West Texas A&M University

Safety Manual

(rev. 4/2014)

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Mission

West Texas A&M University is committed to providing the necessary services and programs to university students, faculty, staff, and visitors to help maintain a healthy and safe environment and to assist in the preservation of university assets, both physical and financial. Safe Work Practices establish the foundation of our safety environment and are the general Do's and Don'ts of work. Safe Work Practices must be incorporated into the university community to provide the safest environment possible for our students, faculty, staff, and visitors.

The goal of this safety manual is to establish safety processes and procedures that meet or exceed institutional service standards, state and federal regulations, and university community expectations.

West Texas A&M University recognizes that our greatest assets are the individuals making up our university community. It is everyone's responsibility to always use common sense when safety is a concern. It is each department's responsibility to provide the necessary tools for:

- Minimizing Accidental Loss
- Program Development
- Environmental Protection
- Emergency Preparedness
- Emergency Response Assistance
- Preserving Assets
- Regulatory Compliance
- Training

1. Introduction

The West Texas A&M University (WTAMU) Safety Manual has been developed as a reference manual to comply with the Texas A&M University System Policy #24.01 (Risk Management) and to provide general safety guidelines and procedures for students, faculty, staff, and visitors on campus. It describes safe work practices, programs, and procedures to be followed to help ensure a safe and healthy environment. It is the intent of the University to comply with all state and federal risk management requirements and statutes, along with applicable occupational and environmental regulations.

2. Responsibility

Faculty – Staff – Students

Employees and Students of WTAMU are responsible and accountable for:

- Safety performance.
- Environmental protection.
- Accident and Injury reporting.
- To report any unsafe conditions or concerns regarding Environmental Health and Safety.
- Working Safely.
- Follow all department and university procedures.

Supervisors, Department Heads and Directors

WTAMU Supervisors, Department Heads, and Directors are responsible for:

- Promoting safety and loss prevention.
- Informing all employees of safety related procedures and processes.
- Eliminating or controlling occupational hazards.
- Periodically conducting safety and loss control evaluations.
- Ensuring that employees are adequately trained in safety procedures.
- Ensuring that employees are provided with appropriate personal protective clothing and equipment for safe job performance.

Contractors on campus are responsible for following all WTAMU environmental health and safety procedures.

The Environmental Safety Office, the Academic and Research Environmental Health and Safety Office, and the Office of Risk Management will periodically conduct accident/injury investigations, along with safety inspections of all university facilities, offices, classrooms, laboratories, and work sites. These offices also review environmental health and safety procedures and monitor the implementation of those procedures. All university departments are responsible for completing necessary corrective actions.

NOTE: Some educational programs may involve exposure to chemicals, radiation, or other circumstances which could harm an unborn child. Therefore, any pregnant students, or students planning to become pregnant, should consult their health care provider to determine what, if any, additional precautions are needed based on their individual situation. It is the responsibility of the student to communicate their needs to the course instructor as soon as possible in order for risk-reduction to begin when it can be most effective, and to determine if additional modifications are necessary. While the university cannot mandate that a student notify if she is pregnant or is planning to become pregnant, the university strongly recommends that students do provide notification so appropriate steps can be taken to ensure the health of both parent and child. To communicate health circumstances or to request additional information, please contact the Student Affairs Office and the Academic and Research Environmental Health and Safety Office.

3. General Safety

Accident Reporting

An accident is an unplanned occurrence that may result in damage to people, property, equipment, or the environment.

IMPORTANT

Emergencies: For immediate assistance, report accidents or injuries on campus by calling 911 for the University Police Department (UPD).

For all accidents and injuries (emergency and non-emergency), including reporting from locations on campus and off-campus (e.g., hosting off-site classes and WTAMU-sponsored activities), the participant to the injury/ accident or the WTAMU supervisor/sponsor of the reporting location must contact UPD at 911 for emergencies and at 806-651-2300 for non-emergencies. UPD will process the information and generate an incident report.

Upon receipt and processing of the incident report, UPD will forward the information to all appropriate campus risk management offices, including: the Environmental Safety Office, the Academic and Research Environmental Health and Safety Office, and/or the Office of Risk Management. These offices will further communicate the incident report to the appropriate campus supervisors and provide further review of the incident to make certain compliance and safety protocols are in place and are being utilized appropriately. When accidents are reported promptly, injured employees, students, and visitors receive timely medical care and unsafe conditions receive prompt corrective action.

In addition, if an accident or injury occurs on-the-job, a Worker's Compensation Insurance-First Report of Injury Form must be completed and submitted to the Human Resources Office (806-651-2113). The form can be found at: www.wtamu.edu/risk .

Americans with Disabilities Act (ADA)

Within the standards required by the ADA, WTAMU makes reasonable accommodations for persons with disabilities so that they may more fully participate in programs and the benefits of employment. Safety is an important consideration in providing accommodations. Elevators, automated door openers, ramps, etc., facilitate access. Sometimes this equipment becomes damaged or does not function properly. Please promptly notify the Physical Plant for equipment repair. Handicap access, sidewalks, wheelchair ramps, and building entrance areas may become blocked or congested. To report all facility access and related issues, please contact the Physical Plant. Many classrooms are equipped with wheelchair accessible desks or tables. Wheelchairs or removable chairs that block aisles and exits can create an unacceptable hazard. Please report these instances to the class instructor for correction.

Crosswalk Safety

A Crosswalk is a portion of the roadway designated for pedestrian crossing. Essentially, when the pedestrian is in the crosswalk, vehicles must yield the right of way to the pedestrian. However, a pedestrian may not proceed into a crosswalk, from a safe location, when vehicular traffic is in such proximity that it is impossible for the vehicle to stop.

- Stop Before You Enter the Crosswalk and Look Both Ways.
- When Crossing Look in the Direction of the On-Coming Traffic.
- Refrain from Using Smart Phones and Reading Devices.
- Cross Completely and Do Not Stop.
- Do Not Horseplay in the Crosswalk.
- Do Not Trust Traffic to Stop.

For drivers, it is very important to be alert when approaching pedestrian crosswalks. Slow down when approaching crosswalks, yield to the pedestrians, pay attention when turning corners, and observe all traffic signs and lights.

Asbestos

Asbestos may be found in older buildings, appliances, insulation, shingles, siding, putties, and caulking. Generally, it should not be a problem unless the material that contains it crumbles or flakes. The Texas Asbestos Health Protection Rules do not require building owners to conduct inspections and identify all asbestos locations. Inspections are required, however, prior to renovation or dismantling activities.

