels. Such caution labels shall be printed in letters of sufficient size and contrast as to be readily visible and legible. Each room or area where the conditions require that labels exist shall have a minimum of one such label, and additional labels as is necessary, to insure ready visibility and legibility. Equipment with asbestos-containing material shall bear the following label:

---

**DANGER**
Contains Asbestos Fibers
Avoid Creating Dust
Cancer and Lung Disease Hazard

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Areas with asbestos-containing material used as acoustical material on ceilings or walls shall post the following notice:

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**NOTICE TO EMPLOYEES**
This facility has been inspected for the presence of Asbestos-containing material.
Asbestos-containing material is present in this facility.
Asbestos-containing material may cause health problems.

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Section-H

Hearing Conservation Program

Policy
Safety shall ensure that no employee is subjected to noise that produces sound levels in excess of those established by the Occupational Safety and Health Administration (OSHA) without approved hearing protection.

Authority and Responsibility
Departments shall be responsible for:

1. Contacting Safety regarding any potential overexposures;
2. Implementing engineering and/or administrative controls as deemed necessary;
3. Arranging audiometric evaluations for employees;
4. Maintaining all audiometric test records;
5. Providing hearing protection to employees; and
6. Supervising and ensuring the correct use of hearing protection devices.

Safety Office shall be responsible for:

1. Conducting all personal and/or area noise monitoring;
2. Notifying all employees exposed at or above an 8-hour time weighted average (TWA) of 85 decibels (dB) of the monitoring results;
3. Ensuring proper initial fitting of all hearing protection devices;
4. Conducting annual training for employees included in the Hearing Conservation Program; and
5. Maintaining all exposure measurement records.

Employees shall be responsible for:

1. Using hearing protection as required;
2. Participating in annual audiograms;
3. Participating in annual training;
4. Inspecting and maintaining hearing protection devices; and
5. Seeking replacement or repair of hearing protection devices when necessary.

Sound Surveys and Exposure Monitoring
Employee and/or area monitoring shall be performed when exposure is suspect of being at or above the action level of an 8-hour TWA of 85 dB.
Factors which suggest that noise exposures in the workplace may be at or above 85 dB include employee complaints about the loudness of noise, indications that employees are losing their hearing, or noisy conditions which make normal conversation difficult.

All continuous, intermittent and impulsive/impact sound levels from 80 dB to 130 dB shall be incorporated into the noise measurement survey.

The degree of noise reduction required shall be determined by comparing the measured levels with acceptable noise levels as presented in Table 1.

Monitoring shall be repeated whenever a change in processes, production, equipment or controls increases noise exposure to the extent that additional employees may be exposed at or above the action level or the attenuation provided by hearing protection devices being used by employees may be rendered inadequate.

Affected employees or their representatives shall be provided an opportunity to observe any noise measurements.

Employees shall be removed from the Hearing Conservation Program once noise levels have been measured and determined to be at acceptable levels.

Table 1 indicates OSHA’s permissible noise exposure limits.

<table>
<thead>
<tr>
<th>Duration (hours)</th>
<th>Sound Level dBA (Slow Response)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>92</td>
</tr>
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<td>1</td>
<td>105</td>
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<tr>
<td>1/2</td>
<td>110</td>
</tr>
<tr>
<td>1/4 OR LESS</td>
<td>115</td>
</tr>
</tbody>
</table>

*Note: Exposures to impulsive/impact noise shall not exceed 140 dB peak sound pressure level.*
Control Measures

When employees are subjected to sound exceeding those levels listed in Table 1, feasible engineering and administrative controls shall be utilized as the first step in noise control. If these controls fail to reduce sound to acceptable levels, hearing protection devices shall be used. During the implementation of administrative and/or engineering controls, affected employees shall be provided with hearing protection devices and trained in accordance with this program.

Administrative Controls

Administrative controls normally involve a change in work schedules or operations which reduce noise exposures. Examples include operating a noisy machine on the second or third shift when fewer people are exposed or shifting an employee to a less noisy job once a hazardous daily noise dose has been reached.

Engineering Controls

Engineering controls shall be used when any modification or replacement of equipment, or related physical change at the noise source or along the transmission path can be altered which reduces the noise level to the employee’s ear.

Typical engineering controls may involve the following:

1. Reducing noise at the source;
2. Interrupting the noise path;
3. Reducing reverberation;
4. Reducing structure-borne vibration;
5. Employee/equipment isolation; and

Hearing Protection Devices

Hearing protection devices shall be made available to all employees exposed to an 8-hour TWA of 85 dB or greater at no cost to the employees. Hearing protection devices shall be replaced as necessary.

Hearing protection devices shall be worn by employees required to wear personal protective equipment and by any employee who is exposed to an 8-hour TWA of 85 dB or greater, and who has not yet had a baseline audiogram or has experienced a standard threshold shift.
Employees shall be given the opportunity to select their hearing protection from a variety of suitable hearing protection devices.

**Audiometric Evaluations**

Audiometric evaluations shall be made available at no cost to all University employees whose exposure equals or exceeds an 8-hour TWA of 85 dB.

**Baseline Audiograms**

Baseline Audiograms shall be performed within six months of an employee's first measured exposure at or above the action level to compare subsequent audiograms.

*Exception:* Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within one year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than six months after the employee’s first exposure at or above the action level, employees shall wear hearing protection devices for any period exceeding six months after first exposure until the baseline audiogram is obtained.

Prior to the audiogram, employees shall be informed to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

**Annual Audiograms**

Audiograms shall be performed at least annually after obtaining the baseline audiogram for each employee exposed at or above the 8-hour TWA of 85 dB. Each employee’s annual audiogram shall be compared to his/her baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee may obtain a retest within 30 days and the retest results may be considered the annual audiogram. If a comparison of the annual audiogram to the baseline indicates a standard threshold shift, the employee shall be informed of this in writing within 21 days of the determination.

All audiometric tests and equipment calibration shall be performed in accordance with the criteria established by "OSHA's Occupational Noise Exposure" Standard 29 CFR 1910.95.
**Information and Training**

Employees who are exposed to noise at or above an 8-hour TWA of 85 dB shall receive training on the following:

1. Effects of noise on hearing;
2. Purpose of hearing protection devices;
3. Advantages and disadvantages of hearing protection devices;
4. Attenuation of various types of hearing protection devices;
5. Instructions on selection, fitting, use and care of hearing protection devices; and
6. The purpose of audiometric testing including an explanation of the test procedure.

Safety and Environmental Affairs shall conduct annual training for all employees included in the University's Hearing Conservation Program. This training shall utilize the "Hearing Conservation" training booklet generated by Safety and Environmental Affairs which shall be updated to ensure consistency with changes in protective equipment and work processes.


**Recordkeeping**

*Exposure Measurements*

The Safety Office shall maintain an accurate record of all employee exposure measurements for a period of two years.

*Audiometric Tests*

Records of all employee audiometric tests shall be retained for the duration of the affected employee's employment and thirty years from the date of termination. These records shall include:

1. Name and job classification of the employee;
2. Date of the audiogram;
3. The examiner's name;
4. Date of last acoustic or exhaustive calibration of the audiometer;
5. Employee's most recent noise exposure assessment; and
6. Background sound pressure level measurements in audiometric test rooms.

All records shall be made available upon written request to the employee or designee at any time without regard to employment status.
Introduction
The ability to safely move materials from one location to another is a vital part of many activities at Southeastern. Hoists are often used when materials are too heavy or bulky to be safely moved manually. Because hoists rely upon slings to hold their suspended loads, slings are the most commonly used materials-handling apparatus.

In part because of the complex nature of the seemingly simple task of lifting an object, an effective program is necessary to lift and move heavy loads safely.

Scope and Application
The Occupational Safety and Health Administration (OSHA) requirements for hoisting and sling safety are described in this section and apply to all departments where hoisting techniques are used.

Program Description
Selection, Use and Inspection of Slings
Workers involved in hoisting and rigging must exercise care when selecting and using slings. The selection of slings should be based upon the size and type of the load, and the environmental conditions of the workplace. Slings should be visually inspected before each use to ensure their effectiveness. Improper use of hoisting equipment, including slings, may result in overloading, excessive speed (e.g., taking up slack with a sudden jerk, shock loading), or sudden acceleration or deceleration of equipment.

There are generally six types of slings: chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web. Slings tend to be placed into three groups: chain, wire rope and mesh, and fiber rope web. Each type has its own particular advantages and disadvantages. Factors to consider when choosing the best sling for the job include size, weight, shape, temperature, and sensitivity of the material being moved, and the environmental conditions under which the sling will be used. The following guide may be useful in selecting the appropriate sling:

Chains
Alloy steel chains are strong and able to adapt to the shape of the load. Care should be taken when using chain slings because sudden shocks will damage
them. This may result in sling failure and possible injury to workers or damage to the load.

Chain slings must be visually inspected prior to use. During the inspection, pay particular attention to any stretching, nicks, gouges, and wear in excess of the allowances made by the manufacturer. These signs indicate that the sling may be unsafe and must be removed from service immediately.

*Wire Rope*

Wire rope is composed of individual wires that have been twisted to form strands. Strands are then twisted to form a wire rope. When wire rope has a fiber core, it is usually more flexible but less resistant to environmental damage. Conversely, wire rope with a core that is made of a wire rope strand tends to have greater strength and is more resistant to heat damage.

When selecting a wire rope sling to give the best service, there are four characteristics to consider: strength, ability to withstand fatigue (e.g., to bend without distortion), ability to withstand abrasive wear, and ability to withstand abuse.

- **Strength** – Strength of wire rope is a function of its size (e.g., diameter of the rope), grade, and construction, and must be sufficient to accommodate the maximum applied load.

- **Fatigue (Bending without Failure)** – Fatigue failure of wire rope is caused by the development of small cracks during small radius bends. The best means for preventing fatigue failure of wire rope slings is to use blocking or padding to increase the bend radius.

- **Abrasive Wear** – The ability of wire rope to withstand abrasion is determined by the size and number of the individual wires used to make up the rope. Smaller wires bend more readily and offer greater flexibility, but are less able to withstand abrasion. Larger wires are less flexible, but withstand abrasion better.

- **Abuse** – Misuse or abuse of wire rope slings will result in their failure long before any other factor. Abuse can lead to serious structural damage, resulting in kinks or bird caging. (In bird caging, the wire rope strands are forcibly untwisted and become spread outwards.) To prevent injuries to workers and prolong the life of the sling, strictly adhere to safe and proper use of wire rope slings.

Wire rope slings must be visually inspected before use. Slings with excessive broken wires, severe corrosion, localized wear, damage to end-fittings (e.g., hooks, rings, links, or collars), or damage to the rope structure (e.g., kinks, bird caging, distortion) must be removed from service and discarded.
Fiber rope and synthetic web slings are used primarily for temporary work, such as construction or painting, and are the best choice for use on expensive loads, highly finished or fragile parts, and delicate equipment.

Fiber rope slings deteriorate on contact with acids and caustics and, therefore, must not be used around these substances. Fiber rope slings that exhibit cuts, gouges, worn surface areas, brittle or discolored fibers, melting, or charring must be discarded. A buildup of powder-like sawdust on the inside of a fiber rope indicates excessive internal wear and that the sling is unsafe. Finally, if the rope fibers separate easily when scratched with a fingernail, it indicates that the sling has suffered some kind of chemical damage and should be discarded.

Synthetic web slings are commonly made of nylon, polypropylene, or polyester and have the following properties in common:

- **Strength** – Depending upon their size, synthetic web slings can handle loads of up to 300,000 pounds.
- **Convenience and Safety** -- Synthetic web slings adjust to the load contour and hold it with a tight, non-slip grip.
- **Load Protection** -- Unlike other sling materials, synthetic web is less likely to mar, deface, or scratch highly polished surfaces.
- **Shock Absorbency** -- Regardless of the construction material, shock loading (e.g., excessive speed, rapid acceleration or deceleration) of slings should be minimized. However, it should be noted that synthetic web slings can absorb heavy shocks without damage.
- **Temperature Resistance** – The lifting capacity of synthetic web is unaffected by temperatures up to 180 degrees Fahrenheit.
- **Economy and Long Life** – Synthetic web slings have a low initial cost and a long service life. They are unaffected by mildew, rot, or bacteria, resist some chemical action, and have excellent abrasion resistance.

Synthetic web slings must be inspected before use and should be removed from service if found to have acid or caustic burns, melting or charring of any part of the surface, snags, tears, or cuts, broken stitches, distorted fittings, or wear or elongation beyond the manufacturer’s specifications.

**Safe Lifting Practices**

Selection of the sling is only the first step in the rigging process. The next step is learning how to safely use it to hold and move a suspended load.
There are four primary factors to consider when lifting a load safely. These are:

- **Load Size, Weight, and Center of Gravity** – The center of gravity of an object is that point at which the entire weight may be considered to be concentrated. To make a level lift, the hoist hook must be located directly above this point. If the hook is too far to either side of the center of gravity, dangerous tilting will result, causing unequal stress in the sling legs. Load imbalances must be corrected immediately.

- **Number of Legs and Angle with the Horizontal** – The smaller the angle between the sling legs and the horizontal, the greater the stress on the individual sling legs. This increased stress effectively decreases the weight that can be safely lifted with any given sling size. Large (heavy) loads can be safely moved by keeping this angle as large as possible and, when necessary, distributing the weight of the load among more sling legs.

- **Rated Capacity of the Sling** – The rated capacity of a sling varies depending upon the type of material the sling is made of, the size of the sling, and the type of hitch. Workers must know the capacity of the sling, and can obtain this information through charts or tables available through the manufacturer. The rated capacity of a sling must not be exceeded, under any circumstances.

- **History of Care and Use** – Mishandling and misuse of slings are the leading causes of sling failure. Following the manufacturer’s recommendations for proper care and use are essential for maximum sling service life and safety.

**Training**

Workers involved in hoisting and rigging operations should receive training in the following:

- Sling and hitch types
- Sling capacity determination
- Equipment inspection, care, and maintenance
- Load weight and center of gravity determination
- Safe lifting techniques

**Roles and Responsibilities**

**Department**

- Identify areas where hoisting and rigging techniques are used.
- Obtain necessary equipment.
Section-I

Hoisting and Rigging Safety

- Establish procedures for inspection, care and maintenance of equipment.
- Ensure workers are trained.

**Supervisor**
- Know when hoisting and rigging techniques are necessary.
- Ensure equipment is properly maintained.
- Ensure workers use safe lifting techniques.

**Safety Office**
- Assist in identifying areas where hoisting and rigging techniques are used.
- Provide worker training.

**Individual**
- Attend training.
- Know how to perform necessary equipment inspections.
- Know how to maintain equipment.
- Use safe lifting techniques.

The following references are available through the Safety office:

- *Sling Safety*, U.S. Department of Labor (OSHA 3072)
- *Rigging Equipment for Material Handling*, 29 CFR 1926.251
Basic Horse Safety

Approaching
Always speak to your horse before approaching or touching him. Some horses are likely to jump and may kick when startled.

Always approach your horse from the front. If he’s turned away from you, call to him or entice him with a treat to get him to come to you. Never approach your horse directly from the rear. Even in a tie stall, it is possible to approach from an angle at the rear.

Pet a horse by first placing a hand on its shoulder or neck. The touch should be a rubbing action. Don’t “dab” at the end of a horse’s nose.

If he is tied, get him to look at you. Always notice a horse’s expression before advancing.

Handling
When working around your horse, wear boots or hard-toed shoes to protect your feet. Never wear tennis shoes, moccasins or go barefoot.

When working around your horse, tie him securely with a quick-release knot, or have someone hold him with a lead rope. Use cross-ties when possible, but be sure they have panic snaps or are secured with a breakable tie, such as baling twine.

Always work close to your horse. If you are near his shoulder, you won’t be struck with the full force of his feet. Nor will you receive the full force of a kick if you stay close to the body when you work about the haunches or pass behind your horse.

Know your horse and his temperament and reactions. Control your temper at all times, but be firm.

Always let a horse know what you intend to do. When picking up the feet, for example, do not grab the foot hurriedly. This will startle the horse and may cause it to kick. When lifting the foot, touch the shoulder or hindquarter, and then run your hand down the leg. When you get to the fetlock say “up,” and squeeze the joint. The horse should pick up his foot for you.

Work about a horse from a position as near the shoulder as possible.
Never stand directly behind a horse or directly in front of him. To work with its tail, stand off to the side, near the point of the buttock, facing to the rear. Grasp the tail and draw it around to you.

Be calm, confident, and collected around horses. A nervous handler can make a nervous horse.

Do not drop grooming tools under foot while grooming. Place them where you will not trip on them and the horse will not step on them.

Don’t tease your horse. Teasing may cause it to develop dangerous habits for the rest of its life. Avoid feeding the horse treats from your hand frequently.

Punish a horse only at the instant it disobeys. If you wait, even for a minute, it will not understand why it is being punished. Punish without anger, or your punishment may be too severe. Never strike a horse about its head.

Be sure your turnout area has been checked for old machinery; broken boards and nails; poisonous plants; and wild cherry, red maple, or black walnut trees. Fences should be checked frequently for loose nails, broken sections, and loose wire.

If it is necessary to leave a halter on a loose horse, the halter must be a breakaway type. You can make a breakaway halter by using a piece of baling twine or by replacing the crown piece with a section of an OLD, lightweight leather belt.

If the halter is too loose, the horse may catch a foot in it, especially if he is trying to scratch his head with a hind foot. A loose halter may catch on fence posts or other pasture objects. Some halter materials will shrink if they get wet, so be sure to check the fit.

**Leading**

When leading your horse, walk beside him—not ahead or behind. A position even with the horse’s head or halfway between the horse’s head and its shoulder is considered safest.

Always turn the horse away from you and walk around it.

Use a long lead shank and both hands when leading. If the horse rears up, release the hand nearest to the halter so you can stay on the ground.

It is customary to lead from the left (near side), using the right hand to hold the lead, near the halter. The excess portion of the lead should be folded, figure-eight style. When leading, extend your right elbow slightly toward the
horse. If the horse makes contact with you, its shoulder will hit your elbow first and move you away from it. Your elbow can also be used in the horse’s neck to keep the head and neck straight as well as to prevent the horse from crowding you. A horse should be workable from both sides, even for mounting and dismounting.

**The horse is stronger than you, so don’t try to out-pull him.**

Never wrap the lead shank or reins around your hand, wrist, or body. A knot at the end of the lead shank aids in maintaining a secure grip when needed for control. Never drape a lead shank or reins across your shoulders or neck.

Don’t wear jewelry around horses. Rings can cut deeply into fingers, and bracelets can get caught in reins or lead lines. Dangling earrings are particularly dangerous.

Be extremely cautious when leading a horse through a narrow opening, such as a door. Be certain you have firm control and step through first. Step through quickly and get to one side to avoid being crowded.

At any time you are dismounted or leading the horse, the stirrup irons on an English saddle should be run up or dressed. Be cautious of the stirrups of a Western saddle, which can catch on objects.

Use judgment when turning a horse loose. Lead completely through the gate or door, and turn the horse around facing the direction from which you just entered. Then release the lead shank or remove the halter or bridle. Avoid letting a horse bolt away from you when released. Good habits prevent accidents.

Avoid use of excessively long lead ropes so as to prevent you from becoming entangled. Watch the coils when using lariats or lunge lines.

**Tying**

Know and use the proper knots for tying a horse. Two basic knots every horseman should know are:

**Quick release knot**—should be used whenever you tie a horse with the halter rope. This knot allows you to release the horse quickly if the horse gets into trouble.

**Bowline knot**— should be used when tying a rope around the horse’s neck. The loop will not tighten up and the knot will not slip.

Tie your horse far enough away from strange horses so they cannot fight.
Tie a safe distance from tree limbs or brush to prevent the horse from becoming entangled.

Tie your horse with a rope long enough to allow comfortable movement but short enough to avoid becoming tangled or getting a foot over the rope.

Never tie your horse by the reins as he may pull back and break the reins or injure his mouth. Always use a halter.

Be sure to tie to an object that is strong and secure to avoid the danger of breaking or coming loose if the horse pulls back. Never tie below the level of the horse’s withers. Tie to a post set in the ground, not to a rail on a fence. If a horse has broken loose once, he is more likely to pull back again.

**Saddling**

**Western**
Carefully check horse and tack before saddling. Make sure all stitching is secure and the blanket is clean. Be sure the horse’s back and the girth area are clean.

Place the off-side cinches and the right stirrup over the seat. Stand with your feet well back in the clear, and reach forward when saddling.

Swing the Western saddle into position easily—not suddenly. If you drop the saddle down quickly or hard, it may scare the horse.

Go to the off side of the horse and gently let the stirrup and cinches down. Don’t let them hit the horse on the belly or the leg.

When using a Western double-rigged saddle, remember to fasten the front cinch first. Unfasten the rear cinch first when unsaddling. Pull the cinch up slowly when tightening. Don’t cinch too tightly at first. Tighten just before mounting. Then, walk and turn the horse before mounting.

Fasten accessory straps (tie-downs, breast collars, martingales, etc.) after the saddle is cinched. Unfasten them first when unsaddling.

The back cinch should not be so loose that your horse can get a hind leg caught between the cinch and its belly, or so tight that it irritates the horse.

Check the cinch three times:

- After saddling.
- Just before mounting.
- After riding a short distance.
Section-J
Basic Horse Safety

English
Carefully check the horse and tack before saddling. Make sure all stitching on the stirrup leather, billet straps, and girth buckles is secure.

Check the pad to be sure that it is clean.

The stirrup safety bar should be down. The stirrups should be run up before placing the saddle on the horse’s back. The girth should be across the seat.

Stand with your feet well back from the horse and reach forward when saddling.

Place the pad high on the withers, and then slide it backward onto the back. This will smoothes the horse’s hair.

Check the girth three times:

- After saddling.
- Just before mounting.
- After riding a short distance.

Bridling
Always untie your horse before removing the halter. Stand in close just behind and to one side (preferably on the left side) of the horse’s head. Handle the horse’s ears carefully.

Keep control of the horse when bridling by re-fastening the halter around the neck.

Be careful not to bang the horse’s teeth when bridling or unbridling. Ask your horse to open his mouth by putting one or two fingers in the corner of his mouth.

Be sure the bridle is properly adjusted to fit the horse before you ride:

- Check the bit—there should be one or two wrinkles at the corners of the mouth.
- The throatlatch should be adjusted so that you can insert three fingers between it and the horse’s jaw.
- The cavesson (if used) should be relatively tight. You should be able to insert only one finger between the cavesson and the nose.
- The curb chain (if used) should be flat and not twisted. You should be able to insert two fingers between the chain and the horse’s chin groove.
Never let your horse eat when wearing a bridle. He may step on the reins or get his feet tangled in them. Also hay or grass may get caught in the bit and injure his mouth.

**Mounting and Dismounting**

Never mount or dismount a horse in a barn or near fences, trees, or overhanging projections. Sidestepping and rearing mounts have injured riders who failed to take these precautions.

A horse should stand quietly for mounting and dismounting. To be sure the horse stands, you must have light control of its head through the reins.

English riders should “run up” the stirrups on English saddles immediately upon dismounting. The dangling stirrup may startle or annoy the horse. It is possible for the horse to catch a cheek of the bit or even a hind foot in a dangling stirrup iron when he is going for a fly. A dangling stirrup can also be caught on doorways and other projections while the horse is being led.

After running up the stirrups, English riders should immediately bring the reins over the horse’s head. In this position, the reins can be used for leading.

Western riders should also bring the reins forward for leading immediately after dismounting.

**Headgear**

Medical studies show that the most common riding-related injuries are to the head. Many of these could be prevented or made less severe by the wearing of protective headgear.

Protective headgear is a hat that stays on during a fall (not one that hits the ground before the rider). Protective hats cannot be pierced by a sharp object and have extra padding inside to protect riders from concussion.