NOTE: Notify the Physical Plant before performing any work on campus that will disturb building fixtures, walls, or ceiling. The Physical Plant will help ensure that the work does not affect asbestos containing materials.

IMPORTANT: Do not handle asbestos or suspected asbestos or try to remove it yourself. Direct any questions about identifying or removing asbestos to the Physical Plant. Address any building safety-related questions to the Environmental Safety Office.

Appropriate Apparel

Dress in a manner that does not impair safety. Loose clothing, long hair, dangle jewelry, and sandals may be dangerous around moving equipment. Always wear clothing that is appropriate for your job. Refer to the chapters on Personal Protective Equipment and Office Safety for more information.

Arts and Graphic Media

The art supplies, chemicals, ovens, and presses associated with craft arts and graphic media are often hazardous. Depending on the type of art supplies and equipment used, artists can be exposed to the same types of occupational hazards as industrial workers. The risks of chemical hazards include the duration and frequency of exposure, chemical toxicity, and chemical amount. Exposure to art and graphic media hazard may take place through skin contact, inhalation, and ingestion.

Follow these safety guidelines for working with art and graphic media materials:

- Wear protective clothing and follow the Material Safety Data Sheets (MSDS), as appropriate.
- Use nontoxic solvents and chemicals when possible.
- Eliminate toxic metals such as lead and cadmium. Instead, use cadmium-free silver solders and lead-free paint, glazes and enamels.
- Use water-based or soy-based instead of solvent-based materials.
- Use liquid materials to replace powders.
- Use wet techniques (such as wet sanding) instead of dry techniques.
- Apply coatings by brushing or dipping instead of spraying.
- Eliminate cancer-causing chemicals.

Pottery clay contains silicates that can be hazardous if inhaled. Many low-fire clays and slip-casting clays also contain talc, which may be contaminated with asbestos. Long-term inhalation of asbestos can cause health problems and respiratory diseases. When mixing clay dust or breaking up dry grog, use exhaust ventilation and wear a toxic dust respirator. Work with wet clay when possible. Pottery glazes also contain free silica, including flint, feldspar, and talc. Wear a toxic dust respirator when mixing or spraying glazes. Toxic fumes and gases are often produced during the firing process. Ensure that all kilns are ventilated and that PPE is worn when working with kilns. Face shields and proper eye protection should also be utilized.

Photography may also use chemicals with photographic processing that can cause severe skin and lung problems. The greatest hazards associated with photography include the preparation and use of concentrated chemical solutions. Never touch chemical powders or solutions with unprotected hands (always use PPE). In addition, take care not to stir up and inhale chemical dusts.

IMPORTANT: Good ventilation is essential when working with photographic chemicals.

The following are common photographic agents and their hazards:

- Developer: May cause skin irritation and allergic reactions.
- Stop-bath: May cause burns and throat irritation.
- Fixer: Highly irritating to lungs.
- Intensifier: Very corrosive and may cause health problems.
- Reducer: Contact with heat, concentrated acids, or ultraviolet radiation produces poisonous gas.
- Photography Toners: Highly toxic.
- Hardeners and stabilizers: Often contain formaldehyde which is poisonous, a skin irritant, and a known carcinogen.

Woodworking has hazards associated with it that include sawdust inhalation, exposure to toxic solvents and adhesives, and excessive noise from woodworking tools. Long term inhalation of sawdust may cause chronic respiratory health problems. Depending on the type of wood, short term sawdust inhalation may also produce allergic reactions. Toxic preservatives, such as arsenic compounds and creosote, may cause health problems. Epoxy resins and solvent-based adhesives, also pose potential hazards. Use dust collectors around woodworking machines, ensure proper ventilation, and wear personal protective equipment, as appropriate.

NOTE: The Academic and Research Environmental Health and Safety Office has posted Standard Operating Procedures for all course, lab, and research work.

Solvents

Solvents are used to dissolve oils, resins, varnishes, and inks. They are also used to remove paint and lacquer. Most organic solvents are poisonous if swallowed or inhaled. They can also cause dermatitis and narcosis. Always use the least toxic solvent possible.

Aerosol Sprays

Aerosol sprays, such as fixatives, paint sprays, and adhesive sprays, may cause health problems if someone inhales the fine mists produced by these products. Air brushes and spray guns are equally hazardous. Use aerosol sprays in a well-ventilated area and wear a dust/vapor mask to protect you from the hazardous vapors.

Acids and Alkalis

The acids and alkalis used in ceramics, photo chemicals, paint removers, and similar materials can be very caustic to the skin, eyes, respiratory system, and gastrointestinal system. Likewise the acids and alkalis used to etch metals and glass can be very dangerous. Strong acids, such as hydrochloric, sulfuric, and perchloric acid, require special handling as outlined in the MSDS. Alkalis, such as caustic potash, caustic soda, quicklime, and unslaked lime, also require special treatment.
IMPORTANT: Always add an acid (A) to water (W) not vice-versa, remember “A to W dilution.”

Paints and Pigments

Many paints and color pigments contain hazardous chemical compounds. Lead paint, for example, is toxic and should never be used in its powder form. Other paint components, such as chromate, cadmium, and cobalt pigments, are also hazardous. Do not inhale powdered paint or spray paint vapors or accidentally ingest pigment by placing the brush tip in your mouth. In addition, do not eat, drink, or smoke while painting. Any of these activities could result in chronic poisoning.

Lead poisoning through lead accumulation in a person's system may cause health problems. Buildings that were constructed or painted prior to 1978 may contain lead paint. It is important to avoid areas or activities that involve lead ingestion or lead particle inhalation. Contact the Physical Plant or the Environmental Safety Office for questions regarding lead hazards.

Plastics, Acrylics, Epoxy Resins

Plastic hazards result from making plastic and working with finished plastic. The greatest hazards associated with making plastic come from the monomers, solvents, fillers, catalysts, and hardeners that are commonly toxic. The hazards involved with finished plastics result mainly from the methods used to work the plastic. For example, overheating or burning plastic produces toxic gases. Polishing, sanding, and sawing plastic produces harmful dusts.

Certain types of plastics, such as acrylics and epoxy resins are also hazardous. The components in acrylic, for example, include irritants, explosives, and flammables. The main hazard associated with acrylic compounds, however, is inhalation. Always maintain good ventilation when working with acrylic.

The epoxy resins used in laminating, casting, glues, and lacquer coatings, are also skin irritants, sensitizers, and may cause health problems. Avoid skin contact and inhalation when working with epoxy resins.

Hearing Conservation

Excessive noise levels may permanently damage a person's hearing. Whenever possible, employees should avoid noise exposure or reduce noise to an acceptable level. At no time should any exposure to continuous, intermittent, or impact noise in excess of 140dB be allowed. Contact the Environmental Safety Office for concerns related to Hearing Protection.

Hearing Loss

Hearing loss can be permanent — wear protective equipment when noise levels are high. Before using personal protective equipment, such as ear plugs or muffs, to reduce noise exposure, try to reduce noise levels by changing work procedures. Maintenance practices to reduce noise levels include:

- Replace worn or loose machine parts
- Perform high-noise operations during hours when people are less likely to be affected

- Maintain and lubricate equipment to eliminate rattles and squeaks
- Replace noisy materials
- Use large, low speed fans
- Consider the noise level of new equipment before purchasing
- Place heavy machines on rubber mountings if possible
- Use sound-absorbing acoustical tiles or baffles
- Place noisy machinery or operations in a separate area or room
- Enclose noisy conveyors
- Provide and maintain signage at entrances to high noise areas

Areas that may require hearing protection include machine shops, boiler rooms, landscape maintenance, etc. Supervisors should insure that hearing protection is provided to employees. Observe all warning signs and wear hearing protection whenever necessary. Do not interfere with, remove, or modify noise abatement equipment. Keep all equipment properly maintained, and report any malfunctions immediately.

Refer to the section on Personal Protective Equipment for more information on hearing protection.

Heat Stress, Strain, Exhaustion, and Heat Stroke

People may suffer from heat related illnesses at any time of the year but particularly during hot, humid conditions. Because the climate at WTAMU is conducive to these conditions, people must take preventive measures to reduce their risk. To prevent heat related illness, supervisors must assist workers in acclimating to conditions which could cause heat-related stress or illness. Employees should limit strenuous physical activity during the hottest portion of the day, wear sun protection, take frequent breaks, and drink plenty of fluids.

Examples of heat related illnesses are heat exhaustion heat stroke, heat cramps, dehydration and heat rash. Heat exhaustion is usually caused by strenuous physical activity and hot, humid conditions. Because heat exhaustion is the body's response to insufficient water and salt, it should be treated as quickly as possible.

Signs and symptoms of heat exhaustion include the following:

- Exhaustion and restlessness
- Headache
- Dizziness
- Nausea
- Cold, clammy, moist skin
- Pale face
- Cramps in abdomen and lower limbs
- Fast, shallow breathing
- Rapid, weak pulse
- Falling body temperature
- Fainting

Take the following steps to administer first aid for heat exhaustion:

- Have the victim lie down in a cool or shaded place.
- If the victim is conscious, have him/her slowly sip cool water.
- If the victim is unconscious or is conscious but does not improve, seek medical aid as soon as possible.
- If the victim is sweating profusely, have him or her sip cool water that contains one teaspoon of table salt per pint of water.

Heat stroke is usually caused by exposure to extreme heat and humidity and/or a feverish illness. Heat stroke occurs when the body can no longer control its temperature by sweating. Heat stroke is extremely dangerous and may be fatal if not treated immediately.

The signs and symptoms of heat stroke include the following:

- Hot, dry skin
- Headache
- Dizziness
- High temperature
- Strong pulse
- Noisy breathing
- Unconsciousness

Immediately take the following steps to administer first aid for heat stroke:

- If possible, move the victim to a cool place.
- Seek medical attention as soon as possible.
- Remove the victim's clothing.
- If the victim is conscious, place him in a half-sitting position and support the head and shoulders.
- If the victim is unconscious, place him on the side with the head facing sideways.
- Fan the victim and sponge the body with cool water.

IMPORTANT: To help prevent heat-related illness be sure to consider your work environment (including air circulation and humidity levels), be sure to wear lighter more breathable clothing if able, drink plenty of fluids, and take rest breaks during strenuous tasks.

Housekeeping

Good housekeeping skills are important for personal safety. WTAMU employees are responsible for reducing potential hazards and keeping their work areas safe and clutter-free. Good housekeeping guidelines include keeping aisles and stairways free from clutter, cleaning spills, minimizing combustibles in the workplace and storage areas, and keeping all exits free from obstructions.

Maintain clear and unobstructed access to emergency equipment, such as fire extinguishers, pull stations, eye wash units, showers, etc.

For more information on housekeeping, refer to the workplace sections in this manual (i.e., Office Safety, Shop Safety, etc.) and refer to the posted Academic and Research Environmental Health and Safety Standard Operating Procedures.

Indoor Air Quality

Indoor air quality refers to the condition of air within an enclosed workplace. The indoor environment of any building is based on several factors including location, climate, building design, construction techniques, building occupant load, and contaminants. Poor indoor air quality can be caused by outside contaminant sources, poor ventilation systems, pollutant pathways, building usage, and occupant load. Outside sources of indoor air contaminants may include mold, industrial pollutants, vehicle exhaust, and unsanitary debris near outdoor air intake vents.

Indoor contaminants are classified according to these categories:

- Combustion products (e.g., smoke and exhaust fumes)
- Volatile organic compounds (e.g., solvents and cleaning agents)
- Respiratory particulates (e.g., dust, dirt, and pollen)
- Respiratory byproducts (e.g., carbon dioxide)
- Microbial organisms (e.g., mold, mildew, fungi, and bacteria)
- Radionuclides (e.g., radon)
- Odors (e.g., perfume, smoke, mold, and mildew)

WTAMU follows building code for new building ventilation systems and air quality control; however, employees are also responsible for the quality of their indoor air. Employees must minimize contaminants to reduce the low-level pollutant mixtures that can cause health problems. Also, to

help ensure optimum indoor air quality, do not block air ducts when trying to control the temperature in work areas, offices or classrooms.

Lifting

All employees must use proper lifting techniques to avoid injury when lifting heavy objects. In general, employees should seek assistance when lifting objects that weigh 50 pounds or more. Use your good judgment to determine if you need assistance, a dolly, back support belt, or other tool to safely lift an object.

The back supports the weight of the entire upper body. When you lift objects or move heavy loads, your back has to support even more weight. If you exceed your body's natural limits, your back cannot support both your body and the extra load. The excess, unsupported pressure is transferred to the lower back, where injury is imminent. By using the muscles in your arms and legs and exercising proper lifting techniques, you can move loads safely and protect your back from possible injury.