There are protective riding hats available for both Western and English riders. Wear protective headgear that carries the appropriate approval. These hats have been shown to be effective in preventing head injuries.

**Riding**

When riding, wear boots with proper heels to prevent your feet from slipping through the stirrups. Always wear protective headgear, properly fitted and fastened.

Keep your horse under control and maintain a secure seat at all times. Horses are easily frightened by unusual objects and noises.
Until you know your horse, confine your riding to an arena or other enclosed area. Ride in open spaces or unconfined areas only after you are familiar with your horse.

When your horse becomes frightened, remain calm, speak to it quietly, steady it, and give it time to overcome its fear.

Hold your mount to a walk when going up or down a steep hill.

Allow a horse to pick his way at a walk when riding on tough ground or in sand, mud, ice, or snow where there is danger of your horse slipping or falling.

Don’t fool around. Horseplay is dangerous to you and to your friends, as well as to others who may be nearby.

Never ride your horse with just a halter. Halters don’t give you enough control. Use a bridle.

Try to avoid paved or other hard-surfaced roads. Walk the horse when crossing paved roads.

If you must ride along the road, ride on the shoulder and follow the rules of the road. Get a Driver’s Manual from your Department of Motor Vehicles. These rules vary from state to state.

Never rush past riders who are proceeding at a slower gait, as it startles both horses and riders and frequently causes accidents. Instead, approach slowly, indicate a desire to pass, and proceed cautiously on the left side.

Ride abreast or stay a full horse’s length from the horse in front to avoid the possibility of being kicked. You can tell if the distance is safe by looking through your horse’s ears. You should be able to see the hind heels of the horse in front of you.

Don’t let a horse run to and from the stable. Walk the last distance home.

If you use spurs, be sure your legs are steady enough that you don’t touch the horse with the spurs by mistake. If you’re not sure, don’t wear them.

When your horse is frightened and tries to run, turn him in a circle and tighten the circle until he stops.

A red ribbon tied into the tail indicates a kicker, so stay back.

Dogs and horses are not always good companions. Keep your dog under control at all times.
Riding at Night
Riding at night can be a pleasure, but it must be recognized as being more hazardous than daytime riding. Walk the horse; fast gaits are dangerous.

If it is necessary to ride at night on roads or highways, wear light-colored clothing, and carry a flashlight and reflectors. Check your state regulations for details.

Select riding locations with care. Choose controlled bridle paths or familiar, safe, open areas.

Trailer Loading
Trailer loading should be done with two people if at all possible.

Be sure the ground area behind and around the truck or trailer affords safe footing before loading or unloading.

Be sure the trailer is level and steady and doesn’t move as the horse tries to enter. Place chocks behind the wheels to keep trailer steady.

Remove the bridle, saddle, and other equipment before loading. Use your halter and a good sturdy lead shank (at least 5 feet) made of cotton rope. Don’t use nylon shanks—they can be dangerous if your horse pulls back.

Always wrap your horse’s legs. Be sure the bandages extend over the coronary bands onto the hoof and that they cover the heel area.

If you have trouble loading or unloading, get experienced help.

Secure the butt chain or bar as soon as the horse is in the trailer and always before tying the horse. Use care when reaching for the chain.

Opinions vary on hauling a horse tied or loose. If you tie, allow a sufficient length of rope so the horse can move his head for balance and comfort but keep it tight enough that he cannot get in trouble or get to the horse next to him.

Always tie with a quick-release knot, or use panic snaps on the ties.

When hauling only one horse in a two-horse trailer, load the horse on the driver’s side. Try to distribute the weight of the load evenly. When hauling two horses in a two-horse trailer, load the heavier horse on the driver’s side. Use rubber mats for secure footing. By using 3 inches of bedding (shavings, straw, or sand), you can cushion bumps and reduce concussion on your horse’s legs.
Always speak to a horse that is in a truck or trailer before attempting to handle it. Check your trailer regularly for the following:

- Rotting or weakened floor boards.
- Rusted and weakened door hinges.
- Cracked hitch welds.

When having the trailer serviced, ask the mechanic to check the spring shackles and wheel bearings.

The trailer should be of sufficient height to give the horse ample neck and head room. Remove or cover any protruding objects.

When driving, always observe the following:

- Double check all the connections (lights, brakes, hitch, and safety chains).
- Be sure all doors are secured.
- Drive carefully. Make turns slowly. Start and stop slowly and steadily.
- Look far ahead to avoid emergencies. Drive defensively.

Never throw lighted cigarettes or matches from a car or truck window. They could either start a fire in the area, or the wind could suck them into the trailer.

Check the horse and trailer hitch at every stop before continuing.

Horses are like people—some get sick from motion. Adjust the feeding schedule to avoid traveling immediately after feeding. Feed smaller amounts more often if necessary.

Watch your feet and fingers when dropping the tailgate.

Never undo the butt chain or bar before you untie your horse at its head. The horse may try backing out as soon as the tailgate is down.

Use caution to back the horse out of the trailer straight and slightly toward the center ramps so that he doesn’t catch a leg in the door springs.

If there are two horses in the trailer, have someone stand by the head of the second horse while the first one is backed off the trailer so that he doesn’t think that he is free to back off also.

Walk the horse to restore circulation before putting him in a stall, especially after a long haul.
When the trailer is disconnected and parked, be sure to place chocks behind the wheels. Never load a horse in an unhitched trailer.

**Trail Riding**
Ride a well-mannered horse. Excessive speed on the trail is unsafe. Ride at safe gaits.

Avoid overhanging limbs. Watch the rider ahead so a limb pushed aside doesn’t snap back and slap you or your horse in the face.

Starting with the leader of a group, every second rider should warn those behind of dangers such as broken glass, low branches, poor footing, holes, etc.

If a rider falls off and the horse runs away, do not chase him. Halt and wait as he may return to the group. If he does not return, send one rider quietly to catch him.

**Fire Safety—Plan Ahead**
Put the phone number for the fire department by each phone.

Be sure you have adequate and appropriate fire-fighting equipment for your barn. Ask your safety department for recommendations phone number 745-2868. Know how to use them.

Know where large quantities of water can be obtained (farm ponds or swimming pools). Have adequate water outlets with horses in the barn.

Install smoke detectors or heat detectors and connect them to a high-decibel resonant horn so that you can hear it. Clean the detector frequently because heavy dust and bugs can deactivate the alarm.

Know the location of electrical master switches.

Keep a halter and lead rope by each stall. Never lock stall doors.

Have fire drills several times a year to practice getting the horses out of the barn and so everyone knows what to do.

Have a supply of empty feed sacks available for blindfolds. Wet the sacks in the water bucket in each stall before using.

Know where you will secure the horses if you have to evacuate the barn.

**Fire Prevention Measures**
*No smoking in the barn.*
Clean up all debris and properly dispose of it. Never leave loose hay or straw in aisles.

Store feed, hay, straw, or shavings in a separate building away from the barn. If this is not possible, be sure your loft is well ventilated and that the hay is properly cured—don’t store “heavy” bales.

Check hay for warm spots. If hay temperature is noticeably warmer than when it was put in, watch it closely. If the temperature reaches 150°F, take the hay out and divide it into small, shallow stacks.

Oily rags should be disposed of immediately after use. Don’t store flammable materials (paint, gasoline, etc.) in the barn.

Check all electrical wiring for frayed ends, double-up extension cords, etc. Get them fixed immediately. Never use lightweight extension cords—buy the heavy-duty cords. If a fuse blows, check for shorts and other faults. Always use the correct size fuse. All electrical wiring should be encased in metal conduit and electrical boxes.

Inspect all motors, heaters, and electrical devices frequently.

Establish ongoing and effective rodent control programs—rats do chew wires.

Keep aisles clear of equipment, etc.

Ideally, all barns should be constructed of noncombustible materials. If you are building a new barn, look for pressure-treated wood so it will burn more slowly.

**Procedures to Be Followed in the Event of Fire**

- Call the fire department—9-1-1. In a calm, clear voice, give your name and location. Call the campus police 745-2727. Do not hang up until you are sure the information has been understood.

- Open one door of the stable only. As long as possible, keep the flow of fresh air and oxygen to a minimum so the fire will not explode. If the fire is spreading rapidly and there is heavy smoke, stay out of the barn.

**Evacuate Horses**

- Halters and lead ropes should be on each door. Lead each horse out of the barn to a predetermined area. If you turn him loose, he will probably run right back to his stall.
Section-J

Basic Horse Safety

- If the horse won’t lead, blind him using a towel, handkerchief, or gunny sack. Wet the sack in the water bucket in each stall before putting it on the horse’s head.
- Put the horses in a paddock a safe distance from the barn and out of the way of the fire-fighting equipment. Make sure horses are contained so that in their panic they don’t return to their blazing stall.
- Open all access gates to the barn area for fire equipment. Save equipment only after all horses are out.
- Use available fire-fighting equipment to contain the fire until help arrives, i.e., fire extinguishers, hoses, wet sacks, or shovels and dirt.
- Keep roads clear for fire equipment.
- Once help arrives, immediately check your horses for injuries. Call a vet if horses are burned or have inhaled a lot of smoke. Check the eyes, and if you notice any burned areas, cover the eyes with a clean, moist cloth.
- Check for burns around the nostrils, and if you find any, apply Vaseline or mineral ointment. Keep any burned areas on the body or legs moist with a cold, wet cloth. Do not medicate the burns unless necessary.

Gates

- Gates leading to animal stalls or pastures will be closed at all times.
- Gates leading into Equestrian Center from South 9th street (Business highway 69&75) will be closed each day. This is the responsibility of the Director of Equestrian Center.
Section-K
Bleacher Safety/Fall Prevention

Purpose
We use bleachers for viewing sporting events, graduations, and many other activities. Unfortunately, each year thousands of people, many of them young children, are seriously injured in falls from bleachers. These guidelines provide recommendations to prevent falls from the bleachers.

Prevention of Falls From Bleachers
Many of the bleachers in facilities today pose a fall hazard, especially to children, in part because these bleachers may have been built and installed when the building codes did not require guardrails and allowed openings that were big enough to permit a child to fall through them. Listed below are some recommendations to prevent falls from bleachers.

- Guardrails should be present on the backs and portions of the open ends of bleachers where the footboard, seat board, or aisle is 30 inches or more above the floor or ground level.
- The top surface of the guardrail should be at least 42 inches above the leading edge of the footboard, seat board, or aisle, whichever is adjacent. When bleachers are used adjacent to a wall that is at least as high as the recommended guardrail height, the guardrail is not necessary if a 4 inch diameter sphere fails to pass between the bleachers and the wall.
- Any opening between components of the guardrail or under the guardrail should prevent passage of a 4 inch diameter sphere.
- To discourage climbing on guardrails, guardrails should be designed in one of three ways:
  - Use only vertical members as in-fill between the top and bottom rails.
  - If there are openings in the in-fill that could provide a foothold for climbing, the widest measurement of the opening where the foot could rest should be limited to a maximum of 1.75 inches. Opening patterns that provide a ladder effect should be avoided.
  - Where visibility would not be significantly impaired, use solid members.
- Any opening between the components in the seating, such as between the footboard, seat board, and riser, should prevent passage of a 4 inch sphere where the footboard is 30 inches or more.
above the ground and where the opening would permit a fall of 30 inches or more.

**Prevention of Falls on Bleachers**

Although these guidelines primarily focus on preventing the hazard of falls from bleachers, the prevention of falls on bleachers is important and should not be ignored. Falls on bleachers likely occur when there are missing or inadequate components that assist in access and egress, such as aisles, handrails, and non-skid surfaces. Many older bleachers do not have these features, yet they are important in aiding people to move safely about on bleachers.

**Summary of Recommendations**

- Guardrails should be present on the backs and portions of the open ends of bleachers where the footboard, seat board, or aisle is 30 inches or more above the floor or ground below.
- The top surface of the guardrail should be at least 42 inches above the leading edge of the footboard, seat board, or aisle, whichever is adjacent.
- When bleachers are used adjacent to a wall that is at least as high as the recommended guardrail height, the guardrail is not needed if a 4 inch diameter sphere fails to pass between the bleachers and the wall.
- Any opening between components of the guardrail or under the guardrail should prevent passage of a 4 inch sphere.
- Any opening between the components in the seating, such as between the footboard, seat board, and riser, should prevent passage of a 4 inch diameter sphere where the footboard is 30 inches or more above the ground and where the opening would permit a fall of 30 inches or more.
- The preferable guardrail design uses only vertical members as in-fill between the top and bottom rails. If there are openings in the in-fill that could provide a foothold for climbing, the widest measurement of the opening where the foot could rest should be limited to a maximum of 1.75 inches. Opening patterns that provide a ladder effect should be avoided. If chain link fencing is used on guardrails, it should have a mesh size of 1.25 inch square or less.
- Aisles, handrails, non-skid surfaces, and other items that assist in access and egress on bleachers should be incorporated into bleachers.
• Bleachers should be thoroughly inspected at least quarterly by trained personnel and problems corrected immediately. Records of these actions should be retained.
• A licensed professional engineer, registered architect, or company that is qualified to provide bleacher products and services, should inspect the bleachers at least every two years and provide a written certification at such time that the bleachers are fit for use.
• Records of all incidents and injuries should be retained.
Section-L

Machine Safety

Introduction
There seem to be as many hazards created by moving machine parts as there are types of machines. Safeguards are essential for protecting operators from preventable injuries.

Scope and Application
The Occupational Safety and Health Administration (OSHA 1910 Subparts O-I) requires guarding for any machine where machine parts, functions, or processes may cause injury. The need for machine guarding may be found in machine shops in academic departments, maintenance shops, print shops, and other areas where mechanical equipment is used.

Program Description
Any machine part, function, or process that might cause injury must be safeguarded. When the operation of a machine or accidental contact with it could injure the operator or others in the vicinity, the hazards must be either controlled or eliminated.

Where Mechanical Hazards Occur
Dangerous moving parts in three basic areas require safeguarding:

- **The point of operation:** that point where work is performed on the material, such as cutting, shaping, boring, or forming of stock.
- **Power transmission apparatus:** all components of the mechanical system that transmit energy to the part of the machine performing the work. These components include flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks, and gears.
- **Other moving parts:** all parts of the machine that move while the machine is working. These may include reciprocating, rotating, and transverse moving parts, as well as feed mechanisms and auxiliary parts of the machine.

Hazardous Mechanical Motions and Actions
A wide variety of mechanical motions and actions may present hazards to the operator. These can include the movement of rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and any parts that impact or shear. These different types of hazardous mechanical motions and actions are basic in varying combinations to nearly all machines, and recognizing them is the first step toward protecting operators from the danger they present.
The basic types of hazardous mechanical motions and actions are:

**Motions**
- rotating (including in-running nip points)
- reciprocating
- transversing

**Actions**
- cutting
- punching
- shearing
- bending

**Requirements for Safeguards**
Safeguards must meet these minimum general requirements:

**Prevent contact:** The safeguard must prevent hands, arms, and any other part of an operator's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.

**Secure:** Operators should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.

**Protect from falling objects:** The safeguard should ensure that no objects will fall into moving parts. A small tool dropped into a cycling machine could easily become a projectile that could strike and injure someone.

**Create no new hazards:** A safeguard defeats its own purpose if it creates a hazard such as a shear point, a jagged edge, or an unfinished surface that could cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way to eliminate sharp edges.

**Create no interference:** Any safeguard that impedes an operator from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding may actually enhance efficiency since it relieves the operator's apprehensions about injury.

**Allow safe lubrication:** If possible, workers should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the
guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance operator to enter the hazardous area.

**Protective Clothing and Personal Protective Equipment**

Engineering controls that eliminate the hazard at the source and do not rely on the operator's behavior for their effectiveness offer the best and most reliable means of safeguarding. Therefore, engineering controls are the first choice for eliminating machine hazards. But whenever engineering controls are not available or are not fully capable of protecting the operator, operators must wear protective clothing or personal protective equipment.

To provide adequate protection, the protective clothing and equipment must always be:

- appropriate for the particular hazards
- maintained in good condition
- properly stored when not in use, to prevent damage or loss
- kept clean, fully functional, and sanitary.

Protective clothing is, of course, available for different parts of the body. Hard hats offer protection to the head from the impact of bumps and falling objects when the operator is handling stock; caps and hair nets may be used to keep the operator's hair from being caught in machinery. If machine coolants could splash or particles could fly into the operator's eyes or face, then face shields, safety goggles, glasses, or similar kinds of protection might be necessary. Hearing protection will be needed when operators operate noisy machines. To guard the trunk of the body from cuts or impacts from heavy or rough-edged stock, there are protective coveralls, jackets, vests, aprons, and full-body suits. Operators may protect their hands and arms from the same kinds of injury with special sleeves and gloves. Safety shoes and boots, or other acceptable foot guards, shield the feet against injury in case the operator must handle heavy stock that could drop.

It is important to note that protective clothing and equipment may create hazards. A protective glove that could become caught between rotating parts, or a respirator face piece that hinders the wearer's vision, for example, require alertness and continued attentiveness whenever they are used.

Other parts of the operator's clothing may present additional safety hazards. For example, loose-fitting shirts might possibly become entangled in rotating spindles or other kinds of moving machinery. Jewelry, such as bracelets and rings, may catch on machine parts or stock and lead to serious injury by pulling a hand into the danger area.
Training
Even the most elaborate safeguarding system cannot offer effective protection unless the operator knows how to use it and why. Specific and detailed training is therefore a crucial part of any effort to provide safeguarding against machine-related hazards. Thorough operator training should involve instruction or hands-on training in the following:

- a description and identification of the hazards associated with particular machines
- the safeguards themselves, how they provide protection, and the hazards for which they are intended
- how to use the safeguards and why
- how and under what circumstances safeguards can be removed, and by whom (in most cases, repair or maintenance personnel only)
- what to do (e.g., contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.

This kind of safety training is necessary for new operators and maintenance or setup personnel, when any new or altered safeguards are put in service, or when operators are assigned to a new machine or operation.

Roles and Responsibilities

Department
- Ensure machines are equipped with appropriate safeguards.
- Provide personal protective equipment to operators, when necessary.
- Provide machine specific training to operators.

Supervisors
- Ensure operators do not defeat machine safeguards.

Safety
- Provide assistance in machine safeguard development.
- Assist in selection of personal protective equipment.
- Assist in development of specific training, when needed.
- Provide periodic audits of machine guarding.

Individual
- Operate machines with all safeguards in place.
For More Information
Contact the University Safety at 745-2868


Lockout/Tagout

Scope
This program specifically outlines the purpose, authorization, rules, and techniques to be utilized by Southeastern Oklahoma State University employees on a daily basis to guard against the unexpected energizing, start-up, or release of stored energy which could cause injury. It shall be the duty of each employee to become familiar with the contents of this program and ensure compliance with its procedures. Heads of departments shall ensure that employees under their supervision receive training in the contents of this program and ensure records of this training are maintained.

Purpose
The purpose of this program is to establish procedures for affixing appropriate lockout or tagout devices to energy-isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

List of Terms

Affected Employee
An employee whose job requires them to operate or use a machine or piece of equipment on which servicing is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

Authorized Employee
A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing maintenance or service on a machine or piece of equipment which must be locked, or a tagout system implemented. Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
Lockout
The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed. Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or piece of equipment.

Normal Production Operations
The utilization of a machine or piece of equipment to perform its intended production function.

Primary Authorized Employee
The authorized employee who has been vested with responsibility for a set number or group of employees performing service or maintenance on machines or equipment subject to lockout or tagout procedures.

Servicing and/or Maintenance
Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy.

Tagout
The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Authorizations
A designated Southeastern Oklahoma State University representative may authorize the use of this program by any and all facilities, departments and individuals associated with the control of hazardous energy on any SOSU entity.

Heads of departments will implement the program and ensure that the personnel under their supervision are trained in accordance with the procedures established herein. This responsibility may be delegated to another person or persons within the department providing it is done so in writing and the designated person is qualified and competent. This person will authorize employees to implement the locking and tagging system procedure.
An employee who has been authorized by his or her department head or that department head's designated individual shall lock or implement a tagout system procedure on machines or equipment to perform servicing or maintenance; or on a machine which the unexpected energization or start-up of the machine or equipment, or release of stored energy could cause injury.

**Rules**

Each department utilizing the Southeastern Oklahoma State University program for the control of hazardous energy shall establish and document site-specific procedures for energy isolation. Specialized lockout devices shall be obtained and kept within the department for its use.

If an energy-isolating device is capable of being locked out, the authorized employee shall utilize lockout, unless the department head or their designated representative can demonstrate that utilization of a tagout system will provide full employee protection. When a tagout device is used on an energy-isolating device which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached.

Lockout devices used for the implementation of this program shall be accompanied by a standard tag as suggested by the illustration at left.

These devices shall be used for no other purpose than lockout, and shall be substantial enough to prevent removal without the use of excessive force or unusual techniques. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

The Director of Police and Safety or his/her designated representative shall conduct periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of 29CFR1910.150 are being followed.

**Training**

The heads of departments or their designated representatives are required to provide training to ensure that the purpose and function of the energy control program are understood by employees. Through training, employees will be required to possess the knowledge and skills required for safe
application, usage, and removal of energy controls. Training shall include the following:

- Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- Each affected employee shall be instructed in the purpose and use of the energy control procedure.
- All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked-out or tagged-out.

When tagout systems are used, employees shall also be trained in the following limitations of tags:

- Tags are essentially warning devices affixed to energy-isolating devices, and do not provide the physical restraint on those devices that is provided by lockout.
- When a tag is attached to an energy-isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored or otherwise defeated.
- Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- Tags must be securely attached to energy-isolating devices so that they cannot be inadvertently or accidentally detached during use.

Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or process that presents a new hazard, or when there is a change in energy control procedures. Retraining shall establish employee proficiency and introduce new or revised control methods and procedures as necessary. The heads of departments or their designated representatives shall certify that employee training has been accomplished and is being kept up-to-date. The certification shall contain each employee's name and dates of training.
Section-L
Machine Safety

Techniques
Implementation of the lockout or tagout system shall be performed only by authorized employees. Affected employees shall be notified by heads of departments, or their designated representatives, of the application and removal of lockout or tagout devices. Notification shall be given before the controls are applied, and after they are removed from the machine or equipment.

The established procedure for the application of energy control shall cover the following elements and actions and shall be done in the following sequence:

- Preparation for shutdown: Before an authorized or affected employee turns off a machine or piece of equipment, they shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
- Machine or equipment shutdown: An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of equipment de-energization.
- Machine or equipment isolation: All energy-isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
- Lockout or tagout device application: Lockout or tagout devices shall be affixed to each energy-isolating device by authorized employees. Lockout devices, where used, shall be affixed in a manner that will hold the energy in a "safe" or "off" position. Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy-isolating devices from the "safe" or "off" position is prohibited.

Where tagout devices are used with energy-isolating devices designed with the capability of being locked, the tag shall be fastened at the same point at which the lock would have been attached.

Where a tag cannot be affixed directly to the energy-isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

- Stored Energy: Following the application of lockout or tagout devices to energy-isolating devices, all potentially hazardous stored energy shall be rendered safe. If there is a possibility of re-accumulation of
stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

- **Verification of Isolation:** Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and de-energization of the machine or equipment has been accomplished.

- **Release from Lockout or Tagout:** Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employee(s) to ensure the following:
  - **The Machine or Equipment:** The work area shall be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.
  - **Employees:** The work area shall be checked to ensure that all employees have been safely positioned or removed. Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified.