Follow these guidelines to help avoid back injuries:

- Avoid moving objects manually. Plan jobs and arrange work areas so that heavy items may be moved mechanically.
- Keep in good physical condition. If you are not used to lifting and vigorous exercise, do not attempt difficult lifting tasks.
- Think before you act. Use proper lifting techniques and lifting aides such as back support belts, dollies, etc. Get help if you need it.

When lifting heavy objects, follow these steps:

- Test the object's weight before handling it. If it seems too heavy or bulky, get assistance.
- Face the object, place one foot behind the object and one foot along its side.
- Bend at the knees.
- Get a firm, balanced grip on the object. Use the palms of your hands, and use gloves if necessary.
- Keep the object as close to your body as possible. (Pull the load in close before lifting.)
- Lift by straightening your legs and slightly unbending your back.
- If the object is too heavy or bulky, get help.
- Do not twist the back or bend sideways.
- Do not perform awkward lifts.
- Do not lift objects at arm's length.
- When moving objects, proceed with caution through doors and around corners.

Polychlorinated Biphenyls (PCBs)

PCBs are found in many oil-based items, electrical fluids, capacitors, light ballasts, and transformers. PCBs are known carcinogens that are toxic to humans through skin exposure, inhalation, and ingestion. PCBs cause skin disorders and they irritate the eyes, ears, nose, and throat. Before shipping, handling, or disposing of oil-based products, WTAMU employees must determine if their products contain PCBs. Common trade names for PCBs include: Aroclor and Aroclor B, Abestol, Askarel and Adkarel, Chlorextol, Chlorinol, Clorphen, Diaclor, Dykanol, Elemex, Eucarel, Hyvol, Inerteen, No-Flamol, Pyranol, Pyroclor, Saf-T-Kuhl, Sanotherm.

Owners are specifically responsible for properly handling any equipment containing PCBs. For example, PCB transformers must meet the following requirements:

- PCB transformers and owners must be registered with the local Fire Department.
- The PCB transformer and access to the PCB transformer (fences, doors, etc.) must be plainly marked with a PCB label.
- Combustible materials may not be stored within five meters of a PCB transformer or enclosure.
- If a transformer is involved in a fire-related incident, the National Response Center must be notified.

- Radial PCB transformers must be equipped with high current fault protection. Units with secondary voltage of 480 volts or greater must be equipped with low current fault protection.

The Texas Commission on Environmental Quality (TCEQ) considers PCBs to be special waste. Contact the Environmental Safety Office for disposal procedures.

IMPORTANT: Report all PCB leaks (e.g., transformer leaks) to the Physical Plant and Environmental Safety Office immediately.

Preventing Slips, Trips, and Falls

To prevent falling accidents, employees should always follow good housekeeping practices and pay attention to their environment to avoid slips, trips, and falls. In addition, employees should:

- Use office lights to ensure visible passageways
- Avoid horseplay
- Avoid unnecessary haste
- Do not run in work areas.
- Use ladders or step-stools to reach high places. Never climb onto chairs, tables, drawers, or shelves.
- Keep hallways and stairwells neat and free of obstacles.
- Remove items that may pose a potential slipping hazard.
- Clean up spills as soon as they occur.
- Never obstruct your view when walking.
- Do not wear clothing that is too long or shoes that have slippery heels or soles.
- Hold the handrail when using stairs.
- Be careful when walking on wet surfaces or when entering a building while wearing wet shoes.
- Report uneven surfaces, such as loose or missing floor tiles, to the Physical Plant for repair.
- Wear the proper Personal Protective Equipment on your feet when working in, around or on slippery/slick surfaces.

Smoking

To promote a safe, healthy, and pleasant environment for employees, students, and visitors, all University facilities, buildings, and vehicles, regardless of location or ownership, must be entirely smoke-free. This includes all foyers, entryways, classrooms, restrooms, offices, athletic facilities (indoor and outdoor), eating areas, university-owned/leased housing, and within 50 feet of all facility entrances.

Visitor Safety

Employees must take special care to ensure visitor safety. This is particularly important when bringing visitors to potentially hazardous areas such as construction sites or laboratories.

IMPORTANT: Office visitors should be escorted; worksite visitors should be escorted, supervised, and monitored. Do not bring children to the workplace.

If a visitor is injured, call 911 for University Police Department assistance.

4. Fire and Life Safety

West Texas A&M University is committed to providing a safe environment for building occupants and emergency response personnel.

Fire and life safety at West Texas A&M University is governed by federal, state, and local regulations. Texas A&M University System (TAMUS) policies and regulations, include TAMUS

regulation # 24.01.01-Supplemental Risk Management Standards. Jurisdiction for fire safety lies with the Texas State Fire Marshal and with the local Authority Having Jurisdiction (AHJ). Every individual on our campus has a responsibility for fire safety.

The fire and life safety program at WTAMU involves numerous processes and procedures to help ensure that our campus is safe. These programs include fire prevention, fire suppression, emergency preparedness, preplanning, education, and response. The following information is provided as general guidelines for activities associated with fire and life safety. Additional information may be obtained by contacting the Environmental Safety Office.

Applicable Codes & Standards

The Texas State Fire Marshal's Office has adopted the National Fire Protection Association Life Safety Code© and all referenced codes and standards as the primary guide for fire and life safety. It is important to note that this code is not all inclusive, is not a building code, and that other codes and standards may also apply. Some of these include, but are not limited to:

- International Building Code
- International Fire Code
- International Mechanical Code
- Americans with Disabilities Act
- Texas Accessibility Standards Act

Appliances

An appliance can be defined as any instrument or piece of equipment or device designed for a particular use and powered by electricity (i.e. computers, copy machines, refrigerators, freezers, space heaters etc.). Use the following guidelines when using appliances on campus:

- Always use appliances that are UL or FM labeled.
- Adequate space should be given around appliances to allow for air circulation.
- Large appliances such as refrigerators and freezers should be plugged directly into wall outlets.
- Frequently inspect the condition of appliances. If appliances begin to spark or produce an electrical smell, turn power off immediately and discontinue using the appliance.

Arson

If arson is suspected, dial 911 for the University Police Department. Do not alter the fire scene in any way, unless you are trying to extinguish a live fire. UPD will investigate any possible arson.

Building Evacuations

WTAMU has a written and posted Emergency Operations Plan addressing all hazards. Each department is responsible for developing and maintaining procedures for emergency evacuation (assistance is available from the Campus Emergency Response Team (CERT) members).
Evacuation drills may be used to vacate a building for several reasons such as fires, gas leaks, chemical spills, bomb threats or other similar emergencies and emphasis should be placed on orderly evacuation rather than on speed.