- **Lockout or Tagout Device Removal:** Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. Exception: When the authorized employee who applied the lockout or tagout device (installer) is not available to remove it, that device may be removed under the direction of the installer's immediate supervisor. Specific training and procedures for such removal shall be provided by each department involved in lockout or tagout operations. The procedures and training shall be documented. The documentation shall demonstrate that safety equivalent to the original process of having only the installer remove the device is maintained. The specific procedure shall include at least the following elements:
  - **Verification by the immediate supervisor that the employee who applied the device is not at the facility,**
  - **Making all reasonable efforts to contact the authorized employee to inform them that his/her lockout or tagout device has been removed,** and
  - **Ensuring that the authorized employee has this knowledge before they resume work at the facility.**
• Testing or Positioning of machines, equipment, or components thereof: In situations where lockout or tagout devices must be temporarily removed from the energy- isolating device and the machine or equipment energized to test or position the equipment or component thereof, the following sequence of actions shall be followed:
  - Clear the machine or equipment of tools and materials.
  - Remove employees from the machine or equipment area.
  - Remove the lockout or tagout devices.
  - Energize and proceed with testing or positioning.
  - De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

• Outside Personnel (contractors, etc.): Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this program, the designated Southeastern Oklahoma State University representative and the outside employer shall inform each other of their respective lockout or tagout procedures. The designated Southeastern Oklahoma State University representative shall ensure that his/her personnel understand and comply with restrictions and prohibitions of the outside employer's energy control procedures. If the outside employer has no documented lockout or tagout procedures, they shall ensure that their personnel understand and comply with the procedures established in this program.

• Group Lockout or Tagout: When servicing and/or maintenance is performed by a crew or department, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. This shall be accomplished by:
  - The application of a multi-lock accepting device by the primary authorized employee to the energy- isolating device.
  - The primary authorized employee attaching his/her lock to the multi- accepting device.
  - Each authorized employee shall affix a personal lockout or tagout device to the multi-lock accepting device when they begin work, and shall remove those devices when they stop working on the machine or equipment being serviced or maintained.
• The primary authorized employee removing his/her lock and the multi-lock accepting device when all service or maintenance has been completed.

• Shift or Personnel Changes: To insure the orderly transfer of lockout or tagout devices between off-going and on-coming employees and minimize exposure to hazards from unexpected energization, start-up of the machine or equipment, or release of stored energy, these procedures shall be followed:
  • The on-coming personnel shall notify the off-going personnel that they are ready to begin work on the machine or equipment.
  • All lockout and/or tagout devices attached to the machine or equipment by the off-going personnel shall be removed and immediately replaced with like devices by the on-coming authorized personnel.
  • The primary authorized employee shall insure that all pertinent co-ordination between off-going and on-coming personnel has been completed before the on-coming authorized personnel begin work on the machine or equipment and that all necessary energy has been rendered safe.
Section-M
Natural Gas Pipeline System

Incident Notification
Every event that fits the definition of a natural gas pipeline system incident as identified on the previous page shall be reported to the Physical Plant.

Physical Plant -- (745-2389/2843)
Monday through Friday from 8:00 a.m. to 5:00 p.m.;
[Physical plant is closed on University holidays. The Campus Police Dispatcher calls to Physical Plant standby employees during off hours.]

If no one can be reached, call SOSU Campus Police 745-2727

Work Control personnel (or the answering service) will report to the following Oklahoma State University authorities:

- Director of Safety 745-2727
  The Safety Director (or appointed representative) will report the incident, if necessary, to the following:
  - The City of Durant (911)
    Durant Emergency Management (924-3661)
  - The State of Oklahoma Corporation Commission (405-521-2258)
- Assistant Director Physical Plant Services (745-2839)

Incident Priorities and Criteria for Action

Priorities
The first priority of action for all incidents involving natural gas will be directed toward life safety first followed by property. Immediate care shall be given to any injured person(s).

The surrounding area will be evacuated to reduce risk of additional casualties.

Leak classification and action criteria for Level 1 incidents

Definition
A leak that represents an existing or probable hazard to persons or property. Requires immediate repair or continuous action until the conditions are no longer hazardous

Action Criteria
Requires prompt action* to protect life and property, and continuous action until the conditions are no longer hazardous.
The prompt action in some instances may require one or more of the following:

- Evacuating premises
- Blocking off an area
- Rerouting traffic
- Eliminating sources of ignition
- Venting the area
- Stopping the flow of gas by closing valves or other means
- Notifying police and fire departments

**Examples**

- Any leak which, in the judgment of operating personnel at the scene, is regarded as an immediate hazard.
- Escaping gas that has ignited.
- Any indication of gas that has migrated into or under a building or into a tunnel.
- Any reading at the outside wall of a building or where gas would likely migrate to an outside wall of a building.
- Any reading of 80% LEL or greater in a confined space.
- Any reading of 80% LEL or greater in small substructures (other than gas-associated substructures) from which gas would likely migrate to the outside wall of a building.
- Any leak that can be seen, heard or felt, and which is in a location that may endanger the general public or property.

**Leak classification and action criteria for Level 2 incidents**

**Definition**

A leak that is recognized as being non-hazardous at the time of detection, but justifies scheduled repair based on probable future hazard.

**Action Criteria**

Leaks should be repaired or cleared within one calendar year, but no later than 15 months from the date the leak was reported. In determining the repair priority, criteria such as the following should be considered:

- Amount and migration of gas.
- Proximity of gas to buildings and sub-surface structures.
- Extent of pavement.
- Soil type and soil conditions (such as frost cap, moisture & natural venting).
Level 2 leaks should be reevaluated at least once every six months until cleared. The frequency of reevaluation should be determined by the location & magnitude of the leakage condition.

Level 2 leaks may vary greatly in degree of potential hazard. Some Level 2 leaks, when evaluated by the above criteria, may justify scheduled repair within the next 5 working days. Others will justify repair within 30 days. During the working day on which the leak is discovered, these situations should be brought to the attention of the individual responsible for scheduling leak repair.

On the other hand, many Level 2 leaks, because of their location and magnitude, can be scheduled for repair on a normal routine basis with periodic re-inspection as necessary.

**Examples**
Leaks requiring action ahead of ground freezing or other adverse changes in venting conditions.

Any leak which, under frozen or other adverse soil conditions, would likely migrate to the outside wall of a building.

Leaks requiring action within six months:

- Any reading of 40% LEL, or greater, under a sidewalk in a wall-to-wall paved area that does not qualify as a Level 1 leak.
- Any reading of 100% LEL, or greater, under a street in a wall-to-wall paved area that has significant gas migration and does not qualify as a Level 1 leak.
- Any reading less than 80% LEL in small substructures (other than gas-associated substructures) from which gas would likely migrate creating a probable future hazard.
- Any reading between 20% LEL and 80% LEL in a confined space.
- Any reading on a pipeline operating at 30% SMYS, or greater, in a class 3 or 4 location, which does not qualify as a Level 1 leak.
- Any reading of 80% LEL, or greater, in gas-associated substructures.
- Any leak which, in the judgment of operating personnel at the scene, is of sufficient magnitude to justify scheduled repair.

**Leak classification and action criteria for Level 3 incidents**

**Definition**
A leak that is non-hazardous at the time of detection and can be reasonably expected to remain non-hazardous.
Action Criteria
These leaks should be re-evaluated during the next scheduled survey, or within 15 months of the date reported, whichever occurs first, until the leak is re-graded or no longer results in a reading.

Examples
- Leaks requiring re-evaluation at periodic intervals:
- Any reading of less than 80% LEL in small gas-associated substructures.
- Any reading under a street in areas without wall-to-wall paving where it is unlikely the gas could migrate to the outside wall of a building.
- Any reading of less than 20% LEL in a confined space.

Incident Responsibilities
- The 1st Responder, then SOSU's Safety Department, shall establish a command post near the scene, when necessary or required, to coordinate the incident.
- On-scene emergency personnel from Durant Fire Department and SOSU's Safety Department shall provide immediate first aid to injured persons when it is safe to do so.
- SOSU's Safety Department, SOSU Campus Police, and Durant Fire Department shall conduct evacuations in the event of fire, explosion, natural disaster or other incident, when necessary, as directed by the Incident Commander.
- SOSU Campus Police, in conjunction with other supporting agencies, shall establish, maintain, and man all necessary incident perimeters and barricades as directed by the Incident Commander.
- SOSU Physical Plant personnel, in cooperation with the Oklahoma Natural Gas Company, shall isolate the incident area by shutting off the flow of any gas from feed lines into the impacted area.
- The City of Durant Fire Department shall manage any fire suppression needs as well as provide advanced emergency medical care and transportation of patients.
- SOSU's Safety Department shall monitor the atmospheric conditions around the site and shall have the appropriate PPE ready to utilize in penetrating affected areas upwind of the incident for monitoring and rescue purposes if needed.
- Manpower and equipment shall be provided by SOSU's Physical Plant. Said manpower and equipment shall work jointly upon direction by the Incident Commander.
Response Procedures
In case of fire located near or directly involving a pipeline facility, explosion occurring near or directly involving a pipeline facility, natural disaster, or other emergency incident, the following response procedures will be followed:

- Notification will proceed as designated in this Appendix, Section I.
- The first responder(s) from SOSU's Safety Department shall designate an incident commander and activate the incident command system (ICS). When necessary, an on-scene incident command post shall also be established.
- The on-scene incident command post shall be located upwind and as close as practical to the incident site so that continual visual observations may be maintained of the incident area, and immediate response to changing conditions may be possible. The on-scene command post shall stay in communication with all responding agencies.
- Responding agencies shall provide designated responsibilities as listed in the Appendix, Section V, under the direction of the incident commander.
  - First aid and medical care will be provided by SOSU Health Services and Medical Center of Southeastern Oklahoma.
  - Firefighting and fire suppression operations will be initiated and conducted by Durant Fire Department.
  - Gas valve shut off will be conducted as quickly as possible by SOSU Physical Plant and ONG personnel.
- Perimeter zone(s) around the affected area shall be established as directed by the incident commander in accordance with standard emergency scene practices.
  - Hazard Zone - The Hazard Zone is the area in which personnel are potentially in immediate danger from the hazardous situation. This zone shall be established by the incident commander. Access to this area will be rigidly controlled and only authorized personnel with proper protective equipment and an assigned activity approved by the on-site incident command post shall be allowed to enter the incident area. SOSU Campus Police personnel will be assigned to monitor entry and exit of all personnel from the Hazard Zone.
  - Evacuation Zone - The Evacuation Zone is the larger area surrounding the Hazard Zone, in which a lesser degree of risk
Natural Gas Pipeline System

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to emergency personnel exists, but from which all civilians will be removed. The limits of this zone will be enforced by the SOSU Campus Police and other agencies based upon distances and directions established by the incident commander. The area to be evacuated depends upon the nature and extent of the fire, explosion, natural disaster or other emergency. All evacuations shall be ordered by the incident commander and shall be conducted in an orderly, expedient fashion by SOSU's Safety Department, SOSU Campus Police, and Durant Fire Department.

- **Additional Perimeter Zones** may be established as necessary. These may include Hot Zone, Warm Zone, and Cold Zone for gas incidents that may also involve hazardous chemicals, as well as a Staging Area for any major incident that may require large numbers of personnel and equipment.

Incident-specific circumstances will dictate other procedures that will be used to bring the emergency under control in accordance with the priorities of life safety first, followed by the protection and salvage of property.

**Post Incident Management**

Upon declaration of the Incident Commander that the incident is under control and the incident area is safe, Safety officer and DFD personnel shall sweep the incident area searching for any additional casualties. Upon completion of the sweep, responsible personnel shall begin the cause and origin procedures. Upon completion of the investigation, repairs may be initiated.

Barriers shall remain intact and any area vacated due to the incident shall remain vacated until repairs and any required tests are completed before restoring all systems back to normal operating conditions.

Repairs shall be initiated immediately and shall be expedited to restore normal service and to place SOSU's gas distribution system into a normal and safe mode of operation.

Normal procedures shall apply to the emergency repairs:

- Only qualified personnel shall perform the repairs.
- Only approved material as specified in the Guide for Small Gas Operators shall be utilized.
- OSHA & SOSU's safety procedures and guidelines shall be utilized.
Upon completion of repairs, and after the gas system has been successfully tested and restored to operation, the incident area may be released for normal operation.

- A final inspection of the area shall be conducted by the Incident Commander.
- As directed the Incident Commander:
  - Barriers shall be removed
  - Personnel shall be allowed to return to the area
  - Emergency personnel shall be released upon direction by the Incident Commander

**Post- Incident Reporting**

The Director Safety shall, within 72 hours of the closure of the incident, schedule a debriefing with all agencies concerned, i.e., University, City, State, ONG, and National participants. This debriefing shall include, but not be limited to:

- Critique of the incident
- Problem areas identified
- Revisions to the emergency plan, if needed
- Factors that caused the incident

Upon completion of the debriefing, open discussion for questions and answers.

The Director of Safety issues the final report.

**Responding to Gas Leak Reports**

It is the responsibility of SOSU Physical Plant employees to become familiar with policy and procedure concerned with gas leak calls and reports.

- The Physical Plant employee receiving a report of a gas leak should get as much of the information as possible to fill out a leak report.
- All reports of gas leaks on University property get assigned a high priority. Leaks inside a facility or building receive a Priority One.
- Upon receiving pertinent information, and determining that a hazardous leak exists inside a building, the caller should be advised on the following:
  - Do not operate (do not turn on or off) any electrical appliance or device.
  - Extinguish all open flames. Do not light any matches, cigarettes, etc.
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Natural Gas Pipeline System

- Ventilate the building.
- Turn off the gas supply (only if the caller knows how to do so).
- Evacuate the building to a safe distance. Be close enough to relay information to arriving emergency personnel.
- Dispatch necessary Physical Plant personnel to the location.
- Duties of the University responder on the scene:
  Take any corrective action necessary to ensure protection of life, then property. It is the responsibility of the person in charge to:
  - Set up communication
  - Coordinate the operation
  - Make all decisions concerning closing emergency valves and isolating areas, as well as coordinate emergency personnel and equipment.

Minimum Operator Response Actions

- Leaks outside of buildings
  - Assess danger to passersby, surrounding buildings and their occupants, and other property.
  - Extinguish all open flames.
  - If necessary, notify the Durant Fire Department and the Oklahoma Natural Gas Company.
  - Block the street(s)
  - Notify Supervisor or other responsible persons.
  - Check neighboring buildings for gas vapors, fumes, etc.
  - Implement Check List for major emergency (see page 15).
  - Repair leak
  - Upon completion of repairs, check the area using a Combustible Gas Indicator; if determined safe, allow occupants to return to building.

- Leaks inside a building:
  - Immediately evaluate the building to determine concentration of gas and source of the leak.
  - Do not operate any light switches or electrical appliances
  - Do not use the telephone; turn off pagers and cell phones
  - Shut off the gas meter valve
  - Ventilate the building
  - Bar hole the area, especially around the foundation. Check water meter and other ground openings.
  - If ground is gas-free, and if the building is gas-free, turn on the meter valve. CHECK ALL GAS PIPING AND APPLIANCE FOR LEAKS.
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- Implement Check List for major emergency (see page 15)
- Repair leak
- If leak cannot be repaired, notify Supervisor. Turn off the meter, lock it and tag it out.

- Gas burning inside a building:
  - Call Fire Department (911)
  - Call Oklahoma Natural Gas Company
  - If fire is at appliance, shut off the gas appliance valve, if possible.
  - If not possible, shut the gas off at the meter or appropriate valve.
  - Implement Check List for major emergency (see page 15).

- Interruption in the gas supply
  An interruption in gas supply could be due to: freezing of the regulators, break in the line, sabotage, or ONG cut-off.
  - Call SOSU's supplier (Oklahoma Natural Gas)
  - Locate the leak; inform ONG of the location of the leak.
  - Close appropriate valve in the system to isolate the break.
  - Implement Check List for major emergency (see page 10).
# Emergency Notification List

Owner: Southeastern Oklahoma State University

Owner’s operating personnel:

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Phone</th>
<th>Pager, Cell Phone Mobile Radio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eddie Harbin</td>
<td>Director, Physical Plant</td>
<td>580-745-2843</td>
<td></td>
</tr>
<tr>
<td>Jon Clouse</td>
<td>Director of Safety</td>
<td>580-745-2727</td>
<td>580-920-8606</td>
</tr>
<tr>
<td>George Brewster</td>
<td>Captain of Police</td>
<td>580-745-2869</td>
<td>580-920-6090</td>
</tr>
<tr>
<td>Stephen Harman</td>
<td>Safety Office</td>
<td>580-745-2869</td>
<td>580-920-8605</td>
</tr>
</tbody>
</table>

Other Important Numbers YOU want to list
**Other Notification**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local</strong></td>
<td></td>
</tr>
<tr>
<td>Durant Police Department</td>
<td>911</td>
</tr>
<tr>
<td>Campus Dispatcher</td>
<td>580-745-2727</td>
</tr>
<tr>
<td>Durant Fire Department</td>
<td>911</td>
</tr>
<tr>
<td>Bryan County Sheriff</td>
<td>911</td>
</tr>
<tr>
<td>Civil Defense</td>
<td>911</td>
</tr>
<tr>
<td>Ambulance</td>
<td>911</td>
</tr>
<tr>
<td>Oklahoma Natural Gas</td>
<td>1-800-664-5463</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
</tr>
<tr>
<td>Oklahoma Corporation Commission – Pipeline Safety (24 hours)</td>
<td>1-405-521-2258</td>
</tr>
<tr>
<td>Oklahoma Natural Gas</td>
<td>1-800-664-5463</td>
</tr>
<tr>
<td><strong>National</strong></td>
<td></td>
</tr>
<tr>
<td>National Response Center</td>
<td>1-800-424-8802</td>
</tr>
</tbody>
</table>
Checklist (Major Emergency)

☐ Has the Fire Department been notified?

☐ Have the occupants been evacuated to a designated area and the area secured?

☐ Has the Police Department been notified?

☐ Has a repair crew been notified?

☐ Has the University call list been executed?

☐ Has communication been established?

☐ Has outside help been requested?

☐ Have Emergency Medical Services (Stillwater Medical Center, Student Health Center) been notified?

☐ Has the leak been shut off or brought under control?

☐ Has the Durant Emergency Management office been notified?

☐ Have emergency valves or proper valves to shut down or reroute the gas been identified and located?

☐ If an area has been cut off from a supply of gas, has the individual building been cut off?

☐ Is the situation under control and has the possibility of recurrence been eliminated?

☐ Has the surrounding area, including adjacent buildings and cross streets, been probed for the possibility of further leakage?

☐ Has proper tag been placed on meter?

☐ Has telephonic report been made to the State?

☐ Has telephonic report been made to NRC/DOT?
Reporting Requirements

A telephone call MUST BE MADE TO THE U.S. DEPARTMENT OF TRANSPORTATION and OKLAHOMA CORPORATION COMMISSION for any leak where:

- There is a release of gas from a pipeline.

AND

There is a death or personal injury requiring hospitalization or there is estimated property damage, including the cost of gas lost, by the operator or others, of $50,000 or more.

- There is an event that is significant in the judgment of the operator, even though it was not described in paragraph (1).

A telephone call MUST BE MADE TO THE OKLAHOMA CORPORATION COMMISSION for any leak where:

- There is a release of gas from a pipeline.

AND

There is a death or personal injury requiring hospitalization or there is estimated property damage, including the cost of gas lost, by the operator or others, of $5,000 or more.

- There is an event that is significant in the judgment of the operator, even though it was not described in paragraph (1).

The telephone report to DOT and OCC should contain:

- SOSU’s address
- Name and phone number of individual reporting the incident.
- The location of the leak (city, county, state and street address).
- The time of the leak (hour and date).
- The number of fatalities and personal injuries, if any.
- Type and extent of property damage.
- Description of the incident. (See DOT Incident Form, attached.)

A telephonic report should be made at the earliest practicable time following discovery (within 2 hours).
Restoration of Gas Service Due to Outage

When the supply of gas has been cut off to an area, the gas should not be restored to the affected area until the individual gas services in a University building have been turned off.

In restoring service on the University to an affected area, all gas piping and meters must be purged and appliances re-lighted. Never turn gas on at a meter unless you have access to ALL appliances or equipment on the piping.

The SOSU Physical Plant person in charge is to coordinate this operation and be responsible for same.

A complete record of the incident, including service restoration and drawings, if necessary, must be kept on file.

Education and/or Training

Employee Training

SOSU Physical Plant employees (i.e., Mechanical Trades, Apartment Maintenance, Power Plant, Safety Office) must be trained annually in emergency procedures that include but are not limited to:

1. Update of the emergency plan
2. Review of employee responsibilities in an emergency
3. Review of location and use of emergency equipment.
4. Review the locations of:
   - Systems map
   - Main records
   - Service records
   - Valve records
   - Regulator station schematics
   - Properties of natural gas.
5. Take a hypothetical emergency situation and conduct a step-by-step review with employees on the action to be taken, including contact with public officials, Durant Fire Department, SOSU & Durant Police, and ONG, etc.
6. Record keeping
7. Telephone reports (U.S. DOT, State agency, etc.)
8. Records shall be kept on file of attendance and items discussed.
9. Liaison with appropriate fire, police and other public officials.
Public Education
Southeastern Oklahoma State University will, through its Public Information Office, enable faculty, staff, students, the general public and appropriate governmental organizations, to recognize a gas emergency. Instruct the concerned constituency in reporting gas odors, leaks and other emergencies to SOSU Physical Plant, SOSU Police, or ONG.

The program material should include, but not be limited to:

- Information about gas properties
- Recognition of gas odors
- What to do and not do when there is a strong gas odor
- Notification of the University and gas company prior to making excavation-related activities.
- Telephone numbers for persons in the University to report gas leaks or odors or other information during both business and non-business hours.

This information may be conveyed to the University constituency by a number of means:

- Radio
- Newspaper
- Meetings
- Bill stuffers
- Mailings
- Hand-outs
- Posted on bulletin boards
- Employee newsletters

The University will maintain records of the public information program and related activities.

Liaison with Public Officials & Local Gas Utilities
The University, through the Director of Safety, will establish liaison with fire, police, civil defense and medical officials with respect to these emergency procedures. These officials include representatives of Durant Police and Fire Departments, Bryan County Civil Defense and Oklahoma Natural Gas, Medical Center SE Oklahoma and SOSU Student Health Center, as well as SOSU Physical Plant managers.

Documentation must be kept of all meetings, training sessions, and other related activities, such as:
• Date of meeting, attendance and titles of participants
• Training sessions on proper procedures to follow during a gas emergency
• Meetings to learn capabilities, responsibilities, and procedures respecting gas emergencies of each group.

Information to the News Media
During an emergency, refer all requests for information to the University's Public Information Office. The PIO will coordinate emergency information with responsible SOSU management. The SOSU plan for public announcements includes:

• Calm the situation
• Do not make unwarranted comments
• Tell precisely what the public can do to help
• Tell specifically what SOSU and ONG are doing about the incident.
• Give facts to prevent baseless rumors.
• Repeat most encouraging view of situation that facts will permit.
• Do not speculate regarding the situation in absence of facts.

Accident Investigation
SOSU will proceed in analyzing accidents and failures, and at the minimum:

• Evaluate the situation
• Protect life and property
• Keep the area safe
• Conduct a leak survey
• Conduct pressure test of piping
• Perform meter and regulator checks
• Question persons on the scene
• Examine burn and debris patterns
• Request ONG test odorization level
• Record weather conditions
• Select samples of the failed facility or equipment or equipment for laboratory examination for the purpose of determining the causes of the failure and minimizing the possibility of recurrence.
• Notify the appropriate Risk Management Office.
Telephonic Reports to the Federal Government
Gas pipeline incidents that meet the reportable state requirements and have caused estimated damages in excess of $50,000 (total of operator’s damage and damage to others and including cost of gas loss) must also be reported to the federal government.

TELEPHONE TOLL-FREE -- (800) 424-8802
WASHINGTON, D.C. -- (202) 426-2675
24 HOURS EVERY DAY

This telephonic report, if required, should also be made upon discovery, but in no case later than two hours after discovery. This telephonic report of a serious incident should include:

- Identity of reporting operator,
- Name and phone number of individual reporting the incident,
- The location of the leak (city, county, state, and street address),
- The time of the leak (date and time)
- The number of fatalities and personal injuries, if any,
- Type and extent of property damage, and
- Description of the incident.

Emergency Call List
Fire Dept. Ph# _______________ Police Dep. Ph# ________________
Gas Supply Company Ph# ______ Operator Personnel Ph# _________
Oklahoma Corporation Commission Ph# _______________________

Emergency Equipment
We are responsible for the adequacy, availability and condition of emergency equipment. Inspection of emergency equipment will be conducted quarterly, or as often as may be necessary, and records of these inspections will be kept on file.

Contractor Emergency Call List
Contractor's name: ____________________________________________
Address: ____________________________________________________
24-hour telephone number: ____________________________________
Facility Name: _______________________________________________
**Training**

Plans will be annually reviewed and records of review and training shall be kept on file. Employees shall be trained in the operation/maintenance and emergency plan once each calendar year.

<table>
<thead>
<tr>
<th>Annual Plan Review</th>
<th>Personnel Training</th>
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<tbody>
<tr>
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</tbody>
</table>
**PART 1 - GENERAL REPORT INFORMATION**

<table>
<thead>
<tr>
<th>a. Operator's 5-digit identification number:</th>
<th>Reason for Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ / / / /</td>
<td>0 Fatality Number / / persons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. Name of Operator</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 Injury requiring inpatient hospitalization Number / / persons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c. Number &amp; Street</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 Property damage/loss Estimate $ __________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d. City, County, State, Zip Code</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 Operator Judgment/Emergency Action</td>
</tr>
</tbody>
</table>

**Location of incident**

<table>
<thead>
<tr>
<th>a. Number &amp; Street</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 Supplemental Report</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. City &amp; County</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elapsed time until area was made safe: / / hr / / min.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c. State and Zip Code</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Telephonic Report: / / mo. / / day / / year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>d. Class Location</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01 02 03 04</td>
<td>a. Estimated pressure at point &amp; time of incident (PSIG) __________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>e. Incident on Federal Land?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0Yes 0No</td>
<td>b. Maximum allowable operating pressure (MAOP) (PSIG) __________________</td>
</tr>
</tbody>
</table>

**Time and Date of Incident**

/ / / / hour / / / / mo / / / / day / / / / year

**PART 2 - APPARENT CAUSE**

<table>
<thead>
<tr>
<th>0 Corrosion</th>
<th>0 Damage by Outside Forces</th>
<th>0 Construction/Operating Error</th>
<th>0 Accidentally caused by operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>(continue in Part A)</td>
<td>(continue in Part B)</td>
<td>(continue in Part C)</td>
<td>(continue in Parts B and/or C)</td>
</tr>
</tbody>
</table>

| 0 Other | |

**PART 3 - NARRATIVE DESCRIPTION OF FACTORS CONTRIBUTING TO THE INCIDENT**

(Attach additional sheet(s) as necessary)

**PART 4 - ORIGIN OF THE INCIDENT**

<table>
<thead>
<tr>
<th>1. Part of System Where Incident Occurred</th>
<th>2. Component That Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Main</td>
<td>o Meter Set Assembly</td>
</tr>
<tr>
<td>o Service Line</td>
<td>o Other</td>
</tr>
<tr>
<td>o Body of Pipe</td>
<td>o Regulator/meter</td>
</tr>
<tr>
<td>o Joint, type</td>
<td>o Weld:</td>
</tr>
<tr>
<td>o Drip/Riser</td>
<td>(specify girth, longitudinal, fillet)</td>
</tr>
<tr>
<td>o Other</td>
<td>o Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Material Involved:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Steel</td>
<td>o Cast iron</td>
</tr>
<tr>
<td>o Fitting</td>
<td>o Other</td>
</tr>
<tr>
<td>o Polyethylene plastic</td>
<td>o Other plastic:</td>
</tr>
<tr>
<td>o Other</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NPS (Nominal Pipe Size)</th>
<th>Wall Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ / / / in.</td>
<td>/ / / / in.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Specification</th>
<th>Manufacturer</th>
<th>Year Manuf. / / / /</th>
<th>Year Installed / / / /</th>
</tr>
</thead>
</table>

**PART 5 - ENVIRONMENT**

<table>
<thead>
<tr>
<th>Area of Incident</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Within/Under Building</td>
<td>o Under Pavement</td>
</tr>
<tr>
<td>o Above Ground</td>
<td>o Under Ground or Under Water</td>
</tr>
<tr>
<td>o Other</td>
<td></td>
</tr>
</tbody>
</table>

**PART 6 - PREPARER AND AUTHORIZED SIGNATURE**

<table>
<thead>
<tr>
<th>(type or print) Preparer's Name &amp; Title</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authorized Signature &amp; Date</th>
<th>Telephone Number</th>
</tr>
</thead>
</table>
INCIDENT REPORT — GAS DISTRIBUTION SYSTEM (continued)

PART A - CORROSION

1. Where did the corrosion occur?
   - Internally
   - Externally

2. Visual Description
   - Localized Pitting
   - General Corrosion

3. Cause
   - Galvanic
   - Other

Pipe Coating Information
   - Bare
   - Coated

Was corroded part of pipeline considered to be under cathodic protection prior to discovering incident?
   - Yes
   - No

Additional Information:

PART B - DAMAGE BY OUTSIDE FORCES

Primary Cause of Incident
   - Damage resulted from action of operator or his/her agent
   - Damage resulted from action by outside party/third party
   - Damage by earth movement
     - Subsidence
     - Landslide/Washout
     - Frost
     - Other
   - Damage by lightning or fire

Locating information (for damage resulting from action of outside party/third party)
   a. Did operator get prior notification that equipment would be used in the area?
      - Yes
      - No
       Date received

   b. Was pipeline location marked either as a result of notification or by markers already in place?
      - Yes
      - No
      - Permanent Markers
      - Temporary Stakes
      - Other

   c. Does Statute or ordinance require the outside party to determine whether underground facility(ies) exist?
      - Yes
      - No

Additional Information:

PART C - CONSTRUCTION DEFECT

1. Cause
   - Poor workmanship during construction
   - Operating procedures inappropriate
   - Error in operating procedure application
     - Physical damage during construction
     - Other

2. Additional information:

PART D - OTHER

Brief Description:
Section-N

Personal Protective Equipment (PPE) Program

Introduction

The objective of the Personal Protective Equipment (PPE) Program is to protect employees from the risk of injury by creating a barrier against workplace hazards. Personal protective equipment is not a substitute for good engineering or administrative controls or good work practices, but should be used in conjunction with these controls to ensure the safety and health of employees. Personal protective equipment will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injury and/or illness.

This program addresses eye, face, head, foot, and hand protection. Separate programs exist for respiratory and hearing protection since the need for participation in these programs is established through industrial hygiene monitoring.

- The CDC Personal Protective Equipment Program includes:
- Responsibilities of supervisors, employees, and the Office of Safety
- Hazard assessment and PPE selection
- Employee training
- Recordkeeping requirements

Responsibilities

Supervisors

Supervisors have the primary responsibility for implementation of the PPE Program in their work area. This involves:

- Providing appropriate PPE and making it available to employees.
- Ensuring employees are trained on the proper use, care, and cleaning of PPE.
- Maintaining records on PPE assignments and training.
- Supervising staff to ensure that the PPE Program elements are followed and that employees properly use and care for PPE.
- Seeking assistance from Safety to evaluate hazards.
- Notifying Safety when new hazards are introduced or when processes are added or changed.
- Ensuring defective or damaged equipment is immediately replaced.
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Employees
The PPE user is responsible for following the requirements of the PPE Program. This involves:

- Wearing PPE as required.
- Attending required training sessions.
- Caring for, cleaning, and maintaining PPE as required.
- Informing the supervisor of the need to repair or replace PPE.

Safety Office
The Office Safety is responsible for the development, implementation, and administration of the PPE Program. This involves:

- Conducting workplace hazard assessments to determine the presence of hazards which necessitate the use of PPE.
- Conducting periodic workplace reassessments as requested by supervisors and/or as determined by OHS.
- Maintaining records on hazard assessments.
- Providing training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.
- Providing guidance to the supervisor for the selection and purchase of approved PPE.
- Periodically reevaluating the suitability of previously selected PPE.
- Reviewing, updating, and evaluating the overall effectiveness of the PPE Program.

Program Components

Hazard Assessment and Equipment Selection
OSHA requires employers to conduct inspections of all workplaces to determine the need for personal protective equipment (PPE) and to help in selecting the proper PPE for each tasks performed. For each work site, a certificate must be completed which lists the findings of the inspection and the specific protective equipment needed. These duties will be distributed between the safety Office and supervisors.

The Safety Office, in conjunction with Supervisors, will conduct a walk-through survey of each work area to identify sources of hazards, including impact, penetration, compression, chemical, heat, dust, electrical sources, material handling, and light radiation. Each survey will be documented using the Hazard Assessment Certification Form (Appendix B), which identifies the workplace surveyed, the person conducting the survey, findings of potential hazards, and date of the survey.
Once the hazards of a workplace have been identified, Safety will determine the suitability of the PPE presently available and as necessary select new or additional equipment which ensures a level of protection greater than the minimum required to protect the employees from the hazards. Care will be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each of the hazards will be provided or recommended for purchase.

**Protective Devices**

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and shall be maintained in a sanitary and reliable condition. Only those items of protective clothing and equipment that meet NIOSH or ANSI (American National Standards Institute) standards will be procured or accepted for use. Newly purchased PPE must conform to the updated ANSI standards which have been incorporated into the OSHA PPE regulations, as follows:

- Eye and Face Protection ANSI Z87.1-1989
- Head Protection ANSI Z89.1-1986
- Foot Protection ANSI Z41.1-1991
- Hand Protection There are no ANSI standards for gloves, however, selection must be based on the performance characteristics of the glove in relation to the tasks to be performed.

Careful consideration will be given to comfort and fit of PPE in order to ensure that it will be used. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

**Eye and Face Protection**

Prevention of eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, researchers, contractors, or others passing through an identified eye hazard area. To provide protection for these personnel, Supervisors of such areas shall procure a sufficient quantity of goggles and/or plastic eye protectors which afford the maximum amount of protection possible. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Suitable protectors shall be used when employees are exposed to hazards from flying particles, molten metal, acids or caustic liquids, chemical liquids, gases, or vapors, bio-aerosols, or potentially injurious light radiation.

- Wearers of contact lenses must also wear appropriate eye and face protection devices in a hazardous environment.
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- Side protectors shall be used when there is a hazard from flying objects.
- Goggles and face shields shall be used when there is a hazard from chemical splash.
- Face shields shall only be worn over primary eye protection (safety glasses or goggles).
- For employees who wear prescription lenses, eye protectors shall either incorporate the prescription in the design or fit properly over the prescription lenses.
- Protectors shall be marked to identify the manufacturer.
- Equipment fitted with appropriate filter lenses shall be used to protect against light radiation. Tinted and shaded lenses are not filter lenses unless they are marked or identified as such.

Prescription Safety Eyewear
OSHA regulations require that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses (goggles, face shields) without disturbing the proper position of the prescription lenses or the protective lenses. Personnel requiring prescription safety glasses must contact the Office of Safety to have their request for prescription safety glasses processed.

Emergency Eyewash Facilities
Emergency eyewash facilities meeting the requirements of ANSI Z358.1 will be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities will be located where they are easily accessible in an emergency.

Head Protection
Head protection will be furnished to, and used by, all employees and contractors engaged in construction and other miscellaneous work. Head protection is also required to be worn by engineers, inspectors, and visitors at construction sites when hazards from falling or fixed objects, or electrical shock are present. Bump caps/skull guards will be issued and worn for protection against scalp lacerations from contact with sharp objects. However, they will not be worn as substitutes for safety caps/hats because they do not afford protection from high impact forces or penetration by falling objects.
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**Foot Protection**
Safety shoes shall be worn in the shops, warehouses, maintenance, cage wash, glassware, and other areas as determined by the Safety office. All safety footwear shall comply with ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear."

Safety shoes or boots with impact protection are required to be worn in work areas where carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and for other activities where objects might fall onto the feet. Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual materials handling cars) or other activities in which materials or equipment could potentially roll over an employee’s feet. Safety shoes or boots with puncture protection are required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

**Hand Protection**
Suitable gloves shall be worn when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, biologicals, and harmful temperature extremes are present. Glove selection shall be based on performance characteristics of the gloves, conditions, durations of use, and hazards present. One type of glove will not work in all situations.

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and MSDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and other characteristics (i.e., thickness and permeation rate and time) are known. The Office of Health and Safety can assist in determining the specific type of glove material that should be worn for a particular chemical.

**Selection and Use of PPE in Laboratories**
PPE may be required to reduce the risk of exposure of an employee by contact, inhalation or ingestion of an infectious agent, toxic substance, or radioactive material. For biological agents, the Safety Office, in conjunction with the Lab Supervisor will determine the Biosafety Level for the lab and the appropriate type of PPE required to be worn while working in the lab. Personnel utilizing radioactive materials are required to follow the
requirements for protective equipment and clothing provided by the CDC Radiation Safety Manual and the Radiation Safety Officer.

**Laboratory Coats and Gowns**
The lab coat can be used to protect street clothing against biological or chemical spills as well as to provide some additional body protection. The specific hazard(s) and the degree of protection required must be known before selecting coats for lab personnel.

The CDC/NIH guidelines (BMBL) for biocontainment practices recommend the use of a lab coat, gown, smock, or uniform while working in BSL2 laboratories. They further recommend solid-front or wrap-around gowns, scrub suits, or coveralls.

**Foot Protection**
Safety shoes should be worn in any area where there is a significant risk of dropping heavy objects on the foot. For general biological lab use, comfortable shoes such as tennis shoes or nurses shoes are used extensively. Sandals and other types of open-toed shoes are not permitted in labs using biohazards or chemicals, due to the potential exposure to infectious agents or toxic materials as well as physical injuries associated with the work.

Boots, shoe covers, or other protective footwear, and disinfectant footbath may be required for work in BSL3 labs.

**Face shields and Eye Protection**
Face shields and goggles should be worn whenever procedures with a high potential for creating aerosols are conducted. These include necropsy of infected animals, harvesting of tissues, or fluids from infected animals and manipulations of high concentrations or large volumes of infectious materials. Appropriate eye and face protection should also be worn by all personnel entering animal rooms housing non-human primates.

**Gloves**
Gloves are worn in labs and animal rooms when handling infected animals and when skin contact with infectious materials, including blood and body fluids, is unavoidable.

**Cleaning and Maintenance**
It is important that all PPE be kept clean and properly maintained. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE should be inspected, cleaned, and maintained at regular intervals so that the PPE provides the requisite protection. Personal protective equipment shall not be shared between employees until
it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible.

It is also important to ensure that contaminated PPE which cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

Training
Any worker required to wear PPE shall receive training in the proper use and care of PPE. Periodic retraining shall be offered by OHS to both the employees and the supervisors, as needed. The training shall include, but not necessarily be limited to, the following subjects:

- When PPE is necessary to be worn.
- What PPE is necessary
- How to properly don, doff, adjust, and wear PPE.
- The limitations of the PPE.
- The proper care, maintenance, useful life and disposal of the PPE.

After the training, the employees shall demonstrate that they understand the components of the PPE Program and how to use PPE properly, or they shall be retrained.

Recordkeeping
Written records shall be kept of the names of persons trained, the type of training provided, and the dates when training occurred. The Supervisor shall maintain their employees’ training records for at least 3 years. The Office of Health and Safety shall maintain the Hazard Assessment Certification Form for each work site evaluated for at least 3 years.

REFERENCES

American National Standards Institute, American National Standard ANSI Z87.1-1989, "Practice for Occupational and Educational Eye and Face Protection".

American National Standards Institute, American National Standard ANSI Z89.1-1986, "Safety Requirements for Industrial Head Protection".

OSHA Standard 29 CFR 1910.132, "General Requirements"

OSHA Standard 29 CFR 1910.133, "Eye and Face Protection"
APPENDIX A
General Guidelines for Choosing Personal Protective Equipment

1. Description and Use of Eye/Face Protectors
   a. Safety Glasses. Protective eyeglasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, scaling, etc. Safety glasses are also available in prescription form for those persons who need corrective lenses.
   b. Single Lens Goggles. Vinyl framed goggles of soft pliable body design provide adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.
   c. Welders/Chippers Goggles. These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.
      i. Welders goggles provide protection from sparking, scaling, or splashing metals and harmful light rays. Lenses are impact resistant and are available in graduated shades of filtration.
      ii. Chippers/Grinders goggles provide eye protection from flying particles. The dual protective eye cups house impact resistant clear lenses with individual cover plates.
   d. Face Shields. These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be
used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/biological splash.

a. Welding Shields. These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. These shields will be provided to protect workers’ eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.

Eye and Face Protection Selection Chart

<table>
<thead>
<tr>
<th>Source</th>
<th>Assessment of Hazard</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMPACT</strong> - Chipping,</td>
<td>Flying fragments,</td>
<td>Spectacles with side protection, goggles, face shields.</td>
</tr>
<tr>
<td>grinding, machining,</td>
<td>objects, large chips,</td>
<td>For severe exposure, use face shield over primary eye</td>
</tr>
<tr>
<td>drilling, chiseling,</td>
<td>particles, sand, dirt,</td>
<td>protection.</td>
</tr>
<tr>
<td>riveting, sanding, etc</td>
<td>etc.</td>
<td></td>
</tr>
<tr>
<td><strong>CHEMICALS</strong> - Acid and</td>
<td>Splash</td>
<td>Goggles, eyecup and cover types.</td>
</tr>
<tr>
<td>chemicals handling</td>
<td></td>
<td>For severe exposure, use face shield over primary eye</td>
</tr>
<tr>
<td></td>
<td>Irritating mists</td>
<td>protection. Special-purpose goggles</td>
</tr>
<tr>
<td><strong>DUST</strong> - Woodworking,</td>
<td>Nuisance dust</td>
<td>Goggles, eyecup and cover types.</td>
</tr>
<tr>
<td>buffing, general dusty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LIGHT and/or RADIATION</strong></td>
<td>Optical radiation</td>
<td>Welding helmets or welding shields. Typical shades: 10-14</td>
</tr>
<tr>
<td>Welding - electric arc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welding – gas</td>
<td>Optical radiation</td>
<td>Welding goggles or welding face shield.</td>
</tr>
</tbody>
</table>
2. Head Protection

Head injuries are caused by falling or flying objects, or by bumping the head against a fixed object. Head protectors, in the form of protective hats, must resist penetration and absorb the shock of a blow. The shell of the protective hat is hard enough to resist the blow and the headband and crown straps keep the shell away from the wearer’s skull. Protective hats can also protect against electrical shock.

Protective hats are made in the following types and classes:

- **Type I** - Helmets with a full brim.
- **Type 2** - Brimless helmets with a peak extending forward from the crown.
- **Class A** - General service, limited voltage. Intended for protection against impact hazards. Used in mining, construction, and manufacturing.
- **Class B** - Utility service, high voltage. Used by electrical workers.
- **Class C** - Special service, no voltage protection. Designed for lightweight comfort and impact protection. Used in certain construction, manufacturing, refineries, and where there is a possibility of bumping the head against a fixed object.

3. Foot Protection

There are many types and styles of protective footwear and it’s important to realize that a particular job may require additional protection other than listed here. Footwear that meets established safety standards will have an American National Standards Institute (ANSI) label inside each shoe.
a. Steel-Reinforced Safety Shoes. These shoes are designed to protect feet from common machinery hazards such as falling or rolling objects, cuts, and punctures. The entire toe box and insole are reinforced with steel, and the instep is protected by steel, aluminum, or plastic materials. Safety shoes are also designed to insulate against temperature extremes and may be equipped with special soles to guard against slip, chemicals, and/or electrical hazards.

b. Safety Boots. Safety boots offer more protection when splash or spark hazards (chemicals, molten materials) are present:
   i. When working with corrosives, caustics, cutting oils, and petroleum products, neoprene or nitrile boots are often required to prevent penetration.
   ii. Foundry or "Gaiter" style boots feature quick-release fasteners or elasticized insets to allow speedy removal should any hazardous substances get into the boot itself.
   iii. When working with electricity, special electrical hazard boots are available and are designed with no conductive materials other than the steel toe (which is properly insulated).