Everyone should leave the building when the fire alarm sounds. When leaving the building, occupants should secure doors and take items as if not returning to the building (i.e. keys, purses, etc.). Lock computers against log-in access. Secure cash and other assets that require security. Department employees should gather in a preplanned meeting place. Choose a location that is away from the building. Do not block or impede occupants from leaving the building or emergency responders from entering the building. Do not gather or stand in areas where there is moving vehicles. Stay clear of responding emergency vehicles. Building and floor coordinators (CERT) should check immediate floor areas to notify and help occupants leave the building.

Candles & Incense

General guidelines include:

- Candles, incense burners, oil lamps or other personal items that have open flames or that smolder, are prohibited in work areas (individual or group), conference rooms, restrooms, etc. in all campus buildings. This restriction applies to such items regardless of whether the item has been lit.
- This use of candles does not apply to such devices used in the course and scope of University sponsored research or activities necessary to conduct business operations.
- Students living in residence halls are governed by similar rules as set forth in the Residential Living Handbook.

Combustible Storage

One of the most common violations of general fire safety practices is that of improper or excessive storage of combustible material. By storing excess combustible materials improperly, employees not only increase the potential for having a fire, they increase the potential severity of a fire. To reduce the hazards associated with combustible storage, follow these guidelines:

- Eliminate excess combustible materials, such as paper and cardboard.
- Never store combustible materials in hallways, stairwells, or mechanical rooms.
- When stacking combustible materials, leave at least 2 feet from the top of the storage to the ceiling.

Compressed Gas Cylinders

Compressed gas cylinders, in service or in storage, shall be adequately secured (chained) to prevent falling or being knocked over. Ropes, cords, rubber and other combustible material are not approved for this purpose. Compressed gas cylinders shall have their caps in place except when they are in use or are being serviced or filled.

Decorations

When decorating your area, there are several things that you must be aware of:

- Never hang anything from fire sprinkler piping or heads.
- Never obstruct fire alarm devices.
- Any combustible decorations such as curtains or drapes must be of a fire resistant material.
- Never obstruct an exit or the visibility thereof.
- Never staple or tack light strings.
- Decorations should not be placed in exit corridors or stairways.

Holiday decorations are often fire hazards if not utilized properly. Follow these guidelines to improve fire safety during the holidays:

- Do not use live cut Christmas trees in University buildings. Use an artificial tree that is fire resistant.
- Do not place holiday decorations where they may block emergency egress (e.g., stairways, corridors, near doors, etc.)
- Only use decorations that are fire retardant.
- Practice good housekeeping by minimizing paper and other combustible decorations.
- Avoid using extension cords. If an extension cord is absolutely necessary, use a heavy gauge cord and place it in plain view. Make sure the cord does not pose a tripping hazard.
- Use FM or UL labeled electrical decorations.
- Do not light candles or use other decorations with open flames.
- Turn off lights when the room is unoccupied.

Electrical Safety

Many times it is necessary to use a power strip/surge protector to reach a work area or to provide additional outlets. It is important to not overload outlets. Follow the manufacturer‘s recommendation and these guidelines:

- Extension cords are for temporary use (defined as an 8-hour work day or less).
- Unplug and properly store cords when not in use.
- Install permanent code compliant wiring for long term use.
- Extension cords or power strips must be plugged directly into a wall receptacle – no daisy chaining is permitted.
- Extension cords and power strips should be examined regularly for damage and removed from service if damaged.
- Extension cords and power strips should be UL listed.
- Extension cords shall not be run above ceiling or under carpet or other similar materials.

IMPORTANT: No storage is permitted within designated electrical panel access areas.

Emergency Access and Egress

Emergency access and egress are critical during an emergency situation such as a fire. During a fire, timing and quick response are essential to save lives and property. Effective emergency access ensures that fire trucks can reach a building in time to extinguish the fire. Unobstructed emergency egress ensures that building occupants can exit a building to safety. Emergency access helps ensure that facilities and equipment remain available and unobstructed at all times to ensure effective fire detection, evacuation, suppression, and response.

Flammable and Combustible Liquids

The Flash Point is the lowest temperature at which vapors above a volatile combustible substance will ignite in air when exposed to a spark or flame. You can identify if you are working with flammable or combustible materials by referencing the flash point on the product label or MSDS sheet.

When working with these materials, precautions should be taken to prevent the ignition of flammable vapors by sources such as open flames, hot surfaces, or cutting/welding sparks. Make sure you are in a well-ventilated area to allow dangerous vapors to dissipate or escape the area. Only acceptable containers that meet the requirements set forth in the Flammable and Combustible Liquids Code, published by the National Fire Protection Association (NFPA), should be used with flammable and combustible liquids.

Fire Detection and Notification

Most occupied buildings on the WTAMU campus have automatic fire detection/notification systems installed in them. These systems utilize several different types of detection devices including heat, flame, smoke detectors, and manual pull stations to activate the notification portion of the system.

Fire Door

Fire doors serve as a barrier to limit the spread of fire and restrict the movement of smoke. Unless these doors are held open and released by the building fire alarm system fire doors should remain closed at all times. Do not tamper with fire doors or block them with equipment, door stops, potted plants, furniture, etc. All fire doors will have a label affixed to the door indicating the manufacturer, rating, serial # of the door and other information. It is important <u>not</u> to remove, paint, or in any way damage the label.

For your safety and to maintain the integrity of fire doors there are several important items to remember:

- Know which doors are fire doors and keep them closed to protect building occupants and exit paths from fire and smoke.
- Never block a fire door with a non-approved closure device such as a door stop, blocks of wood, or potted plant.
- For fire doors with approved closure devices, make sure that nothing around the door can impede the closure.
- Never alter a fire door or assembly in any way. Simple alterations such as changing a lock or installing a window can lessen or completely void the fire rating of the door.

- Doors to offices, laboratories, and classrooms help act as smoke barriers regardless of their fire rating. Keep these doors closed whenever the room is unoccupied.

Fire Extinguishers

Fire Extinguishers, when used properly, play a vital role in containing and/or extinguishing small fires. Portable fire extinguishers are designed to be used on small, contained fires, by properly trained individuals. Lives could be saved, and property damage reduced, when fire extinguishers are used correctly.

IMPORTANT: Always know the location of the closest extinguisher. Never block access to an extinguisher.

There are five classifications for fires:

- Class A: Fires involving ordinary combustibles, such as paper, wood, plastic, cloth, and trash.
- Class B: Fires that involve flammable or combustible liquids, such as gasoline, solvents, oil, paint, and thinners.
- Class C: Fires that involve energized electrical equipment or appliances.
- Class D: Fires involving flammable metals, such as magnesium and sodium. (Never attempt to extinguish a Class D fire with anything other than a CLASS D extinguisher.)
- Class K: Fires that involve cooking media, such as vegetable oils.

The most common fire extinguisher found in campus buildings will be the "ABC" Dry Powder Universal Extinguisher which are specifically designed to put out Class A, Class B and Class C fires. ABC fire extinguishers are filled with a fine yellow powder. The greatest portion of this powder is composed of monoammonium phosphate. Nitrogen is used to pressurize the extinguishers. ABC fire extinguishers are red in color and range in size from 5 lbs to 10 lbs on campus.

The Environmental Safety Office conducts regular inspections of fire extinguishers. The department also services extinguishers that have been discharged and performs the required maintenance and testing of extinguishers. Once discharged, fire extinguishers must be serviced or replaced. If an extinguisher has been discharged, is missing, needs to be relocated, or any other type of service, contact the Environmental Safety Office for assistance.

To use a fire extinguisher you must remember the **PASS**-word:

- **P**ull the ring-pin (held in place by a plastic seal) This will unlock the operating lever or handle and allow you to use the extinguisher.
- **A**im the nozzle at the base of the fire.
- **S**queeze the operating lever or handle completely. This will discharge the extinguishing agent.
- **S**weep the extinguisher nozzle or hose from side to side. Move in carefully, aiming at the base, sweeping from side to side until the fire is extinguished.

The normal operating distance of different extinguishers will vary. Remember:

- Only attempt to extinguish small, contained fires.
- Make sure you are properly trained, and capable of using the extinguisher.
- Always make sure you have a way out.
- Never turn your back on a fire. Always back away from a fire even if it appears to be out.
- Fires may re-ignite, so be prepared.

Learn how to use a fire extinguisher before an emergency occurs. The Environmental Safety Office can provide training on the use of portable fire extinguishers.

Fire Hydrants

Fire hydrants are located throughout the campus and play a vital role in fire suppression operations. It is important to maintain a clear path to all hydrants and allow clear distances around hydrants to

allow uninhibited operation should an emergency occur. It is also important that vehicles are not parked within 20 feet of fire hydrants or other fire safety equipment.

Fire Lanes

A fire lane is an area designated for emergency personnel only. It allows them to gain access to building and/or fire protection systems. Parking in or blocking any fire lane is prohibited.

Fire and Life Safety Inspections

Fire and life safety inspections are conducted at least annually in WTAMU facilities. The goal of these inspections is to help identify potentially unsafe practices and conditions in WTAMU facilities.

Some of the items that our inspectors will be looking for include but are not limited to:

- Access to the facility for emergency responders.
- Means of egress and verifying that egress components are unobstructed and in working condition.
- Electrical safety.
- Storage of materials (24 inches from ceilings and sprinkler heads).
- General housekeeping.
- Presence of ignition sources.

Fire Prevention

Fire Safety is everyone‘s responsibility. Fire prevention starts with good housekeeping. Loose papers, trash and other combustible items, such as cardboard boxes, are a fuel source for fire. Combustible items should not be stored in mechanical equipment rooms or electrical rooms. Never store combustible items in an exit corridor or stair enclosure.

Fire Reporting

Call 911 to report a fire and provide information such as: the building name and location, the room number, the type of fire, any injuries, and any other information requested by the emergency operator.

If you are trained in the proper use of portable fire extinguishers and are not in immediate danger you may attempt to extinguish the fire (see Fire Extinguishers).

If you discover a fire in a facility on campus you should get out, stay out, call 911, and pull the manual pull station, if able, on the way out. Pull stations should be located near building exits to initiate a building evacuation.

Fire Suppression

WTAMU uses various types of fire suppression equipment including portable fire extinguishers, fire sprinklers, extinguishing systems, cooking hood systems, and fire hose/standpipe systems. The following sections discuss each type of fire suppression equipment. To ensure that sprinklers are effective in the event of a fire, maintain a minimum of 24 inches of clearance below the sprinkler head for equipment and stored items. In addition:

- Do not hang drapes, curtains, tarps, etc that will interfere with the spray pattern of the sprinkler.
- Never attach or hang anything from sprinkler piping or sprinkler heads.
- Do not paint or damage sprinkler heads in any manner.

Fire Hoses and Standpipe Systems

A standpipe system is an arrangement of piping, valves, hose connections and allied equipment installed in a building or structure for the purpose of manually extinguishing a fire. Fire hose cabinets are located in several buildings near or in the exit stairwells and in corridors. Local fire department responders will use the standpipe system in the event of a fire in a building. Access to these systems should be maintained at all times and should not be blocked by any equipment, chairs, desks, etc.

Liquefied Petroleum Gas (LPG)

The Texas Railroad Commission regulates the sale and use of LPG, including butane and propane. In addition, the Liquefied Petroleum Gas Code (NFPA 58) provides regulations on the use of LPG as well. Take special precautions to ensure adequate ventilation when using LPG-powered machines indoors.

Because LPG is extremely flammable, it is a potential fire hazard. Do not store LPG near heat, flame, or other ignition sources. In addition, do not leave portable LPG containers larger than 16 oz. in a building overnight. Instead, place portable LPG containers and LPG equipment outside in a storage area that is at least 25 feet away from other buildings, combustible materials, roadways, railroads, pipelines, utility lines, and the property line. This storage area should prevent unauthorized entry and have a portable fire extinguisher within 25 feet.

When using portable LPG containers follow these procedures:

- Inspect containers for excessive denting, bulging, gouging, and corrosion and check hoses for cracks and deterioration; containers displaying any of these signs shall be removed from service.
- Label all containers as Flammable and as LP-Gas, Propane, or Butane.
- Cylinders shall be located to minimize exposure to excessive heat, and physical damage.
- Cylinders shall be stored away from exits, stairways, or areas normally used or intended for the use of egress for occupants.
- The maximum allowable quantity of LPG stored in a building shall not exceed 2 pounds.
- Quantities in excess of this amount shall be stored outside in an appropriate lockable ventilated enclosure.

Smoking

Smoking is prohibited in all university buildings and vehicles, and all indoor air space of University owned athletic facilities. In addition to all University facilities, buildings, and vehicles, smoking is prohibited in all foyers, entryways, classrooms, restrooms, offices, athletic facilities (indoor and outdoor), eating areas, university-owned/leased housing, and within 50 feet of all facility entrances. Where smoking is allowed, it is important to fully extinguish any smoking material or dispose in an appropriate disposal container.