4. Hand Protection
   Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or any combination thereof.
   Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overtly contaminated should be rinsed and then carefully removed after use.
   Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The types of glove materials to be used in these situations include leather, welder’s gloves, aluminum-backed gloves, and other types of insulated glove materials.
   Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or
other moving parts. To protect hands from injury due to contact with moving parts, it is important to:

- Ensure that guards are always in place and used.
- Always lock-out machines or tools and disconnect the power before making repairs.
- Treat a machine without a guard as inoperative; and
- Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

The following is a guide to the most common types of protective work gloves and the types of hazards they can guard against:

a. Disposable Gloves. Disposable gloves, usually made of light-weight plastic, can help guard against mild irritants.

b. Fabric Gloves. Made of cotton or fabric blends are generally used to improve grip when handling slippery objects. They also help insulate hands from mild heat or cold.

c. Leather Gloves. These gloves are used to guard against injuries from sparks or scraping against rough surfaces. They are also used in combination with an insulated liner when working with electricity.

d. Metal Mesh Gloves. These gloves are used to protect hands from accidental cuts and scratches. They are used most commonly by persons working with cutting tools or other sharp instruments.

e. Aluminized Gloves. Gloves made of aluminized fabric are designed to insulate hands from intense heat. These gloves are most commonly used by persons working with molten materials.

f. Chemical Resistance Gloves. These gloves may be made of rubber, neoprene, polyvinyl alcohol or vinyl, etc. The gloves protect hands from corrosives, oils, and solvents. The following table is provided as a guide to the different types of glove materials and the chemicals they can be used against. When selecting chemical resistance gloves, be sure to consult the manufacturers’ recommendations, especially if the gloved hand will be immersed in the chemical.
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### Glove Chart

<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Use Against</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural rubber</strong></td>
<td>Low cost, good physical properties, dexterity</td>
<td>Poor vs. oils, greases, organics. Frequently imported; may be poor quality</td>
<td>Bases, alcohols, dilute water solutions; fair vs. aldehydes, ketones.</td>
</tr>
<tr>
<td><strong>Natural rubber blends</strong></td>
<td>Low cost, dexterity, better chemical resistance than natural rubber vs. some chemicals</td>
<td>Physical properties frequently inferior to natural rubber</td>
<td>Same as natural rubber</td>
</tr>
<tr>
<td><strong>Polyvinyl chloride (PVC)</strong></td>
<td>Low cost, very good physical properties, medium cost, medium chemical resistance</td>
<td>Plasticizers can be stripped; frequently imported may be poor quality</td>
<td>Strong acids and bases, salts, other water solutions, alcohols</td>
</tr>
<tr>
<td><strong>Neoprene</strong></td>
<td>Medium cost, medium chemical resistance, medium physical properties</td>
<td>NA</td>
<td>Oxidizing acids, anilines, phenol, glycol ethers</td>
</tr>
<tr>
<td><strong>Nitrile</strong></td>
<td>Low cost, excellent physical properties, dexterity</td>
<td>Poor vs. benzene, methylene chloride, trichloroethylene, many ketones</td>
<td>Oils, greases, aliphatic chemicals, xylene, perchloroethylene, trichloroethane; fair vs. toluene</td>
</tr>
<tr>
<td><strong>Butyl</strong></td>
<td>Speciality glove, polar</td>
<td>Expensive, poor vs. hydrocarbons,</td>
<td>Glycol ethers,</td>
</tr>
</tbody>
</table>
Personal Protective Equipment (PPE) Program

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Neoprene</th>
<th>Natural Latex or Rubber</th>
<th>Butyl</th>
<th>Nitrile Latex</th>
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</thead>
<tbody>
<tr>
<td>*Acetaldehyde</td>
<td>VG</td>
<td>G</td>
<td>VG</td>
<td>G</td>
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<tr>
<td>Acetic acid</td>
<td>VG</td>
<td>VG</td>
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<td>*Acetone</td>
<td>G</td>
<td>VG</td>
<td>VG</td>
<td>P</td>
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<tr>
<td>Ammonium hydroxide</td>
<td>VG</td>
<td>VG</td>
<td>VG</td>
<td>VG</td>
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<tr>
<td>*Amyl acetate</td>
<td>F</td>
<td>P</td>
<td>F</td>
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<tr>
<td>Aniline</td>
<td>G</td>
<td>F</td>
<td>F</td>
<td>P</td>
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<tr>
<td>*Benzaldehyde</td>
<td>F</td>
<td>F</td>
<td>G</td>
<td>G</td>
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<td>*Benzene</td>
<td>F</td>
<td>F</td>
<td>F</td>
<td>P</td>
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<tr>
<td>Butyl acetate</td>
<td>G</td>
<td>F</td>
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<td>P</td>
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*Trademark of DuPont Dow Elastomers
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<thead>
<tr>
<th>Substance</th>
<th>Natural Latex</th>
<th>VG</th>
<th>VG</th>
<th>VG</th>
<th>VG</th>
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<tbody>
<tr>
<td>Butyl alcohol</td>
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<td>Carbon disulfide</td>
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<td>*Carbon tetrachloride</td>
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<td>Castor oil</td>
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<tr>
<td>*Chlorobenzene</td>
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<td>*Chloroform</td>
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<tr>
<td>Chloronaphthalene</td>
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<td>Chromic Acid (50%)</td>
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<td>Citric acid (10%)</td>
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<tr>
<td>Cyclohexanol</td>
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<td>*Dibutyl phthalate</td>
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<td>Diesel fuel</td>
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<td>Diisobutyl ketone</td>
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<td>Dimethylformamide</td>
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<td>Dioctyl phthalate</td>
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<td>Dioxane</td>
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<td>Epoxy resins, dry</td>
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<tr>
<td>*Ethyl acetate</td>
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<td>Ethyl alcohol</td>
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<td>Ethyl ether</td>
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<td>*Ethylene dichloride</td>
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<td>Ethylene glycol</td>
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<td>Formaldehyde</td>
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### Section-N

**Personal Protective Equipment (PPE) Program**

<table>
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<tr>
<th>Chemical</th>
<th>Neoprene (VG)</th>
<th>or Rubber (VG)</th>
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<td>Natural Latex or Rubber</td>
<td>Butyl</td>
<td>Nitrile</td>
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<td>--------------------------------</td>
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<td>Styrene</td>
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<td>P</td>
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<td>F</td>
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<tr>
<td>Toluene diisocyanate</td>
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<td>G</td>
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<td>*Trichloroethylene</td>
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<td>Tung oil</td>
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<td>VG</td>
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<tr>
<td>*Xylene</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>F</td>
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</tbody>
</table>

*Limited service

VG = Very Good  G = Good  F = Fair  P = Poor (not recommended)
Hazard Assessment Certification Form

Date: __________________________ Location: __________________________

Assessment Conducted By: ________________________________________

Specific Tasks Performed at this Location: __________________________

**Overhead Hazards**

Hazards to consider include:

- Suspended loads that could fall
- Overhead beams or loads that could be hit against
- Energized wires or equipment that could be hit against
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified: _______________________________________________

_______________________________________________________________

_______________________________________________________________

**Head Protection**

Hard Hat: ___ Yes   ___ No

___ Type A (impact and penetration resistance, plus low-voltage electrical insulation)

___ Type B (impact and penetration resistance, plus high-voltage electrical insulation)

___ Type C (impact and penetration resistance)

**Eye and Face Hazards**

Hazards to consider include:

- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations
- Lasers/optical radiation
- Bioaerosols
- Projectiles
Section-N
Personal Protective Equipment (PPE) Program

Hazards Identified: _______________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Eye Protection
Safety glasses or goggles: ___ Yes _____ No
Face shield: ___ Yes _____ No

Hand Hazards
Hazards to consider include:

- Chemicals
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material handling

Hazards Identified: _______________________________________________
_________________________________________________________________
_________________________________________________________________

Hand Protection
Gloves: ___ Yes _____ No

_____ Chemical resistant
_____ Temperature resistant
_____ Abrasion resistant
_____ Other (Explain) _____________________________________________

Foot Hazards
Hazards to consider include:

- Heavy materials handled by employees
- Sharp edges or points (puncture risk).
- Exposed electrical wires
- Biological agents
- Unusually slippery conditions
- Wet conditions
- Construction/demolition
Section-N

Personal Protective Equipment (PPE) Program

Hazards Identified: __________________________________________________________
________________________________________________________________________
________________________________________________________________________

Foot Protection
Safety shoes: _____Yes       _____No

_____ Toe protection
_____ Metatarsal protection
_____ Puncture resistant
_____ Electrical insulation
_____ Other (Explain) _______________________________________________________

Other Identified Safety and/or Health Hazards
Hazard: ________________________________________________________________

Recommended Protection: ________________________________________________
________________________________________________________________________

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on ____________.

Signature: ________________________________
Section-O

Roof Labor

Training
Each department head whose employees are required to perform duties on roofs shall insure that they receive safety training and comply with the minimum standards as specified in this document.

Catch Platforms
Each department head whose employees are required to perform duties on roofs shall insure that they receive safety training and comply with the minimum standards as specified in this document.

Safety Belts, Lifelines, and Lanyards
1. Where catch platforms are not in place, employees performing duties on a roof more than 20 feet from ground to eaves without a parapet, or 16 feet from ground to eaves with a slope greater than 4 inches in 12 inches without a parapet, shall be secured by an approved safety belt attached to a lifeline.

2. The safety belt lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

3. Lifelines shall be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds. One employee acting as anchor for another does not fulfill this requirement.

4. Lifelines used in areas where they may be subjected to cutting or abrasion shall be a minimum of 7/8-inch wire core manila rope. For all other lifeline applications, a minimum of 3/4-inch manila or equivalent, with a minimum breaking strength of 5,400 pounds, shall be used.

5. Lifelines, safety belts, and lanyards shall be used only for employee safeguarding. Ropes used for hoisting lines and other purposes shall not be used as lifelines. Any lifeline, safety belt, or lanyard actually subjected to in-service loading, as distinguished from static testing, shall be immediately removed from employee safeguarding.

Safety Nets
Where the use of ladders, scaffolds, catch platforms, temporary floors, safety lines, or safety belts is impractical, safety nets shall be provided when workplaces are more than 20 feet above the ground, water, or other surface.
Roofing Brackets
Roofing brackets shall be constructed to fit the pitch of the roof.

In addition to the pointed metal projections, brackets shall be secured by nailing in place. The nails shall be driven full length into the roof. When rope supports are used, they shall consist of first-grade manila of at least 3/4-inch diameter, or equivalent.

Crawling Boards or Chicken Ladders
Crawling boards shall not be less than 10 inches wide and one inch thick, having cleats 1 x 1-1/2 inches. The cleats shall be equal in length to the width of the board and spaced at equal intervals not to exceed 24 inches. Nails shall be driven through and clinched on the underside. The crawling board shall extend from the ridge pole to the eaves when used in connection with roof construction, repair, or maintenance.

A firmly fastened lifeline of at least 3/4-inch rope shall be strung beside each crawling board for a handhold.

Crawling boards shall be secured to the roof by means of adequate ridge hoods or equivalent effective means.

Use of Hoisting Lines
1. When hoisting lines are used to raise tools or materials to a roof greater than 16 feet from ground to eaves without a parapet (or with a parapet less than 30 inches in height), the employee on the roof shall be secured by an approved safety belt attached to a lifeline.
2. The safety belt lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,400 pounds.

Work Site Isolation
Prior to the start of roof construction, repair, or maintenance, the crew chief, foreman, or person in charge of the project shall insure that the area below the work site is isolated against entry by the use of barrier tape or other means.

If means of egress are to be blocked by ladders, scaffolds, or other equipment, or to isolate below a work site, prior approval must be obtained from an Environmental Health Services Department.
Personal Protective Equipment
Employees involved in roof construction, repair, or maintenance operations shall use appropriate personal protective equipment including, but not limited to, hard hats, eye protection, and leather gloves.

Weather
Employees shall not be involved in construction, repair, or maintenance operations on roofs during periods of high winds (such as when a wind advisory has been issued), lightning storms, snow storms, or other potentially hazardous weather conditions.

References
29 CFR 1910.28 (T)  Crawling boards or chicken ladders
29 CFR 1926.451 (U)  Roofing brackets
29 CFR 1926.104  Safety belts, lifelines, and lanyards
29 CFR 1926.105  Safety nets
29 CFR 1910.28 (S)  Roofing brackets
29 CFR 1926.451 (U) (3)  Catch platforms
Introduction
In most cases, the initial first aid treatment for a chemical splash is to rinse the affected area with water for at least 15 minutes prior to seeking any other medical treatment. It is often critical that the eyes be flushed during the first few seconds following a chemical splash if injury is to be minimized.

Scope and Application
The Occupational Safety and Health Administration (OSHA) requires that suitable means for flushing and quick drenching of the eyes and body must be provided in any area where corrosive materials are used. Departments that have areas where corrosive materials are used are responsible for ensuring that emergency eyewash stations and safety showers are installed and maintained.

Program Description
Maintenance and Testing
Eyewash units and safety showers must be available for immediate emergency use. For this reason, they must be flushed and tested monthly. All necessary repairs must be carried out promptly. The Maintenance Department’s Supervisors are responsible for the care and maintenance of these units.

Training
Emergency eyewash stations and safety showers have been provided in the many areas where corrosive materials are used. Those whose work involves the use of corrosive materials should be made aware of the location of these units and instructed to use them if needed. General training in eyewash and safety shower use is included in other programs, such as the training provided for Hazard Communication and the Laboratory Standard.

Roles and Responsibilities
Department
- Install emergency eyewash stations and safety showers as needed.
- Ensure units are tested and maintained.
- Provide workers with training.
Emergency Eyewash and Safety Showers

Supervisors
- Ensure workers are trained.
- Ensure workers know the location of the units nearest their work areas.
- Ensure that units are flushed, tested and maintained.

Safety Office
- Provide general training to workers.
- Provide periodic audits.

Special Facilities Supervisors
- Flush, test, and maintain units in assigned areas.

Individual
- Attend training.
- Use emergency eyewash and/or safety shower for initial treatment following a chemical splash to the eyes, face, or body.

For More Information
Contact Safety Office at 745-2868.

Section-Q
Fire Safety Plan

Date issued: Updated/December 2006

Authority:

C. Emergency Preparedness and Crisis Management Plan
D. International Fire Code Chapter 4

General Policy
Fire safety standards promulgated by OSHA are contained in 29 CFR 1910.38, Fire Prevention, and in Subpart L, 29 CFR 1910.155-165, Fire Detection, Alarms and Suppression. The standards mandate that Southeastern Oklahoma State University develop and implement a fire safety plan that includes:

- determining the response level to incipient stage fires;
- developing a plan based on selected response level; and,
- maintaining fire detection, alarm, and suppression systems.

This policy applies to University employees in all departments

University employees are required to read and understand the contents of the University Fire Safety Plan and to take appropriate action in the event of a fire emergency in any university facility.

Definitions

A. University employee. Any faculty, staff, or student employee who receives compensation from the University for his/her employment and who is covered under Oklahoma Bureau of Worker’s Compensation.

B. Incipient stage fire. A fire in the initial or beginning stage that can be controlled by using a portable fire extinguisher and that does not require using protective equipment.

C. Area of rescue assistance. Designated areas of protection on floors of a building above ground level where individuals who physically cannot use the stairways for evacuation are to wait for rescue
assistance ... refer to section Emergency Action Plan: Employee Responsibilities g- 4, most of the hallways, in the buildings made of concrete blocks are two (2) hour fire partition. If a building is fully sprinkled any point in the building is an area of refuge.

D. **Designated personnel.** University employees who have received annual training on the proper use of portable fire extinguishers.

**Response Level**
OSHA provides three options for the response level to incipient stage fires.

1. **Option A.** Requires all employees to evacuate the workplace when a fire alarm sounds.
2. **Option B.** Provides portable fire extinguishers and designates certain employees to use them to fight incipient stage fires.
3. **Option C.** Provides portable fire extinguishers and permits all employees to fight incipient stage fires.

The University has elected to exercise OSHA Option B whereby university personnel (on a voluntary basis) are designated to fight incipient stage fires. "Designated personnel" are employees of the Departments of Police and Safety, Transportation, Physical Plant, academic/research laboratory supervisors; Residence Life and University employees in selected specialty work areas (CERT trained personnel).

By electing to exercise OSHA Option B, the university has provided a copy of the University Fire Safety Plan to each employee and has instructed all employees not designated that they must take no action to fight an incipient stage fire and must evacuate a building immediately when a fire alarm sounds.

**Emergency Action Plan**

A. All University employees must be notified of the elements of the Emergency Action Plan contained in the University Fire Safety Plan. All University employees are required to fulfill those elements.

B. All employees are expected to read and understand the information presented in the Emergency Action Plan, particularly their responsibilities regarding identifying building exits and knowing when to activate a fire alarm and what action to take following activation of an alarm, i.e., identifying to the responding emergency response personnel the location of the alarm station activated and the location of the fire/smoke.

C. All employees are required to notify the Campus Police Department 745-2727 of any class cancellation or of a Special event.
Emergency Action Plan: Employee Responsibilities

A. **Fighting incipient stage fires in university buildings.** If a University employee is not a designated employee who has received the required training in using portable fire extinguishers, he/she is responsible for activating the nearest fire alarm and immediately exiting the building in the event of a suspected or observed fire. Under no circumstances should the employee attempt to extinguish the fire.

B. **Emergency procedures and escape route assignment.** University employees are responsible for determining the location of the closest exit from the work area that leads to the outside of the building. This is the primary emergency exit. University employees also are responsible for determining the location of a secondary exit from the work area, in the event that the primary exit is not accessible. All outer doors will be marked as an EXIT. Evacuation route plans are posted. Alternated routes should be planned for encase primary route is blocked.

C. **Procedures to be followed by employees who remain in a building to conduct critical plant operations.** Employees who are required and permitted by the responding fire department to remain in a building to conduct critical plant operations should perform their duties only if they are not in the smoke/fire area. Employees should never risk injury when performing work related duties.

D. **Procedures to account for all employees after an emergency evacuation have been completed.** Supervisors or employees in lead positions are required to develop a procedure to account, to the maximum degree possible, for all employees, students, and visitors after an emergency evacuation has been completed. The procedure should designate an area outside the building to which employees, students, and visitors should report during an emergency evacuation.

E. **Rescue and medical duties.** Rescue and medical treatment for injured employees will be provided by the responding fire department and ambulance services. On the SOSU Campus, Southeastern Oklahoma State University police officers will assist responding fire department personnel.

F. **Preferred means for reporting fires.** The preferred means for reporting a fire is by using the fire alarm system in a building. As quickly as possible after activating a fire alarm pull station are located approximately 5 feet from the entrance to each exit, employees are responsible for meeting responding police officers
and/or fire department personnel and identifying the location of the alarm activated and the location of smoke and/or fire.

G. **Safe and orderly evacuation of building occupants.** The following procedures represent acceptable guidelines for ensuring the safe and orderly evacuation of building occupants. Fire evacuation route plans are posted in all building and in dorm rooms.

1. Building occupants are **not** to use elevators.
2. Building occupants are to use the primary emergency exit whenever accessible. When the primary emergency exit is not accessible, building occupants are to use the secondary emergency exit. Occupants evacuating the building should go immediately to the designated meeting point away from the building. Supervisors or employees in lead positions should account, to the maximum degree possible, for employees, students, and visitors.
3. Building occupants are to assist individuals with disabilities (non-wheelchair) in exiting the building.
4. Building occupants who use wheelchairs and are on floors above ground level are to go to the closest enclosed stairwell. A faculty or staff member shall remain with building occupants who use wheelchairs until a rescue is completed or the emergency is terminated. Faculty or staff shall assign three (3) individuals to assist in the evacuation of wheelchair persons. One in front and one on each side, obtaining information from the wheelchair person, as to the best way to assist him/her, is important.
5. **No individuals, regardless of physical limitations, are to stay in tunnels connected to the building in which the fire alarm has been activated.**
6. The responding fire department personnel or police officers are to be informed as soon as possible of the number and location of building occupants who use wheelchairs. Refer to Emergency Evacuation list.
7. Building occupants are not to reenter affected building(s) until permitted to do so by local fire department personnel or by the responding law enforcement officers. Doors should be locked to keep personnel/students from reentering the building or faculty should be located at each door to stop individuals from entering buildings.
Emergency Action Plan: Building Fire Alarm System

A. All University owned facilities of general occupancy are equipped with fire alarm systems. Personnel in the Communications Center are responsible for notifying the Durant Fire Department, which has jurisdiction for the SOSU Campus.

B. Using a building fire alarm system normally is restricted to situations where smoke and/or fire has been observed. In situations where an odor (i.e., chemical, electrical, natural gas, etc.) is detected, employees are to observe the following procedures.

   a. Employees on the SOSU Campus are to notify the Campus Police at 745-2727. Campus police will notify Director of Residence Life 745-2948 or the Dorm Manager on duty.

   b. Responding personnel will determine the necessary response and the immediate disposition of building occupants. Should evacuation be necessary, instructions will be given and supplemented by verbal directions from on-the-scene emergency response personnel.

   c. When fire and/or smoke are not evident, the emergency response personnel (University Police and Safety, and Physical Plant) will activate the fire alarm system when they determine that a fire is imminent and immediate evacuation is required and when they determine that the alarm can be activated without danger of causing an explosion. The Durant Fire Department will be notified. The decision to activate a building fire alarm system when there is a detected odor but no visual sighting of fire and/or smoke will be made only at the discretion of emergency personnel.

   d. During normal work hours (8:00 am until 5:00 pm), University employees will notify the building manager, Police and Safety, and/or maintenance personnel of a detected odor (i.e., chemical, electrical, natural gas, etc.). The building manager, Police and Safety, and/or maintenance personnel are responsible for conducting a search of the building and for making the determination whether or not to notify the designated fire department and to activate the fire alarm system. If any questions arise as to the seriousness of the situation, the building manager, Police and/or Safety officer, and/or maintenance personnel are not to hesitate in ordering an immediate evacuation of the building. If there should be any concerns about an explosive mixture from
chemical or natural gas concentrations in the air, the fire alarm is not to be activated.

e. Outside normal work hours, employees are responsible for notifying the SOSU Campus police and immediately evacuating the building.

Upon hearing a building fire alarm, all occupants must evacuate the building immediately. Faculty members and instructors are required to cease instruction and assist students in exiting the building. The only exception for remaining in the building applies to "designated personnel" who are required to operate or shut down critical systems. Should smoke and/or fire be in the area of a critical system, "designated personnel" also shall immediately evacuate the building and report to their respective supervisors.

A. The individual(s) activating the fire alarm is responsible, after evacuating the building, for meeting responding fire department personnel and/or police officers and identifying the location of the smoke and/or fire.

B. University personnel are to notify the maintenance department or the Police and Safety office of any known areas within a building where the fire alarm appears not to be working or cannot be heard over ambient noise. Any system that is not operating properly is to be repaired immediately.

C. National and local fire codes require that all manually operated pull stations be unobstructed, conspicuous, and readily accessible.

D. It is the responsibility of a Police and Safety personnel to ensure that the fire alarm and public address systems are operational at all times. Any questions regarding maintenance or testing of those systems can be directed to the University Department of Police and Safety.

Training

The information contained meets the International Fire Code, Life Safety Code and OSHA requirements for training all employees not designated to remain in a building and fight incipient stage fires. The Department of Police and Safety will be the lead department in identifying designated personnel and in completing initial and refresher training in using portable fire extinguishers.
Section-R

General Shop Safety

Safety Glasses
EVERYONE MUST WEAR SAFETY GLASSES IN THE SHOP.

Even when you're not working on a machine, you must wear safety glasses. A chip from a machine someone else is working on could fly into your eye.

Clothes and Hair
Check your clothes and hair before you walk into the shop. In particular:

- If you have long hair or a long beard, tie it up. If your hair is caught in spinning machinery, it will be pulled out if you're lucky. If you're unlucky, you will be pulled into the machine.
- No loose clothing Ties, scarves, loose sleeves, etc. are prohibited
- No gloves
- Remove jewelry
- Wear appropriate shoes No open toed sandals. Wear shoes that give a sure footing. If you are working with heavy objects, steel toes are recommended.

Safe Conduct in the Shop
- Be aware of what's going on around you. For example, be careful not to bump into someone while they're cutting with the bandsaw (they could lose a finger!).
- Concentrate on what you're doing. Don't do any work if you're tired.
- Don't hurry. If you catch yourself rushing, slow down.
- Don't rush speeds and feeds or else you'll end up damaging your part, the tools, and maybe the machine itself.
- Listen to the machine. If something doesn't sound right, turn the machine off.
- Don't let someone else talk you into doing something dangerous.
- Don't attempt to measure a part that's moving.

Machining
IF YOU DON'T KNOW HOW TO DO SOMETHING -- ASK!

- Before you start the machine:
  - Study the machine. Know which parts move, which are stationary, and which are sharp.
  - Double check that your work piece is securely held.
  - Remove chuck keys and wrenches.
- Don't leave machines running unattended!
- **Clean up machines after you use them!** A dirty machine is unsafe and uncomfortable to work on. Do not use compressed air to blow machines clean. This endangers people's eyes and can force dirt into machine bearings.
Section-S

Excavation

Scope & Application
This policy sets forth the official practices required for excavations made by Southeastern Oklahoma State University employees on property owned by Southeastern Oklahoma State University.

Definitions

Aluminum hydraulic shoring
An engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces), used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such a system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Benching
A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in
The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Competent person
One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. All competent persons must complete the 4-hour Physical Plant trenching and shoring class, successfully pass the exam, and be certified for successful completion of the class. A competent person should have and be able to demonstrate the following:

A. Training, experience, and knowledge of:
   a. soil analysis,
   b. use of protective systems, and
   c. requirements of 29 CFR 1926 Subpart P.

B. Ability to detect:
   a. conditions that could result in cave-ins,
   b. failures in protective systems,
c. hazardous atmospheres, and
d. other hazards including those associated with confined spaces.

C. Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

**Excavation**
Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

**Registered professional engineer**
A person who is registered as a professional engineer.

**Shield (shield system)**
A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees with the structure. Shields can be permanent structure or can be designed to be portable and moved along as work progresses. Also known as trench box or trench shield.

**Shoring (shoring system)**
A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

**Sloping (sloping system)**
A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

**Trench (trench excavation)**
A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, the excavation is also considered to be a trench.

**General Requirements**
All excavations shall be made in accordance with the rules, regulations, requirements, and guidelines set forth in 29 CFR 1926.650, .651, and .652; the Occupational Safety and Health Administration's standard on Excavations, except where otherwise noted below.
Procedures
- A competent person shall be placed in charge of all excavations.
- Underground utilities must be located and marked before excavation begins.
- Employees are not allowed in the excavation while heavy equipment is digging.

Inspections
The competent person shall conduct inspections:

- Daily and before the start of each shift.
- As dictated by the work being done in the trench.
- After every rain storm.
- After other events that could increase hazards, such as snowstorm, windstorm, thaw, earthquake, dramatic change in weather, etc.
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur.
- When there is a change in the size, location, or placement of the spoil pile.
- When there is any indication of change or movement in adjacent structures.