Refer to WTAMU Rule No. 34.05.99.W1, Smoking and Use of Tobacco Products, for additional reference.

Space Heaters

If use of a space heater is absolutely necessary, the following procedures should be observed:

- Always use appliances that are UL or FM labeled.
- Space heaters must never be left on unattended, even if you are just step out for a moment.
- Space heater must be equipped with an automatic shut off feature.
- Space heaters should be unplugged when not in use.
- A minimum of 48 inches should be maintained from any combustible materials.
- Adequate space should be provided around space heaters to allow for air circulation.
- Space heater should be plugged directly into wall receptacles.
- Frequent inspections of electrical cords for damage and to ensure a tight connection of the cord into the receptacle
- If heater begins to spark or produce an electrical smell, turn power off immediately and discontinue using the appliance.

Outdoor Burning

The Texas Commission on Environmental Quality (TCEQ) regulates outdoor burning (30 TAC 111.201-221). All departments of West Texas A&M University will follow the Outdoor Burning Procedures administered by the Environmental Safety Office and the City of Canyon Fire

Department. Authorized outdoor burning must comply with the TCEQ and West Texas A&M University procedures.

Authorized outdoor burning must comply with the following requirements:

- 72 hour advanced notice must be given to the Environmental Safety Office (ESO).
- A fire break must be established and approved ahead of time by the ESO.
- Prior to the ignition of material, the Event Supervisor must contact the ESO.
- The ESO will make all the necessary notifications to university, local, and state agencies.
- Burning cannot take place if there are any local burn bans in affect.
- Ensure that wind direction will not allow smoke and other pollutants to cause adverse effects to any public road, residence, business, etc.
- If at any time during the burning smoke blows onto or across a road or highway, it is the responsibility of the department initiating the burn to post flag persons on affected roads. Flags and safety vests must be on hand at the time of any scheduled outdoor burn.
- Burning must be conducted downwind of or at least 300 feet from any sensitive structure (e.g., residence, business, stable, etc.) unless prior written approval is obtained from the adjacent occupant with possessory control.
- Burning may be commenced no earlier than one hour after sunrise and must be completed on the same day no later than one hour before sunset.
- A previously authorized employee must attend the burning at all times during the active burn phase.
- In cases where residual fires and/or smoldering objects continue to emit smoke after the active burn phase, such areas shall be extinguished.
- No burning can be done in high wind.
- Burning shall not be conducted during periods of actual or predicted persistent low-level atmospheric temperature inversions. (Call the National Weather Service to get an advisory for your area.)
- Electrical insulation, treated lumber, plastics, non-wood construction/demolition material, heavy oil, asphalt materials, potentially explosive materials, chemical wastes, and items containing natural or synthetic rubber may not be burned.

Contact the Environmental Safety Office for detailed procedures relating to outdoor burning.

5. Vehicle Safety

The following are vehicle safety guidelines that include the use of Utility Vehicles and/or similar slow moving vehicles (SMV) and other forms of personal transportation on the campus of West Texas A&M University. These guidelines are intended to maintain vehicle safety and avoid damaging a vehicle or other property, as well as to promote a safer environment for students, faculty, staff, and visitors.

All operators of WTAMU vehicles must meet the following procedures and criteria before operating WTAMU vehicles:

- Possess a valid Texas driver‘s license for the vehicle classification.
- Know and adhere to the State of Texas motor vehicle laws.
- Be trained and approved annually by with the Environmental Safety Office and the Office of the Vice President for Business and Finance to operate a WTAMU vehicle.

IMPORTANT: The Texas A&M University System (TAMUS) auto and motorized vehicle coverage does not cover any loss for accidents involving personal use. A state-owned fleet vehicle should not be used for personal reasons and would likewise not be covered. TAMUS vehicle liability coverage only provides coverage for paid employees that are operating vehicles within the course and scope of employment.

To ensure driving safety, follow these driving practices:

- Never drink and drive. Driving while under the influence of alcohol or drugs is strictly prohibited.
- Obey all traffic laws, signs, and signals.
- Respond to dangerous driving conditions as appropriate.
- Maintain a safe distance between your car and any car in front of you. Allow at least one car length for each 10 MPH (e.g., three car lengths if you are driving 30 MPH).
- Keep your eyes moving to avoid fatigue, especially when driving for longer periods.
- Always use your turn signal to indicate your intended action.
- Leave yourself an "out" by either driving in the lane with a shoulder, driving in the middle lane of a multi-lane road, or following other vehicles at a safe distance.
- Safety belts must always be worn when available in the vehicle.
- Avoid distracted driving (no texting or hand-held device use while driving).

Powered Industrial Trucks

The following applies to all powered industrial trucks, including forklifts, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

Each university supervisor or department head that will have employees who operate PITs must ensure that all employees who operate or work near forklifts are properly trained. Supervisors must ensure that their employees follow safe operating procedures when using PITs.

Employees who operate PITs must follow these safe operating procedures:

- Only authorized and trained personnel will operate PITs.
- All PITs must be equipped according to manufacturer specification, including backup alarms and safety belts.
- The operator must wear seatbelts at all times.
- The operator must perform daily pre-inspections.
- Any safety defects (such as hydraulic fluid leaks; defective brakes, steering, lights, or horn; and/or missing fire extinguisher, lights, seat belt, or back-up alarm) must be reported for immediate repair or have the PIT taken out of service.
- Operators must follow proper recharging or refueling safety procedures.
- PIT operators must obey speed limits and slow down on wet floors and going around turns.
- PIT operators in high lift areas must wear hard hats.
- Operators must sound the horn and use extreme caution when meeting pedestrians, making turns, and cornering.
- Passengers may not ride on any portion of a PIT. Only the operator can ride the PIT.
- If PITs are used as a man lift, an appropriate man lift platform (cage with standard rails and toe-boards) must be used.
- PALLETS ARE NOT ACCEPTABLE FORMS OF LIFTING PLATFORMS – NO EXCEPTIONS!
- Fall Protection training must be taken and documented prior to using lift platforms.
- Lift capacity will be marked on the PIT. Operators must assure the load does not exceed rated weight limits.
- When unattended, PITs must be turned off, forks lowered to the ground, and the parking brake applied.
- PITs must not be used in exterior, inclement weather (heavy rain, snow, high winds, etc.)
- Operators must report all accidents, regardless of fault and severity, to the University Police Department for immediate assistance, to the supervisor, and to the Department of Risk Management.
- Trailers must be parked squarely to a loading area and have wheels chocked in place.