(For excavations 4 feet or greater in depth, a trench inspection form shall be filled out for each inspection.)

Soil Types
**Type A** - Most stable: clay, silty clay, and hardpan (resists penetration). No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, or has seeping water.

**Type B** - Medium stability: silt, sandy loam, medium clay and unstable dry rock; previously disturbed soils unless otherwise classified as Type C; soils that meet the requirements of Type A soil but are fissured or subject to vibration.

**Type C** - Least stable: gravel, loamy sand, soft clay, submerged soil or dense, heavy unstable rock, and soil from which water is freely seeping.

**Layered geological strata** (where soils are configured in layers) - The soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e. where a Type C soil rests on top of stable rock.
Because most excavations on SOSU property will be conducted in order to repair / replace existing pipelines or equipment (i.e. the soil has been previously disturbed), excavations shall be made to meet the requirements for **Type B** or **Type C** soils only, as appropriate.

**Testing Methods**

The competent person in charge of the excavation shall be responsible for determining whether the soil is Type B or C. If the competent person wants to classify the soil as Type C, they do not need to do any tests. However, tests must be conducted to determine if the soil can be classified as Type B. To do this, the competent person shall use a visual test coupled with one or more manual tests.

**Visual test**

In addition to checking the items on the trench inspection form, the competent person should perform a visual test to evaluate the conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. The competent person also checks for any signs of vibration.

During the visual test, the competent person should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has been previously disturbed, and, if so, what sort of backfill was used, and observe the open side of the excavation for indications of layered geologic structuring.

This person should also look for signs of bulging, boiling, or sloughing, as well as for signs of surface water seeping from the sides of the excavation or from the water table.

In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

**Manual tests**

**Thumb penetration test**

Attempt to press the thumb firmly into the soil in question. If the thumb penetrates no further than the length of the nail, it is probably Type B soil. If the thumb penetrates the full length of the thumb, it is Type C. It should be noted that the thumb penetration test is the least accurate testing method.
Dry strength test
Take a sample of dry soil. If it crumbles freely or with moderate pressure into individual grains it is considered granular (Type C). Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty) it is probably clay in combination with gravel, sand, or silt (Type B).

Plasticity or Wet Thread Test
Take a moist sample of the soil. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by two inches in length. If the soil sample does not break when held by one end, it may be considered Type B.

A pocket penetrometer, shearvane, or torvane may also be used to determine the unconfined compression strength of soils.

Spoil
Temporary spoil shall be placed no closer than 2 feet from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

Permanent spoil should be placed some distance from the excavation.

Surface Crossing of Trenches
Surface crossing of trenches should not be made unless absolutely necessary. However, if necessary, they are only permitted under the following conditions:

- **Vehicle crossings** must be designed by and installed under the supervision of a registered professional engineer.
- **Walkways or bridges** must:
  - have a minimum clear width of 20 inches,
  - be fitted with standard rails, and
  - extend a minimum of 24 inches past the surface edge of the trench.
**Ingress and Egress**
Trenches 4 feet or more in depth shall be provided with a fixed means of egress.

Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 feet laterally to the nearest means of egress.

Ladders must be secured and extend a minimum of 36 inches above the landing.

Metal ladders should not be used when electric utilities are present.

**Exposure to Vehicles**
Employees exposed to vehicular traffic shall be provided with and required to wear reflective vests or other suitable garments marked with or made of reflectorized or high-visibility materials.

Trained flag persons, signs, signals, and barricades shall be used when necessary.

**Exposure to Falling Loads**
All employees on an excavation site must wear hard hats.

Employees are not allowed to work under raised loads.

Employees are not allowed to work under loads being lifted or moved by heavy equipment used for digging or lifting.

Employees are required to stand away from equipment that is being loaded or unloaded to avoid being struck by falling materials or spillage.

Equipment operators or truck drivers may remain in their equipment during loading and unloading if the equipment is properly equipped with a cab shield or adequate canopy.

**Warning Systems for Mobile Equipment**
The following steps should be taken to prevent vehicles from accidentally falling into the trench:

- Barricades must be installed where necessary,
- Hand or mechanical signals must be used as required,
- Trenches left open overnight shall be fenced and barricaded.
Hazardous Atmospheres and Confined Spaces
Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- less than 19.5% oxygen,
- a combustible gas concentration greater than 20% of the lower flammable limit, and,
- concentrations of hazardous substance that exceed those specified in the Threshold Limit Values for airborne contaminants established by the ACGIH.

All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls for personal protective equipment and for lifesaving equipment. Engineering controls (such as ventilation) and respiratory equipment may be required.

Testing for Atmospheric Contaminants
If there is any possibility that the trench or excavation could contain a hazardous atmosphere, atmospheric testing must be conducted prior to entry. Conditions that might warrant atmospheric testing would be if the excavation was made in a landfill area or if the excavation was crossed by, was adjacent to, or contained pipelines containing a hazardous material (for example, natural gas lines).

Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe. The frequency of testing should be increased if equipment is operating in the trench.

Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program.

Some trenches qualify as confined spaces. When this occurs, compliance with OSU’s Confined Space Program is also required.

Standing Water and Water Accumulation
Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees must work in the excavation:

- Use of special support or shield systems approved by a registered professional engineer.
• Water removal equipment, such as pumps, used and monitored by a competent person.
• Employees removed from the trench during rainstorms
• Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

**Benching, Sloping, Shoring, and Shielding Requirements**
All excavations or trenches 4 feet or greater in depth shall be appropriately benched, shored, or sloped according to the procedures and requirements set forth in OSHA’s Excavation standard, 29 CFR 1926.650, .651, and .652.

Excavations or trenches 20 feet deep or greater must have a protective system designed by a registered professional engineer.

Excavations under the base of footing of a foundation or wall requires a support system designed by a registered professional engineer.

Sidewalks and pavement shall not be undermined unless a support system or another method of protection is provided to protect employees from their possible collapse.

**Benching**
There are two basic types of benching, single and multiple, which can be used in conjunction with sloping.

In Type B soil, the vertical height of the benches must not exceed 4 feet. Benches must be below the maximum allowable slope for that soil type. In other words, a 10-foot deep trench in Type B soil must be benched back 10 feet in each direction, with the maximum of a 45-degree angle.

Benching is not allowed in Type C soil.

**Sloping**
Maximum allowable slopes for excavations less than 20' based on soil type and angle to the horizontal are as follows:

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Height/depth ratio</th>
<th>Slope angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type B</td>
<td>1:1</td>
<td>45 degrees</td>
</tr>
<tr>
<td>Type C</td>
<td>1 1/2:1</td>
<td>34 degrees</td>
</tr>
</tbody>
</table>

A 10-foot-deep trench in Type B soil would have to be sloped to a 45-degree angle, or sloped 10 feet back in both directions. Total distance across a 10-
foot-deep trench would be 20 feet, plus the width of the bottom of the trench itself. In Type C soil, the trench would be sloped at a 34-degree angle, or 15 feet back in both directions for at least 30 feet across, plus the width of the bottom of the trench itself.

**Shoring**
Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. There are two basic types of shoring, timber and aluminum hydraulic.

Because the Physical Plant has aluminum hydraulic shores, they will be the focus of this section. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install them. They are also light enough to be installed by one worker; they are gauge-regulated to ensure even distribution of pressure along the trench line; and they can be adapted easily to various trench depths and widths. However, if timber shoring is used, it must meet the requirements of 29 CFR 1926.650, .651, and .652.

All shoring shall be installed from the top down and removed from the bottom up. Hydraulic shoring shall be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

The top cylinder of hydraulic shoring shall be no more than 18 inches below the top of the excavation.

The bottom of the cylinder shall be no higher than four feet from the bottom of the excavation. (Two feet of trench wall may be exposed beneath the bottom of the rail or plywood sheeting, if used.)

Three vertical shores, evenly spaced, must be used to form a system.

Wales are installed no more than two feet from the top, no more than four feet from the bottom, and no more than four feet apart, vertically.

**Shielding**
Trench boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents.

The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench box and the excavation side must be backfilled to prevent lateral movement of
**Excavation**

**the box.** Shields may not be subjected to loads exceeding those which the system was designed to withstand.

Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching.

The box must extend at least 18 inches above the surrounding area if there is sloping toward the excavation. This can be accomplished by providing a benched area adjacent to the box.

Any modifications to the shields must be approved by the manufacturer.

Shields may ride two feet above the bottom of an excavation, provided they are calculated to support the full depth of the excavation and there is no caving under or behind the shield.

Workers must enter and leave the shield in a protected manner, such as by a ladder or ramp.

Workers may not remain in the shield while it is being moved.
Introduction
The purpose of an Electrical Safety-Related Work Practices Program is to protect workers from the hazards of exposed electrical circuits through training, procedures such as lockout/tagout, and the use of personal protective equipment.

Scope and Application
The Occupational Safety and Health Administration (OSHA) requires that Electrical Safety-Related Work Practices apply to those who work near exposed electrical circuits that operate at 50 volts or more. Occupations generally affected by this regulation include, but are not limited to:

- Electrical and electronic engineers
- Electrical and electronic equipment assemblers
- Electrical and electronic technicians
- Electricians
- Industrial machine operators
- Mechanics and repairers
- Painters
- Riggers
- Stationary engineers
- Welders
- Supervisors of the groups listed above

Program Description
Under this rule, OSHA separates workers into two broad groups, "qualified persons" and "unqualified persons". Qualified persons are those who have been trained in avoiding the electrical hazards of working with exposed energized parts, while unqualified persons have little such training. Supervisors should be aware that the training requirements differ for each group, as do the tasks each is allowed to perform.

Training
Training is required for anyone who faces a risk of electric shock while performing normal job duties. In addition to training in safety-related work practices, unqualified persons should be trained in the inherent hazards of electricity. Qualified persons should receive additional training that allows them to distinguish live parts from other electrical equipment, measure the voltage of exposed live parts, and determine minimum clearance distances.
Selection and Use of Work Practices
Safety-related work practices should be used to prevent electric shock or other injuries that may result from contact with an energized circuit. Live parts should be de-energized before work begins unless it introduces additional hazards or is unfeasible to do so. Circuits should not be de-energized if it would cause the interruption of life support equipment, deactivation of emergency alarm systems, shutdown of ventilation equipment in hazardous locations, or removal of illumination for an area.

The Southeastern Oklahoma State University Program for the Control of Hazardous Energy, known as Lockout/Tag out, should be used to isolate de-energized equipment and circuits (see Section Lockout/Tagout). Only qualified persons may apply lockout or tagout procedures and test circuits to verify de-energization.

Special procedures should be followed whenever work is done near energized equipment and circuits, especially overhead power lines. Consideration should be given to housekeeping procedures, lighting, and the conductivity of materials and equipment. The hazards of confined spaces should be considered when work is done in manholes or underground vaults.

Use of Equipment
Safety-related work practices should be followed when using cord and plug connected equipment and extension cords. Equipment should not be raised or lowered by its electrical cords. All electrical equipment should be inspected before use and, if found defective, removed from service until repaired.

The environment in which electrical equipment is to be used should also be considered. Ground Fault Circuit Interrupters (GFCI) or low voltage tools should be used in conductive work locations. Special equipment may also be required in areas that may contain flammable or ignitable material or vapors.

Safeguards for Personnel Protection
Personal protective equipment, such as nonconductive head protection, eye and face protection, and insulating gloves, may be necessary for protection against electrical hazards (see Section Personal Protective Equipment).

Insulated tools and handling equipment, such as protective shields, barriers, or insulating materials, should be used when working near exposed electrical conductors.
Safety signs, tags, or barricades can be used to warn and protect workers. When these techniques do not provide sufficient protection, an attendant should be used.

**Roles and Responsibilities**

**Department**
- Provide specific training for qualified and unqualified workers.
- Provide and maintain necessary protective equipment and materials.
- Develop and maintain written Electrical Safety-Related Work Practices.

**Supervisors**
- Ensure workers receive training appropriate to their assigned tasks.
- Ensure workers are provided with and use protective equipment and materials.

**Safety Office**
- Provide general training.
- Provide assistance with evaluation of electrical hazards in the workplace.
- Provide a periodic audit of this program.

**Individual**
- Attend training.
- Use appropriate electrical safety-related work practices, including all necessary protective equipment and materials.

**For More Information**
Contact the Safety Office at 745-2868.

An *Electrical Safety Related Work Practices Self-Audit Checklist* is available through Safety Office. The following model programs are available through Safety office.

- Electrical Safety-Related Work Practices
- Lockout/Tagout
- Personal Protective Equipment Hazard Assessment

The following references are available through Safety Office, *Electrical Safety-Related Work Practices, 29 CFR 1910.331 - 335*

- *The Control of Hazardous Energy (Lockout/Tagout), 29 CFR 1910.147*
- *Personal Protective Equipment, 29 CFR Subpart I*
Section-U

Bioterrorism Plan

This Plan was provided by The Medical Center of Southeastern Oklahoma

Bioterrorism is defined by the Center of Disease Control and Prevention (CDC) as “The intentional or threatened use of viruses, bacteria, fungi, toxins from living organisms, or other chemicals, to produce death or disease in humans, animals or plants”.

Responding appropriately to Bioterrorism is a three-step process: Identify, Report and Refer:

- **Identify** – symptoms of Bioterrorism, know the appropriate tests, and know some of the differential diagnoses.
- **Report** – contact the correct agencies and initiate the cascade of pre-programmed responses by public agencies.
- **Refer** – refer victims of Bioterrorism to those who know how to treat them and refer the media to those who know the most about the subject.

Reporting Requirements and Contact Information

If a Bioterrorism event is suspected, the local emergency response system will be activated.

- **Notify immediately Campus Police 745-2727**
- Campus Police will notify Administration.
- Police & Safety Personnel will immediately notify Bryan County and Oklahoma State Department of Health.
- The Campus Police Department will notify the Bryan County Emergency Management Office and FBI field office, Durant Police Department as appropriate.

<table>
<thead>
<tr>
<th>Internal Contacts</th>
<th>Administration</th>
<th>Extension 2500</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>President’s office</td>
<td></td>
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<tr>
<td></td>
<td>Vice President and</td>
<td>Extension 2600</td>
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<tr>
<td></td>
<td>Dean of Student’s</td>
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</table>

<table>
<thead>
<tr>
<th>External Contacts</th>
<th>Bryan County Health Dept.</th>
<th>924-4299</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oklahoma State Dept of Health</td>
<td>405-271-4200</td>
</tr>
</tbody>
</table>
**Immediate Response by Staff**

**Triage and management will include:**

**Administration**
- Contact law enforcement agencies as needed.
- Assist in establishing alternative triage areas.
- Meet with Department Managers to provide appropriate information to employees.
- Insure signage has been posted directing victims to decontamination area and not to enter the building.
• Notify Dalton Holmes Funeral Home (924-0224) if there are an increased number of cadavers on site. They will obtain a refrigerator truck for storage of the bodies until arrangements can be made.
• Meet with news media as appropriate

Infection Control
• Notify Bryan County Health Dept and Oklahoma State Dept. of Health.
• Obtain reference information concerning the agent to be distributed to staff members.

Emergency Department
• Coordinate triage and on-site care in the ED and alternative triage areas.
• Initiate physician call back

Surgery
• Cancel all non-emergent procedures

Pharmacy
• Identify sources of vaccines, immune globulin, antibiotics

Plant Operations
• Transport decontamination shower and kit to the decontamination site.
• Cover decontamination area with plastic sheeting to prevent contamination to the ground and surrounding area.
• Set up the shower and place caution tape around the decontamination area.
• Lock down the building as needed.
• Should the ED become contaminated, assist in locking down the department and follow the instructions of the OSDH personnel of sealing off the department.

Materials Management
• Determine sources for additional medical equipment and supplies (e.g., ventilators) that may be needed
• Deliver available isolation mask and gowns to the Emergency Department
• Deliver shoe covers to the decontamination area.

Cardio Pulmonary and ICU
Determine ventilators distribution in the event of a large number of patients arriving with abrupt pulmonary decompensation.

Obtain additional ventilators as needed.

**Environmental Services**

- Assist in setting up decontamination area.
- Obtain biohazard boxes for storage of victims clothing after decontamination.
- Obtain and deliver trash bags, paper, marking pen, and tape for storage and identification of victim’s clothing.
- Deliver blankets, sheets, and scrub suits for victims after decontamination.
- Deliver soap to the decontamination area. If possible dilute liquid soap to a consistency that it can be used in the hand held sprayer to spray soap on the victims.
- Assign at least one staff member to stand by in the ED department to insure that there is no cross contamination of the environment.

**Laboratory**

- Notify OSDH laboratory of situation and obtain information as to what type of specimens that are needed and how the specimen are to be transported. Be aware that a chain of custody document should accompany the specimen from the moment of collection. Should further instructions be needed, contact Bioterrorism emergency number at the CDC Emergency Response Office 770-488-7100

**All other departments**

- Respond as you would in an external disaster.

**Exposed Patient Management**

Decontamination should only be considered in instances of gross contamination. Decisions regarding the need for decontamination should be made in consultation with state and local health departments.

**Decontamination of Patients and Environment**

1. Should it be determined that decontamination is appropriate, all appropriate victims will be decontaminated prior to entering the building.

2. Should there be a delay in getting information from the Health Department as to whether or not we need to decontaminated, and patient treatment must be rendered, error on the safe side and decontaminate the patient.
3. Clothing of exposed persons may need to be removed. Try not to pull clothing over the head because you possibly will increase the likelihood that the victim may inhale the biotoxin agent. Cut the clothing off rather than pulling it over the head. The employees assisting in the removal of the clothing need to take appropriate precautions and protect themselves (i.e., protective clothing, gloves, and masks). It is possible that the agent can be aerosoled a second time from handling the clothing. Provide as much privacy as possible for the patients during the decontamination process.

4. Carefully double bag (place clothing in one bag and seal it, then place that bag in a second bag) the clothing. Minimize handling of clothing prior to putting it in the bag. Do not shake the clothing.

5. The double-bagged clothing will be placed in a bio-hazard box and held in a secure place outside of the hospital building. The officials from the Oklahoma State Department of Health will provide instructions concerning the disposal of the clothing or return to the owner. Do not bring the contaminated clothing into the building.

6. After removal of contaminated clothing, patients should be instructed (or assisted if necessary) to immediately shower with soap and water. Do not use a bleach solution when bathing the patients.

7. Clean water, saline solution, or commercial ophthalmic solutions are recommended for rinsing eyes.

8. Use the hand held sprayer to spray soap on the patients, as needed. Avoid spraying soap in the patient’s eyes.

9. Since the patient will be standing in water, the last step of decontamination is to spray off their feet and ankles with water. Have the patient step out onto the plastic, wrap them in a sheet or blanket and provide them some privacy while drying off and dressing.

10. Patients will be given scrub suits or hospital gowns to wear after they have showered. Shoe covers will be given to the patients to wear to protect their feet.

11. Direct patient to the Emergency Department for treatment as needed.

12. As soon as time permits, family/friends of the patient will be contacted and requested to bring clothing as needed for the patient.

13. All water used to decontaminate the patients will be pumped into a holding container until it can be disposed of properly. Care should be taken to avoid spilling the water in the decontamination area or on surrounding grounds.
14. The Decontamination shower and processing area will be disassembled when individuals from the Hazardous Materials Team arrive and can assist.

Critical Steps for Handling Possible Bioterrorist Events

<table>
<thead>
<tr>
<th>Maintain an index of suspicion</th>
<th>In an otherwise healthy population, some associations are very suggestive, especially when seen in clusters, high numbers, or unusual presentations.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Clustered” Symptoms:</strong></td>
<td><strong>Potential Bioagents:</strong></td>
</tr>
<tr>
<td>Hemoptysis</td>
<td>Plague</td>
</tr>
<tr>
<td>Flaccid Paralysis</td>
<td>Botulism</td>
</tr>
<tr>
<td>Wide mediastinum</td>
<td>Anthrax</td>
</tr>
<tr>
<td>Purpura</td>
<td>Viral Hemorrhagic Fevers (VHF)</td>
</tr>
<tr>
<td>Centripetal rash</td>
<td>Smallpox</td>
</tr>
<tr>
<td>Protect yourself and patients</td>
<td>Use appropriate personal protection equipment, vaccines, if available; or antibiotics, if risks are known</td>
</tr>
<tr>
<td>Adequately assess the patient</td>
<td>Review and assess the patient’s history. Also ask:</td>
</tr>
<tr>
<td></td>
<td>• Are others ill?</td>
</tr>
<tr>
<td></td>
<td>• Were there any unusual events?</td>
</tr>
<tr>
<td></td>
<td>• Was there an uncontrolled food source or other environmental factor?</td>
</tr>
<tr>
<td></td>
<td>• Was there vector exposure?</td>
</tr>
<tr>
<td></td>
<td>• Has the patient been traveling?</td>
</tr>
<tr>
<td></td>
<td>• What is the patient’s immunization record?</td>
</tr>
<tr>
<td></td>
<td>Perform a physical examination with special attention to the respiratory system, nervous system, skin condition, a hematologic and vascular status</td>
</tr>
<tr>
<td>Decontaminate as appropriate</td>
<td>Soap, water and shampoo are perfectly adequate for all biological and most chemical agents. Chemically contaminated clothes should be removed and discarded safely. Biologically contaminated clothes can be laundered with soap, water and, perhaps, bleach</td>
</tr>
<tr>
<td>Establish a diagnosis</td>
<td>Think clinically and epidemiologically; always send specimens for culture.</td>
</tr>
<tr>
<td>Symptom (individuals):</td>
<td>Possible Diagnosis:</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Tularemia, plague, staph enterotoxin B (SEB)</td>
</tr>
<tr>
<td>Neuromuscular</td>
<td>Botulism, Venezuelan Equine Encephalitis (VEE)</td>
</tr>
<tr>
<td>Bleeding/purpura</td>
<td>VHF, ricin, plague (late)</td>
</tr>
<tr>
<td>Rash (various types)</td>
<td>VHF, T2 mycotoxin, smallpox, plague</td>
</tr>
<tr>
<td>Flu-like symptoms</td>
<td>Varies</td>
</tr>
<tr>
<td>Immediate Symptoms (large numbers):</td>
<td>Possible Diagnosis</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>SEB, mustard, Lewisite, phosgene, cyanide</td>
</tr>
<tr>
<td>Neurologic</td>
<td>Nerve gases, cyanide</td>
</tr>
<tr>
<td>Delayed Symptoms (large numbers):</td>
<td>Possible Diagnosis</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Biologic agents, mustard, phosgen</td>
</tr>
<tr>
<td>Neurologic</td>
<td>Botulism, VEE, other encephalitis</td>
</tr>
<tr>
<td>Render treatment</td>
<td>Airway, Breathing, Circulation.</td>
</tr>
</tbody>
</table>
### Bioterrorism Agent General Information

**Bioterrorism Agents:**

The most likely agents are:

- Anthrax
- Botulism
- Hemorrhagic fevers i.e. Ebola, Marburg, Lassa. Etc...
- Plague (pneumonic)
- Tularemia
- Smallpox

The most common syndromes are:

- Acute respiratory distress with fever.
- Skin lesions
- Acute onset neuromuscular symptoms/signs
- Influenza-like illness
- Gastrointestinal illnesses

Clues to unnatural occurrences of infections are:

- An unusual increase in numbers of patients presenting with a similar syndrome.
- A large number of fatal cases.
- Clusters of an illness from a single locale or temporally related
- Any infection that is non-endemic in Bryan County.

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<table>
<thead>
<tr>
<th>Provide good infection control</th>
<th>Gown, gloves, mask and hand washing, and eyewear if necessary, are sufficient. Recommended isolation precautions for biologic agents include:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Standard Precautions – For all individuals/patients</td>
</tr>
<tr>
<td></td>
<td>• Contact Precautions – Viral Hemorrhagic Fevers</td>
</tr>
<tr>
<td></td>
<td>• Droplet Precautions – Pneumonic Plague and Tularemia</td>
</tr>
<tr>
<td></td>
<td>• Airborne Precautions – Smallpox</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alert the authorities</th>
<th>• Immediately notify Administration and Infection Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Notify the Bryan County Health Dept., the Okla. Dept. of Health, Durant Police Department</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assist in the epidemiologic investigations</th>
<th>Steps in an epidemiologic investigation so as to determine who may be at risk.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Count cases;</td>
</tr>
<tr>
<td></td>
<td>2. Relate to the at-risk population;</td>
</tr>
<tr>
<td></td>
<td>3. Make comparisons;</td>
</tr>
<tr>
<td></td>
<td>4. Develop hypotheses;</td>
</tr>
<tr>
<td></td>
<td>5. Test hypotheses;</td>
</tr>
<tr>
<td></td>
<td>6. Make inferences;</td>
</tr>
<tr>
<td></td>
<td>7. Conduct studies;</td>
</tr>
<tr>
<td></td>
<td>8. Interpret and evaluate</td>
</tr>
</tbody>
</table>
• Common infections occurring during unusual seasons (i.e. influenza in Bryan County during the summer).
• Increase in sick or dead animals.
• Intelligence information.

Bioagents VS Flu:

• As several of the bioagents may produce febrile illness with respiratory symptoms/signs that could be confused with influenza, during influenza season.
• Several rapid diagnostic tests are commercially available and can be performed on sputum samples.
• Negative rapid tests do not exclude influenza as a diagnosis, but a positive test supports diagnosis of flu rather than bioagent.
• Administer flu vaccine according to CDC recommendations.

Bioagent-Specific Infection Control Measures:

• Anthrax – Standard Precautions.
  o Pulmonary infection is NOT transmitted person to person.
  o Cutaneous infection can be transmitted by drainage.
• Smallpox - Airborne Precautions (like tuberculosis).
• Plague – Droplet Precautions (standard masks for 72 hours after diagnosis).
• Botulism – Standard Precautions
• Tularemia – Standard Precautions
• Hemorrhagic Fever – Standard Precautions, Airborne Precautions, and Contact Precautions to avoid exposures due to excessive hemoptysis or hematemesis. Treat blood stained material as infectious.

Bacterial Agents of Bioterrorism

Anthrax

• Description: A spore forming gram-positive rod, which can cause disease by inhalation, inoculation, or ingestion of spores, which, upon reversion to regular bacterial forms, produce potent “edema” and “lethal” toxins.
• The pneumonic, or inhalation form starts 1-6 days after exposure with fever, myalgias, cough and fatigue, which after a brief improvement progress to an abrupt respiratory distress and shock. There are no specific physical findings, but the chest x-ray may show a widened mediastinum, with or without effusion, but mostly
without, infiltrates, because the disease is primarily a mediastinitis. 50% have associated meningitis.

- Diagnosis: Widened mediastinum on CXR, Gram-positive rods may be found on gram stains of CSF or buffy coats, and positive blood cultures later in the illness.
- Treatment: IV doxycycline or quinolones (supernormal doses) for 4 weeks, plus vaccination.
- Prophylaxis: avoid inhalation of contaminated material. Doxycycline or Ciprofloxacin x 8 weeks plus vaccination (3 doses).
- Pediatrics: doxycycline or penicillin.
- Inoculation (cutaneous) anthrax may appear in conjunction with inhalation cases. Local tissue destruction results in the formation of a black eschar or ulcer with (+/- severe) surrounding edema. Some develop septicemia.
- Gastrointestinal anthrax occurs when large numbers of spores are ingested. It may present with nausea and vomiting, abdominal pain, bloody diarrhea +/- ascites, which progresses to an acute abdomen. The toxins destroy the mesenteric lymph nodes and the circulation to the small bowel.

Plague

- Description: Yersinia pestis is a gram-negative rod, which causes disease in two forms.
- The pneumatic form begins 2-3 days after inhalation of an aerosol, either from an infected patient or from an aerosol source, with sudden onset of myalgias, high fevers, headache and cough with bloody sputum. Within one day it progresses to a fulminant pneumonia with dyspnea, stridor, cyanosis, septic shock with DIC and hepatocellular damage. The chest x-ray has consolidation/infiltrates. Six percent have associated meningitis.
- The bubonic form would probably not be used as a bioagent.
- Diagnosis: cultures and gram stains of blood, sputum, CSF and lymph node aspirates. Immunoassays available.
- Treatment: gentamicin, doxycycline or chloramphenicol (for meningitis).
- Prophylaxis: doxycycline.
- Isolation: mandatory for at least the first 48 hours of treatment.
- Pediatric: doxycycline or trimethoprim/sulfa for prophylaxis but gentamicin or chloramphenicol for treatment.
**Tularemia**

- Description: Tularemia is caused by Francisella tularensis, a small, fastidious Gram-negative bacillus. Human infections can occur via aerosols, contaminated food or water, from arthropod bites, or through skin exposure.
- The incubation period can be as short as 24 hours, but can be up to 14 days or longer. Although the infectious dose of F. tularensis is very low, there is no evidence for person-to-person transmission of infection.
- Each route of infection produces a different clinical picture. Clinical or radiographic features cannot differentiate tularemia pneumonia from other serious bacterial pneumonias. The usual result of inhalation is pneumonia with hilar adenopathy and/or pleural effusions in about 1/3 of cases. High fever, chills, rigors, sore throat, myalgias and a non-productive cough are common. Untreated, the mortality of tularemia pneumonia may reach 50%. Ingestion is more likely to cause exudative tonsillitis and suppurative cervical adenitis.
- Diagnosis is difficult because the bacteria are fastidious and grow slowly, they may not grow out of sputum on standard blood agar. Blood and pleural fluid cultures may be positive. Aspirates of enlarged lymph nodes will also yield the pathogen. Serology can be used for retrospective diagnosis. A four-fold titer increase or a titer above 1:160 is diagnostic, but this usually takes 10-14 days to develop.
- Treatment is with parenteral gentamicin 5mg/kg per day or doxycycline 100 mg, or chloramphenicol 15mg/kg q 6h, or erythromycin 500 mg q 8h. Because this organism can be drug-resistant, in vitro susceptibility testing should guide subsequent treatment. Doxycycline or fluoroquinolones can be used for prophylaxis in people who were likely exposed but not yet ill. There is no available vaccine. Contaminated surfaces can be cleaned with 10% bleach and then wiped with 70% alcohol. Cloths and skin can be washed with soap and water.

**Viral Agents of Bioterrorism**

- Viral agents proposed for use as biologic weapons include smallpox (variola virus), Venezuelan Equine Encephalitis Virus, and the multiple agents causing viral hemorrhagic fevers, typified by Ebola.
- General characteristics of these viruses include:
  - Initial presentation with non-specific flu-like symptoms.
Pathogenesis secondary to direct cytopathic effect, immune-complex deposition, or other processes often resulting in vascular injury and organ failure.

- Vaccination most effective prophylaxis but few vaccines generally available for proposed agents.
- Few antiviral agents have proven efficacy or are available.

**Smallpox – Variola virus**

- Virus is spread by aerosol with incubation period averaging ~ 12 days (7-19 days).
- Clinical symptoms begin with abrupt onset of malaise, fevers, rigors, headache, emesis, backache, and delirium (15%) followed 2-3 days later by onset of rash on face, hands, forearms, and legs then spreading centrally with lesions progressing from macules to papules to pustular vesicles. Lesions typically are in the same stage of development.
- Patients are highly infectious during the initial respiratory phase and remain so until all eschars are off. Mortality is about 30% in unvaccinated population. Mortality is lower in vaccinated individuals, but no civilians have maximal protection because vaccination ceased 30 years ago.
- Characteristics differentiating the Rashes of Variola and Varicella:

<table>
<thead>
<tr>
<th>Variola</th>
<th>Varicella</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrifugal</td>
<td>Centripetal</td>
</tr>
<tr>
<td>Lesions all at the same stage</td>
<td>Lesions in Various Stages</td>
</tr>
<tr>
<td>Slow evolution</td>
<td>Rapid evolution</td>
</tr>
<tr>
<td>Deep lesions: circular and regular</td>
<td>Superficial lesions: oval and irregular</td>
</tr>
<tr>
<td>Scarring: severe</td>
<td>Scarring: mild</td>
</tr>
</tbody>
</table>

- Treatment: Cidofovir and other antivirals but none are proven effective. Isolation: Airborne.
- Vaccination within 3 days of exposure will prevent disease and within 5 days life-saving. CDC has 12-14 million doses of vaccine. Oral vaccine in development
Equine Encephalitis Viruses

- Togaviridae, all can be infectious by aerosol, easily produced and stable. Susceptibility is high (90-100%) with ~ 100% of those infected develop acute disease.
- Incubation period of 1-6 days followed by acute febrile illness with malaise, myalgias, fevers, rigors, severe headache, and photophobia x 24-72 hours followed by nausea, emesis, cough, sore throat, and diarrhea. 0.5-4% will develop encephalitis with altered mental status.
- Diagnosis on clinical and epidemiological grounds. Exam is non-specific. Lab often with leukopenia and lymphopenia, increased AST, and lymphocytic pleocytosis in CSF. Confirmation provided by viral isolation (throat, serum, CSF), serology (IgM available) and PCR.
- Treatment is supportive, mortality < 1% (increase of extremes of life), vaccine is experimental.
- Isolation: Airborne.

Viral Hemorrhagic Fevers

- Caused by various RNA viruses, usually with an animal reservoir. All are potentially infectious by aerosol with high morbidity and mortality.
  - Arenaviridae: Lassa, Argentine, Bolivian, Venezuelan, and Brazilian
  - Bunyaviridae: Rift Valley Fever, Congo-Crimean, Hantaviruses
  - Filoviridae: Ebola, Marburg
  - Flaviviridae: Yellow Fever
- All hemorrhagic fever viruses can cause capillary leak syndromes.
- Incubation period 5-10 days (Filoviridae) followed by malaise, fever, myalgias, prostration, conjunctival injection, petechiae, ecchymoses, shock, diffuse hemorrhage, neurologic dysfunction and pulmonary collapse.
- Treatment is largely supportive, avoiding ASA/ antiplatelet drugs, Ribavirin (Lassa, CCHF, HFRS, and RVF).
- Isolation: Airborne.

Biological Toxins of Bioterrorism

Biological toxins are products of living organisms, which produce illness or death after aerosol inhalation or ingestion. Substances are non-volatile and not likely to produce secondary person-person exposure – use Standard Precautions.
**Botulinum Toxin**

- (Types A-G) Most poisonous substances known. Aerosolized or food borne, typically presents 12-72 hours after exposure.
- Symptoms
  - 4D’s – diplopia, dysarthria, dysphonia, dysphagia.
  - Ptosis, mydriasis, generalized weakness, dizziness, dry mouth and throat, blurred vision, respiratory failure.
  - Naturally occurring food-borne botulism more prone to preceding abdominal cramps, nausea, vomiting and diarrhea secondary to other bacterial metabolites in food.
- Clinical Diagnosis
  - Symmetrical descending flaccid paralysis with prominent bulbar palsies.
  - Afebrile
  - Clear sensorium.
- Differential Diagnosis
  - Guillain-Barre,
  - Myasthenia gravis,
  - Tick paralysis,
  - Conversion reaction
- Action
  - Call public health department and follow directions given on specimen collection.
- Decontamination
  - If suspected aerosol release, breathe through clothing.
  - Intact skin is impermeable, but wash skin with 0.1% hypochlorite or soap/water.
  - Persistence of aerosolized toxin is dependent on atmospheric conditions and is usually inactivated by 2 days.
  - In food, the toxin is inactivated by heat.
- Treatment
  - Botulinum antitoxin (to be used at first signs of illness) will minimize severity, but not reverse existent paralysis. Paralysis can persist for weeks to months. Respiratory support, nutritional and fluid management, treatment of complications

**Staphylococcal Enterotoxin B (SEB)**

- Symptoms
Bioterrorism Plan

2-12 hours after exposure. Fever (for 2-5 days), chills, headache, myalgia, nonproductive cough (up to 4 weeks).

- Differential Diagnosis – influenza, adenovirus, mycoplasma.
  - May have SOB, retrosternal chest pain, nausea, vomiting, diarrhea, conjunctival injection, hypotension, CXR usually normal, but can have atelectasis, pulmonary edema.
  - Incapacitation for up to 2 weeks is usual, but rarely can progress to sepsis/death.

- Diagnosis – clinical: nonspecific labs, elevated WBC, ESR.
- Action – Draw acute and convalescent sera, urine sample for public health lab.
- Decontamination – hypochlorite 0.5% or 10-15 min soap/water.
- Treatment – supportive, respiratory support, fluid management.

Ricin

- Derived from castor bean, inhibits protein synthesis which results in cell death.
- Symptoms – (in 4-8 hours) weakness, fever, cough, hypothermia.
  - Inhalation – severe respiratory symptoms from necrosis and edema, hypoxia with respiratory failure in 36-72 hours.
  - Ingestion – Nausea, vomiting, diarrhea, GI hemorrhage, vascular collapse, death. May cause DIC, multiple organ failure.
- Diagnosis – Lab nonspecific, Serum ELISA available.
- Differential Diagnosis – SEB, Q Fever, tularemia, plague, phosgene. Collect serum samples.
- Decontamination – hypochlorite 0.5% solution, and/or soap/water.
- Treatment – supportive, O2, hydration. If ingestion, gastric lavage, superactivated charcoal followed by cathartics.

Trichothecene

- Mycotoxins, T2, Fungal toxin-stable to heat and UV. Inhibits protein and nucleic acid synthesis affecting rapidly proliferating tissues. If aerosolized, it appears as yellow droplets – “yellow rain” – which can adhere to and penetrate skin, be inhaled and swallowed.
- Symptoms – onset minutes – 4 hours – skin pain, pruritis, redness, vesicles, epidermal slough, eye irritation, nose throat pain, sneezing, wheezing, cough, dyspnea, chest pain, hemoptysis, abdominal pain, vomiting, bloody diarrhea. Bone marrow suppression can lead to diffuse hemorrhage. If severe, prostration, ataxia, collapse, shock and death in hours to days.
• Diagnosis – urine, blood, tissue samples for liquid chromatography – mass spectrometry.
• Decontamination – remove and isolate clothing, irrigate eyes with saline; wash with soap/water.
• Treatment – symptomatic/supportive. If ingested, superactivated charcoal. No antidote.

Chemical Agents

Nerve Agents
• Description
  o Organophosphates bind and inactivate acetylcholinesterase. Colorless, nearly odorless.
  o Sarin (GB)
  o Tabun (GA)
  o Soman (GD)
  o VX - clear
• Diagnosis – acute onset cholinergic crisis. Sarin may cause death in 1-10 minutes.
• Symptoms
  o Respiratory – irritation to mucous membranes, cough, airway constriction and increased secretions
  o Neuromuscular – twitch, weakness, paralysis, respiratory failure.
  o Autonomic – blurred vision pinpoint pupils, drooling, sweating, tearing, nausea, vomiting, abdominal pain, diarrhea
  o Central Nervous System – slurred speech, confusion, headache, convulsions, respiratory arrest.
  o Cardiovascular – tachycardia, bradycardia, arrhythmia, heart block
• Decontamination – move victim to fresh air, remove and isolate clothing, wash skin/eyes with water/saline. 0.5% hypochlorite to skin if possible.
• Treatment
  o Oxygen/respiratory support, suction secretions. Rush to healthcare facility.
  o Atropine (antagonizes muscarinic effects) 2 mg deep IM injection, IV or ET, Repeat q5-10 min until secretions are drying and decreased airway, resistance (to max 20 mg.) Infant (0.5mg IM or 0.02mg/kg), child 2-10 (1mg IM), elderly
Section-U
Bioterrorism Plan

Bioterrorism Plan

(1mg). This will not have any effect on pupils or skeletal muscle.

- Pralidoxime chloride (2 PAM chloride) – helps nicotinic neuromuscular sites. Separates nerve agent from AChE, (but once “aging” has occurred, nerve agent is permanently attached to AChE, 2 PAM will no longer be effective) 1g IV over Phentolamine for 2 PAM induced hypertension (adult 5mg IV, child 1mg IV).
  - Diazepam – 10mg IM (2-5mg IV) Child 1mo-5yr – 0.2 – 0.5mg/kg; child >5yr – 1mg IV.

Vesicants
- General Effects
  - Cell damage, tissue necrosis, toxic byproducts, metabolic acidosis, secondary infections, pulmonary insufficiency.
- Mustard
  - Erythema and blisters on skin, irritation, conjunctivitis, mild upper respiratory symptoms to marked airway damage. Also GI effects, nausea and vomiting, bone marrow suppression.
  - Wash with water and dilute hypochlorite.
  - Topical antibiotics, pulmonary support, analgesics.
- Lewisite
  - Immediate pain, skin and mucous membrane irritation, erythema, blisters: skin, eye and airway.

Industrial Chemicals
- Phosgene – CG – (odor of fresh cut grass, hay).
  - Damages alveolar-capillary membrane. Toxic to lungs by inhalation – immediate burning, eye and airway damage, SOB, cough; pulmonary edema can develop in 2-12 hours.
  - Treatment – Fresh air, wash with water, symptomatic management of lesions, pulmonary care, careful fluid replacement, absolute rest.
- Cyanide (burnt almond smell)
  - Inhibits the body’s ability to transfer oxygen and CO2 at the capillaries. Agent is volatile.
  - Symptoms – seizures, respiratory, and cardiac arrest.
Bioterrorism Plan

- Decontamination – remove clothing; wash with water.
- Treatment – antidotes: intravenous sodium nitrite and sodium thiosulfate.
- Supportive oxygen and correction of acidosis.

- Riot Control Agents (Mace®, pepper spray)
  - Symptoms – burning pain skin, mucous membranes and eyes.
  - Treatment – flush with water, soap and water or dilute sodium bicarbonate solution. (Hypochlorite should NOT be used).
  - Effects are self-limited, unless underlying asthma/emphysema or hysteria from fear of nerve agent exposure.
Section-V

Asbestos in Buildings

Refer to the fourteen books covering asbestos related documentation of buildings on Southeastern Oklahoma State University kept at the Campus Police Office at 3rd and University in Durant, Oklahoma.
Section-W
Entering and working in confined spaces

Introduction
Entering and working in confined spaces has been and will continue to be an integral part of daily activity by Southeastern Oklahoma State University employees. This document has been developed to ensure the safety of personnel required to enter and conduct work in confined spaces. The program contained herein describes reasonable and necessary policies and procedures for any and all facilities, departments, and individuals who are associated with confined space entry operations. This program and all parts of 29 CFR 1910.146 shall apply to all confined space entry operations conducted at Southeastern Oklahoma State University. As it is the policy of SOSU to provide its employees with the safest work environment possible, the University requires conformance with the safety standards set herein. A site-specific program may be used, providing it meets or exceeds the requirements set forth in this manual.

Identifying confined spaces
The first step toward conducting a safe confined-space entry is to identify the space as potentially dangerous. All Confined Spaces shall be considered "permit-required" until pre-entry procedures demonstrate otherwise. To clarify what constitutes a Confined Space, the following definition will be used.

A Confined Space is any space having the following characteristics:

1. Large enough or so configured that an employee can bodily enter and perform assigned work.
2. Has limited or restricted means for entry or exit. Confined-space openings are limited primarily by size and location. Openings may be small in size and may be difficult to move through easily. However, in some cases openings may be very large; for example, open-topped spaces such as pits or excavations. Entrance and exit may be required from top, bottom, or side. Size or location may make rescue efforts difficult.
3. Is not designed for continuous employee occupancy. Most confined spaces are not designed for employees to enter and work on a routine basis. They may be designed to store a product, enclose materials and process, or transport products or substances. Therefore, occasional employee entry for inspection, maintenance, repair, cleanup, or similar tasks, is often difficult and dangerous. The
danger associated with entry may come from chemical or physical hazards within the space.

**Non-Permit Confined Space** means a confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm (with respect to atmospheric hazards).

**Permit-Required Confined Space** (permit space) means a confined space that has one or more of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly-converging walls or by a floor that slopes downward and tapers to a smaller cross-section; or
4. Contains any other recognized serious safety or health hazard.

Based on the definition, many types of spaces may be considered "confined," and therefore, hazardous. Some examples of confined spaces might be sewers, electrical vaults, steam tunnels, mechanical rooms, or other similar types of enclosures.

It is the responsibility of department heads to evaluate potentially hazardous spaces within facilities or areas under their control and ensure that the proper precautions are taken for safety. This responsibility may be delegated to a competent person within the department provided he/she is qualified. It may be determined that a space presents no real danger for employees. However, until the space has been evaluated and tested, it shall be assumed to be confined and potentially dangerous. Once a space has been evaluated and it has been determined that confined space characteristics are present, Safety Office shall determine if the confined Space requires a permit and apply appropriate labeling.

**Identifying confined space hazards**

Once a space has been identified as confined, the hazards that may be present within the confined space must be identified. Confined-space hazards can be grouped into the following categories: 1) Oxygen-deficient atmospheres, 2) flammable atmospheres, 3) toxic atmospheres, and 4) mechanical and physical hazards.

Every confined space must be evaluated for these four types of hazards. The three types of atmospheric hazards are often the most difficult to identify since they are normally invisible.
**Oxygen-Deficient Atmospheres**

The normal atmosphere is composed of approximately 21% oxygen and 79% nitrogen. An atmosphere containing less than 19.5% oxygen shall be considered oxygen-deficient. The oxygen level inside a confined space may be decreased as the result of either consumption or displacement.

There are a number of processes which consume oxygen in a confined space. Oxygen is consumed during combustion of flammable materials, as in welding, cutting, or brazing. A more subtle consumption of oxygen occurs during bacterial action, as in the fermentation process. Oxygen can also be consumed during chemical reactions such as in the formation of rust on the exposed surfaces of a confined space. The number of people working in a confined space and the amount of physical activity can also influence oxygen consumption. Oxygen levels can also be reduced as the result of oxygen displacement by other gases.

**Flammable Atmospheres**

Flammable atmospheres are generally the result of flammable gases, vapors, dust mixed in certain concentrations with air, or an oxygen-enriched atmosphere.

Oxygen-enriched atmospheres are those atmospheres which contain an oxygen concentration greater than 22%. An oxygen-enriched atmosphere will cause flammable materials such as clothing and hair to burn violently when ignited.

Combustible gases or vapors can accumulate within a confined space when there is inadequate ventilation. Gases that are heavier than air will accumulate in the lower levels of a confined space. Therefore, it is especially important that atmospheric tests be conducted near the bottom of all confined spaces.

The work being conducted in a confined space can generate a flammable atmosphere. Work such as spray painting, coating, or the use of flammable solvents for cleaning can result in the formation of an explosive atmosphere. Welding or cutting with oxyacetylene equipment can also be the cause of an explosion in a confined space and shall not be allowed without a hot work permit. Oxygen and acetylene hoses may have small leaks in them which could generate an explosive atmosphere and, therefore, should be removed when not in use. The atmosphere shall be tested continuously while any hot work is being conducted within the confined space.
Section-W

Entering and working in confined spaces

Toxic Atmospheres
Toxic atmospheres may be present within a confined space as the result of one or more of the following:

The Product Stored in the Confined Space
When a product is stored in a confined space, the product can be absorbed by the walls and give off toxic vapors when removed or when cleaning the residual material. The product can also produce toxic vapors which will remain in the atmosphere due to poor ventilation.

The Work Being Conducted in the Confined Space
Toxic atmospheres can be generated as the result of work being conducted inside the confined space. Examples of such work include: Welding or brazing with metals capable of producing toxic vapors, painting, scraping, sanding, etc. Many of the solvents used for cleaning and/or degreasing produce highly toxic vapors.

Areas Adjacent to the Confined Space
Toxic fumes produced by processes near the confined space may enter and accumulate in the confined space. For example, if the confined space is lower than the adjacent area and the toxic fume is heavier than air, the toxic fume may "settle" into the confined space.

Mechanical and Physical Hazards
Problems such as rotating or moving mechanical parts or energy sources can create hazards within a confined space. All rotating or moving equipment such as pumps, process lines, electrical sources, etc., within a confined space must be identified.

Physical factors such as heat, cold, noise, vibration, and fatigue can contribute to accidents. These factors must be evaluated for all confined spaces.

Excavations could present the possibility of engulfment. Employees shall be protected from cave-ins by sloping, benching, or shoring systems when the depth of the excavation is more than four feet, in accordance with 29 CFR 1926.652.

CONFINED SPACE ENTRY PROGRAM

Identifying All Confined Spaces
A. All confined spaces located within a facility or under the facility's control should be identified. Once the space has been identified as Confined, Safety Office shall determine if a permit is required.
B. All employees shall be made aware of these confined spaces through training or instruction provided by department heads or their designated representatives. Assistance in this training shall be provided by the Safety Office.

Preventing Unauthorized Entry

A. All employees shall be instructed by department heads or their designated representatives that entry into a confined space is prohibited without an authorized permit.

B. Department heads or their designated representatives shall instruct all employees to list their names on the authorized permit before they will be allowed to enter a confined space.

The Permit System

A. When a confined space must be entered, a permit shall be completed and authorized by department heads, supervisors, or their designated representatives prior to entry of the confined space. This permit shall serve as certification that the space is safe for entry. The permit shall contain the date, the location of the space, and the signature of the person providing the certification. This permit maybe obtain at the Safety Office 745-2868.

B. A permit shall not be authorized until all conditions of the permit have been met. The permit to be used by SOSU personnel can be found in Appendix A.

Planning the Entry

The first step towards conducting a safe confined-space entry is to plan the entry. This will allow for the identification of all hazards, and for the determination of all equipment necessary, to complete the project.

Gathering General Data

A. Identify the confined space. Give the name or location of the confined space.

B. Give the reason for entering the confined space. Be specific. Also, identify if hot work will be done.

C. Identify the contents of the confined space. This refers to any chemicals or other materials and energy that are usually present in the confined space.

Identifying the Hazards

NOTE: It is recommended that atmospheric tests be conducted by the entry supervisor prior to the opening of any covers.
A. The entry supervisor will determine the oxygen content and describe the testing procedures and equipment used.
B. The entry supervisor will determine flammable gas content and describe the testing procedures and type analyzer used.
C. If a toxic substance is determined to be in the confined space during testing by the entry supervisor, Safety Office shall be contacted to assist in obtaining a Material Safety Data Sheet or other chemical information to determine what type of personal protective equipment is required, the potential health effects, the Permissible Exposure Limits, and any other information needed to safely conduct the work.
D. Department heads or their designated representatives will determine mechanical and physical hazards. They should list all items and energy that will require lockout/tagout, blanking and bleeding, disconnecting, or securing. Physical hazards should also be listed.

Ventilation of the Confined Space
A. Indicate whether mechanical or natural ventilation will be used. Describe the procedures to be used.

NOTE: If mechanical ventilation is to be used, the exhaust must be pointed away from personnel or ignition sources. Also, mechanical ventilators should be bonded to the confined space.

Isolating the Confined Space
A. Describe the procedures for disconnecting equipment or lockout and tagout. All mechanical, electrical, or heat-producing equipment should be disconnected or locked and tagged out. This would also include any pumps that pull fluid from, or pump fluid into, the confined space.

Purging/Cleaning the Confined Space
A. Indicate if the confined space will be purged. Purging with inert gas is not recommended. If the space must be purged, describe the procedures.
B. Indicate the type of cleaning methods to be used. If chemical cleaners are to be used, name the type and describe the procedures. The MSDS for the chemical should be consulted prior to use.

NOTE: When introducing a chemical into a confined space, the compatibility of that chemical with the contents of the confined space must be checked. If in doubt, consult the Safety Office.
NOTE: If steam is to be used, the hose should be bonded to the confined space.

**Placement of Warning Signs**
A. Indicate if warning signs or barriers will be needed to prevent unauthorized entry or to protect workers from external hazards. If the confined space will be left open and unattended for any length of time, warning signs and barriers will be required.

**Identifying All Personnel**
A. List all employees that will be required to prepare the confined space and complete the work inside the space.

**Identifying Necessary Equipment**
A. List all equipment that will be necessary to complete the project.

**Conducting Pre-Entry Training**
Once the entry has been planned, department heads or their designated representatives must train all employees who will be involved in the entry. The training should be conducted no earlier than one day before entry is to be made.

The following outline should be used for the training:

A. Identify the confined space and the reason(s) for entry.
B. Identify work detail
   a. Assign each employee the job(s) he/she is to perform in the entry project (entrant, standby person, etc.).
   b. If an employee is required to use a piece of equipment, be sure that he/she is capable of using the equipment properly.
   c. Inform all personnel that no one is to enter the confined space unless the standby person is present at the work site.
C. Inform entrants of all known or suspected hazards
   a. Inform personnel of any access or exit problems.
   b. Inform personnel of all equipment that must be locked out or tagged out.
   c. Inform personnel of the contents of the confined space.
   d. Inform personnel of all atmospheric levels that must be maintained before entering and while working in the confined space.

If a toxic atmosphere or substance is present or could become present, the following additional training must be completed:

E. If respiratory protection is not going to be used, inform personnel of the maximum permissible exposure level (PEL).
that can exist within the confined space, and the method used to monitor PEL.

f. Inform personnel of the potential health effects of exposure to the toxic atmosphere or substance.

g. Inform personnel of the signs and symptoms of exposure to the toxic fume.

h. Inform personnel of the personal protective equipment (PPE) that they will be required to wear.

i. If entrants are unaware of the proper use of the PPE, they must be trained in the proper use of this equipment.

NOTE: Department heads may request assistance from the Safety Office in providing the above-mentioned training.

j. Persons should not be assigned to tasks requiring use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. A local physician shall determine what health and physical conditions are pertinent. The respirator user’s medical status should be reviewed periodically (for instance, annually).

D. Identify isolation procedures
   a. Inform the personnel responsible for the lockout/tagout of all equipment that must be isolated.
   b. Inform the personnel responsible for performing this function of the methods to be used.

E. Identify purging and/or ventilation procedures
   a. Inform all personnel responsible for performing this function of the methods to be used.

F. Identify all equipment needed
   a. Inform personnel involved in the project of all equipment that will be necessary to complete the project.
   b. Make sure that all employees are capable of using their assigned equipment properly.

G. Determine necessary personal protective equipment
   a. Inform personnel of all PPE that must be used to ensure their safety.
   b. Make sure that all personnel required to use PPE are trained in the proper use of the equipment.

H. Establish communication
   a. Inform all entrants that they are required to maintain communication with the standby person.
   b. Inform standby person that he/she must maintain constant contact with all entrants.
c. Inform personnel of the type of communication they are to use.

I. Protect from external hazards
   a. Inform personnel where signs and barriers will be placed to prevent unauthorized entry and protect entrants from external hazards.

J. Pre-plan rescue procedures
   a. The designated standby person(s) should be informed of the rescue procedures to be followed. Rescue procedures to be used are listed in Item 10 of this section.
   b. The standby person should be informed that he/she can have no other duty but to maintain contact with personnel inside the confined space.
   c. Inform the standby person(s) that they must not enter the confined space under any circumstances.

K. Place the confined space back into service
   a. Inform personnel of the steps to be taken to place the confined space back into service.

Preparing The Confined Space For Entry
Once the entry has been planned and personnel have been trained, the next step is to prepare the confined space for entry.

The following steps are to be followed when preparing the confined space for entry:

A. If warning signs or barriers are to be used to prevent unauthorized entry or to protect entrants from external hazards, they should be placed on or around the confined space as planned and discussed in training.

B. Place all tools, safety equipment, monitoring equipment, etc., near the confined space.

C. Isolate all mechanical and/or electrical hazards as planned and discussed in training.

D. Purge/ventilate the confined space as planned and discussed in training.

E. The entry supervisor will test the atmosphere as discussed in training.
   a. If oxygen content is less than 19.5% or greater than 21.5%, perform additional ventilation. Then, shut off ventilation equipment and re-test the oxygen content.
   b. If oxygen content is between 19.5% and 21.5%, continue entry preparation.
F. The entry supervisor will test for flammable gas level as planned and discussed in training.
   a. If the meter reading is less than 10% of the lower explosive limit (LEL), continue entry preparations.
   b. If the meter reading is above 10% of the LEL, continue ventilation of the confined space. Then, shut off the ventilation and have the atmosphere re-tested.
   c. If the meter reading is still above 10% of the LEL, the confined space must be cleaned before entry is permitted. If the confined space must be entered for cleaning purposes, the procedures outlined in Item 9 of this section must be followed.

G. The entry supervisor will determine the toxicity of the atmosphere as planned and discussed in training. If a toxic atmosphere is present, no person should be permitted to enter the confined space at a level exceeding the Permissible Exposure Limit without proper Personal Protective Equipment. Environmental Health & Safety should be called to assist in identifying proper precautions and the protective measures to be taken.

H. Assemble all personnel involved and conduct a simulated rescue drill.

I. The entry supervisor will then add any needed information, then complete and sign the permit.

**Utilizing Safety Equipment**
Where practical, all personnel entering a confined space should be equipped with the following:

A. A retrieval line secured at one end to the entrant by a full-body harness with its other end secured to a tripod lifting hoist.

**Atmospheric Testing Procedures**

A. All testing equipment shall be calibrated by Safety Office as instructed by the manufacturer (Drager Multi-Pac-Monthly).

B. All of the manufacturer’s operating instructions must be followed.

C. The test equipment should be tested in a known atmosphere to insure its accuracy.

D. Ventilation equipment must be shut off before conducting any atmospheric tests.

E. The atmosphere must be tested at the bottom, top, and middle of all confined spaces.

F. The atmosphere must be continuously monitored while work is being conducted in the confined space.
G. If the confined space is left for any reason, the atmosphere must be re-tested before re-entering the space.

**Confined Space Cleaning Procedures**

If cleaning must be conducted in a confined space to achieve acceptable atmospheric conditions, the following procedures must be followed:

A. All entrants must be equipped with the safety equipment designated in Item 7.
B. All entrants must be equipped with an SCBA.
C. No spark-producing tools will be allowed for use.

**Rescue Procedures**

In the event of an emergency, the standby person should:

A. Immediately summon the City of Durant Fire Department by radio or telephone. (Dial 911)
B. Attempt to remove the victim by use of the retrieval line from outside the confined space if this can be accomplished without creating further hazard for the entrant or the attendant.
C. If the standby person is able to remove the victim with the retrieval line, he/she should administer aid within the limits of his/her training until emergency medical services (EMS) arrive.
D. If the standby person is unable to remove the victim by using the retrieval line, he or she must wait for help to arrive. The standby person(s) is not to enter the confined space for any reason.
E. Give EMS personnel any information they request.

**Personnel responsibilities and training**

Everyone involved in a confined-space entry project has certain responsibilities and requires a certain amount of training. It is very important that every individual is familiar with their responsibilities. This section outlines the responsibilities and training requirements of each individual involved in a project.

1. **Responsibilities of the Manager of Safety Office**
   The Manager of Safety or his/her designated representative shall be responsible for the following:
   A. Review and update of the Southeastern Oklahoma State University Confined Space Entry Program to conform with current CFR standards.
B. Insure compliance with standards set forth in the program by periodic inspection of entry sites and canceling permits where unsafe conditions are present.

C. Assisting Department Heads, Managers and Supervisors with:
   a. providing training as set forth in the program
   b. identification of confined spaces
   c. identifying spaces that require a permit for entry
   d. labeling Permit-Required Confined Spaces.

D. Perform a single annual review covering all entries performed during a 12-month period to ensure employees participating in entry operations are protected from permit space hazards.

2. Responsibilities and Training Requirements of Department Heads or Their Designated Representatives

Department heads or their designated representatives shall be responsible for the following:

A. Identifying confined spaces within facilities or areas under their control.

B. Identifying hazards within a confined space under their control.

C. Documenting that all training requirements for a specific confined space entry have been met by signing the pre-entry authorization space on the entry permit.

D. Insuring that the required atmospheric tests are performed at the confined space and results recorded on the permit prior to entry authorization.

E. Obtaining and maintaining all equipment necessary to complete the confined-space entry project.

F. Authorize entry by signing the Entry Authorization space on the entry permit after all conditions for a safe entry have been met.

G. Terminating the entry and canceling the permit when:
   a. Entry operations covered by the entry permit have been completed.
   b. A condition that is not allowed under the entry permit arises in or near the permit space.

H. Determining, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the
entry permit and that acceptable entry conditions are maintained.

3. Responsibilities and Training Requirements of Authorized Entrants
The person(s) authorized to enter a confined space shall be responsible for and receive training in the following:

A. The knowledge of hazards that may be faced during entry, including the mode, signs or symptoms, and consequences of the exposure.

B. Proper use of equipment, which includes:
   a. Atmospheric testing and monitoring equipment.
   b. Ventilating equipment needed to obtain acceptable entry conditions.
   c. Communication equipment necessary to maintain contact with the standby person.
   d. Personal protective equipment as needed.
   e. Lighting equipment as needed.
   f. Barriers and shields as needed.
   g. Equipment, such as ladders, needed for safe ingress and egress.
   h. Rescue and emergency equipment as needed.
   i. Any other equipment necessary for safe entry into and rescue from permit spaces.

C. Communication with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space if required.

D. Alert the attendant (standby person) whenever:
   a. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or
   b. The entrant detects a prohibited condition.

E. Exiting the permit space as quickly as possible whenever:
   a. An order to evacuate has been given by the attendant or the entry supervisor;
   b. The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
   c. The entrant detects a prohibited condition; or
   d. An evacuation alarm is activated.

4. Responsibilities and Training Requirements of Standby Persons (Attendants)
Persons authorized to perform duties as attendant shall be responsible for and receive training in the following:
A. Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.

B. Is aware of possible behavioral effects of hazard exposure in authorized entrants.

C. Continuously maintaining an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space.

D. Remains outside the permit space during entry operations until relieved by another attendant.

E. Attempting non-entry rescue if proper equipment is in place and the rescue attempt will not present further hazards to the entrant or attendant.

F. Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when conditions warrant.

G. Monitoring activities inside and outside the space to determine if it is safe for entrants to remain in the space and ordering the authorized entrants to evacuate the permit space immediately under any of the following conditions:
   a. If the attendant detects a prohibited condition.
   b. If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
   c. If the attendant detects a situation outside the space that could endanger the authorized entrants.
   d. If the attendant cannot effectively and safely perform all the duties required by this program.

H. Summoning rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

I. Taking the following actions when unauthorized persons approach or enter a permit space while entry is underway:
   a. Warn the unauthorized persons that they must stay away from the permit space.
   b. Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
Section-W

Entering and working in confined spaces

- W. Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
- J. Performs no duties that might interfere with the attendant’s primary duty to monitor and protect the authorized entrants.

List of terms

**Authorized Entrant** - A person who is approved or assigned by the department head in charge of the entry to perform a specific type of duty or duties or to be at a specific location at the job site.

**Bonding** - The joining of two or more items with an electrical conductor so that all ends joined have the same electrical charge or potential.

**Confined Space** - (see page 2).

**Department Head** - Department Heads are those people in charge of students or employees of Southeastern Oklahoma State University facilities with common interests, jobs, or objectives.

**Entry** - The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.

**Entry Permit** - The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in this program.

**Entry Supervisor** - Department Head or the designated representative (such as the foreman or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program.

Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this program for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of entry operation.
Section-W

Entering and working in confined spaces

**Hazardous Atmosphere** - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10% of its lower flammable limit (LFL).

- Airborne combustible dust at a concentration that meets or exceeds its LFL.

**NOTE:** This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.

- Atmospheric oxygen concentration below 19.5% or above 23.5%.

- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of 29 CFR 1910 and that could result in employee exposure in excess of its dose or permissible exposure limit. (SEE NOTE BELOW)

**NOTE:** An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.

- Any other atmospheric condition that is immediately dangerous to life or health.

**NOTE:** For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

**Hot Work** - Any work involving burning, welding or similar fire-producing operations. Also, any work that produces a source of ignition, such as grinding, drilling, or heating.

**Hot Work Permit** - The employer’s written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.
**Immediately Dangerous to Life or Health** - An atmosphere that poses an immediate threat of loss of life: May result in irreversible or immediate severe health effects; may result in eye damage/irritation; or other condition that could impair escape from a confined space.

**Lower Explosive Limit (LEL)** - The minimum concentration of a combustible gas or vapor in air that will ignite if an ignition source is introduced.

**Non-Permit Required Confined Space** - (see page 2)

**Oxygen-Deficient Atmosphere** - An atmosphere that contains an oxygen concentration of less than 19.5% by volume.

**Oxygen-Enriched Atmosphere** - An atmosphere that contains an oxygen concentration greater than 22% by volume.

**PPE** - Personal Protective Equipment: Any devices or clothing worn by the worker to protect against hazards in the environment. Examples are respirators, gloves, and chemical splash goggles.

**Pel** - Permissible Exposure Level: Concentration of a substance to which an individual may be exposed repeatedly without adverse effect.

**Permit Required Confined Space** - (see page 2)

**Purging** - The removal of gases or vapors from a confined space by the process of displacement.

**Standby Person** - A person designated by the department head in charge of entry to remain outside the confined space and to be in constant communication with the personnel working inside the confined space.

**References**

Refer all suspect mail to the campus police at 9-911 or 745-2727. Do not attempt to move or handle any mail you suspect as not normal or ordinary.
Section-Y

Emergency procedures for students with disabilities.

As a student with a disability, it is important to take responsibility for your own safety. In order to ensure your safety, develop an emergency plan or a strategy in advance.

- How you respond to an emergency depends on:
- the type of emergency
- your specific disability
- the location of your classes
- where you work or live on campus.

Important* For any emergency and for students with any type of disability, the first step is to contact 745-2727 / 9-911 or 911. When reporting the emergency, it is important to indicate your specific evacuation needs (e.g., you use a wheelchair, a respirator, or have breathing or stamina difficulties).

Students with Mobility Impairments

Elevators provide access for students with mobility impairments to classrooms throughout campus. However, during an emergency such as a fire or tornado, elevators can be very dangerous and often cease working. Furthermore, elevators have been known to break down and at times leave people with mobility impairments stranded on upper floors. As a result, it is unlikely that you will be able to evacuate without the assistance of others.

The evacuation of a person who uses a wheelchair is best left to emergency personnel with extensive training in evacuation procedures and the proper equipment. Asking untrained individuals to assist in evacuation could lead to injury to yourself or the person assisting you.

The following steps can help to ensure your safety in an emergency:

1. Make a Plan
   a. For every building in which you have class, work, or live on campus, locate an area or refuge, which could include a stairway or an adjacent classroom/room with a fire rated door and walls, where you will await rescue during a fire.
   b. A stairway must be large enough for you to sit without obstructing the flow of traffic as people exit the building via
the stairway. Obstructing the flow of traffic could place you and others in danger.

c. If using a stairway for an area of rescue is not feasible, locate a room that is in close proximity to the stairway that has smoke and fire rated protection from the doors and walls. Also note any difficulty you might have opening the door and ask for assistance if necessary.

d. In case of a tornado, you should locate an interior room or hallway without windows to wait for assistance.

2. Inform others of your plan

a. In most instances, this should be the instructor or your class, your resident advisor, or your supervisor. Let him or her know the location (i.e. classroom in the Northwest corner of this floor) you have selected to await rescue personnel in the case of an emergency.

b. This person should be responsible for the following:

   i. Ensuring that you reach and access the area of refuge.

   ii. Alerting emergency personnel of your whereabouts in the building in addition to making them aware of the nature of your disability. Information such as whether you use a respirator or a powered wheelchair is crucial information as firemen plan to evacuate you.

   iii. When an elevator becomes inoperable, students with mobility impairments should alert someone (faculty or staff) to the situation. The Campus Police is available 24 hours per day, 7 days per week, should be contacted immediately at 745-2727. Campus Police must be made aware that a person with mobility impairment is in the building. Police personnel will be dispatched immediately in order to repair the elevator.

   iv. If you are a student who uses a respirator, elevator stoppage could be an emergency situation if your oxygen is in short supply. In this instance, 745-2727 or 9-911 should be contacted and emergency personnel dispatched immediately for evacuation or medical assistance.
Students with visual impairments
As a student with a visual impairment, you should develop a plan of action for emergency situations as well. An ideal time to develop this plan is at the start of each quarter as you work with a mobility and orientation specialist to locate your classrooms.

1. Identify the emergency exit(s) that is closest to your classroom, dorm, or workspace.
2. Determine if you will need assistance in the event of emergency. If you will require assistance, discuss your specific needs with your instructor, resident advisor, supervisor and Student Support Services located in room111-B, Hallie McKinney Hall, phone number 745-2394.

Students with Seizure Disorders
If you have a seizure disorder that is not controlled by medication and have seizures often, it is wise to alert your instructor to your condition and how you wish for them to respond. Let them know what to expect if you were to have a seizure during class and under what circumstances it would be necessary to call for an ambulance. For additional information, you should refer your instructor to the SOSU Campus Nurse at 745-2867 for some brief instructions on how to react to a seizure. An ambulance will be dispatched to your location but you have the right to refuse treatment and/or transportation.
Section-Z
Golf Cart Policy and Procedures

Purpose
To provide guidelines for the use of all golf cart and similar type utility vehicles. This will provide for a safer environment on campus and streets adjoining the campus; also to establish operating procedures and safer conditions for drivers.

Policy
1. All operators must meet the following criteria before being assigned to operate a cart/utility vehicle.
   a. Attend and demonstrate in classroom the working knowledge of the cart/utility vehicle (operating instruction).
   b. Possess a current driver’s license.
   c. Operate and know the “Rules of The Road” found in Title 47 Oklahoma Motor Vehicle Laws.

2. Basic Operating Instruction
   a. Study and Understand control
   b. Ensure passenger(s) are seated
   c. Turn wheels in direction desired to be traveled
   d. Place shift lever in proper position
   e. Accelerate to safe speed
   f. To stop, release accelerator pedal and push brake pedal
   g. After stopping push brake pedal until it locks
   h. Remove keys and place gear shift in neutral position

3. Basic Safety Rules
   a. Never stand in front or behind vehicle
   b. Only (2) two individuals per seat
   c. Operate from driver’s side only
   d. DO NOT drive on steep slopes
   e. Drive in the direction of traffic when operating on campus streets
   f. Always yield to pedestrians when operating on or near sidewalks
   g. Keep arms, legs and feet inside vehicle
   h. Vehicle will be driven at a slow speed no greater than (10mph) on Campus and (15mph) on streets
   i. Vehicle will display the standard slow moving triangle

4. Vehicle Loading
   a. Do Not load tailgates
   b. Secure loads to prevent load shifting
c. Avoid top heavy loading, load should be in accordance with vehicle’s operation manual

d. Cargo shall be evenly distributed as far forward on bed as possible

5. Standard Operating Procedures

a. Driver must report all accidents to campus police 745-2727

b. Driver will not wear headsets or ear protection while driving

c. Only a qualified mechanic will repair vehicle

d. Repairs and maintenance will be the responsibility of the Department having cart and are to keep all original equipment and safety items in working order

e. Supervisors must monitor personnel and ensure safety training has been attended by operators.

f. Do not block sidewalks or building entrances and exits

g. NO stunt driving or horse play

h. NO clinging to vehicle

i. Operators or passengers shall not jump on or off cart in motion

j. Seatbelts will be worn - if equipped