Utility Vehicle Safety

Utility Vehicle training is available through the Environmental Safety Office. Utility Vehicles include: golf carts, club cars, gators, tractors, mowers, four-wheel ATVs. All original equipment safety features must be kept in good working order.

The following procedures are for the safe operation of Utility Vehicles:

- Supervisors must monitor and document that all persons operating Utility Vehicles have been trained in the safe operation of Utility Vehicles. Training is available with the Environmental Safety Office.
- Utility Vehicles are not to be overloaded, i.e. carrying more passengers than seating provided or overloading the Utility Vehicles recommended carrying or load capacity (Seat belts must be used when provided).
- No one is permitted to ride on the running boards, fenders, or any part of the Utility Vehicle except the seats.
- All body parts – feet, legs, and arms shall be kept inside the Utility Vehicle while it is in motion, unless the operator is signaling for a turn.
- The MAXIMUM speed limit for Utility Vehicles off standard roadways is 10 mph (5 mph when pedestrians are present).
- Utility Vehicles may operate on University roadways, but must adhere to posted speed limits. Utility Vehicles must operate only on University campus/property. All Utility Vehicles should travel in the right hand lane, unless turning left.
- Pedestrians have the right-of-way on campus. Utility Vehicles must yield to pedestrians on sidewalks. SPEED IS TO BE REDUCED TO A MINIMUM (5 mph max.) WHEN DRIVING ALONG OR CROSSING SIDEWALKS SO AS TO AVOID ACCIDENTS WITH PEDESTRIANS.
- Utility Vehicle operators are to be diligent and pay particular attention to the needs of disabled persons, as limitations in vision, hearing or mobility may impair their ability to see, hear, or move out of the way of Utility Vehicles.
- Operators must park Utility Vehicles away from heavily traveled pedestrian areas.
- Operators are not to block the path, limit pedestrian access on walkways, nor park at entrances to buildings.
- Utility Vehicle operators are responsible for ignition keys for the period of time in which they are using the vehicle. Keys shall not be left in Utility Vehicles.
- Before exiting the utility vehicle, turn the key to the off position, engage the brake, and remove the key.
- University-owned vehicles are to be used for University business only (See above: no liability coverage unless a paid employee is using the vehicle within course and scope of job duties).
- No Utility Vehicle shall be operated between dusk and dawn without properly working headlights and taillights.
- The operator must report any accidents to the University Police Department, to the operator‘s supervisor, and to the Department of Risk Management.
- All Utility Vehicles and trailers (pulled by Utility Vehicles) must have clearly displayed on the exterior of that Vehicle and any trailer towed the slow moving vehicle reflective triangle.
- University owned Utility Vehicles are to be maintained in accordance with manufacturer‘s specifications.
- Departments are responsible for keeping all original equipment and safety features in good working order.
- Modification or tampering with a Utility Vehicle governor is prohibited and is a violation of Federal Law.
- Personally-owned Utility Vehicles are prohibited from operating on University property.

IMPORTANT: Failure to follow the law and these procedures could result in appropriate disciplinary action and/or suspension of the operator's vehicle driving privileges.

Personal Transportation Safety

Personal Transportation includes: skateboards, bicycles, skates, rollerblades, foot scooters, electric personal mobility devices, motorized skateboards, and other similar devices. They are easily portable and provide the user relatively fast, energy-efficient transportation and equitable access to and/or around campus. Users of personal transportation devices must use caution when riding on campus. Especially in high traffic pedestrian areas, riders must yield the right-of-way to pedestrians. Every person is strongly urged to watch out for the safety of others, especially those persons using modes that are more vulnerable to get around campus.

Guidelines for the use of Personal Transportation include:

- Use of personal transportation is for campus transportation only.
- Users must comply with University designated speed limits.
- Personal transportation users must yield to pedestrians.
- Use personal transportation on designated sidewalks and crosswalks on campus.
- Use is only permitted at reasonable, safe and prudent speeds based upon conditions, including the terrain.
- Maintain control at all times.
- Use them within the limits of your abilities, within the guidelines of this policy and within the purpose and design of the transportation.
- Use of personal transportation is not permitted on stairs, tables, ledges, railings, ramps or other structures.
- Do not use personal transportation in any University building or elsewhere on University property where signs prohibiting such activities are posted.
- Do not use personal transportation in a manner which presents an unreasonable risk of harm to the user or others.
- Do not use personal transportation in a manner which presents a risk of damage to University property.
- Do not use them within 10 feet of all building entrances, windows, or exits.

6. Office Safety

General Office Safety

Like the shop or laboratory, the office requires preventive measures to ensure a safe and healthy environment. Common causes of office accidents include the following:

- Slipping, tripping, and falling hazards
- Burning, cutting, and pinching hazards
- Improper lifting and handling techniques
- Unobservant and inattentive employees
- Improper office layout and arrangement
- Dangerous electrical wiring
- Exposure to toxic substances
- Horseplay

The following sections address several office safety practices. Other preventive measures not mentioned here may also be necessary.

REMEMBER: The office building is not a sterile working environment; common workplace hazards can be dangerous when you ignore them. Refer to other sections in this manual, such as Electrical Safety, General Safety, Fire Safety, and others for more information on workplace safety. Always use common sense when safety is a concern.

Good Housekeeping Practices

Many office accidents are caused by poor housekeeping practices. By keeping the office floor both neat and clean, you can eliminate most slipping, tripping, and falling hazards. Other good housekeeping practices include the following:

- Ensure that office lighting is adequate and available. Call the Physical Plant to replace burned out light bulbs, and to have additional lighting installed, as necessary.
- Ensure that electrical cords and phone cords do not cross walkways or otherwise pose a tripping hazard. If you cannot move a cord, call the Physical Plant to have a new outlet installed or secure the cord to the floor with cord covering strips. Do not tape cords down as a long-term solution or run them underneath carpet.
- Report or repair tripping hazards such as defective tiles, boards, or carpet immediately.
- Clean spills and pick up fallen debris immediately. Even a loose pencil or paper clip could cause a serious falling injury.
- Keep office equipment, facilities, and machines in good condition.
- Store items in an approved storage space. Take care to not stack boxes too high or too tight. Ensure that boxes are clearly labeled with their contents.+

Hazardous Objects and Materials

Hazardous objects such as firearms and weapons are not permitted in the workplace. In addition, hazardous chemicals and materials should not be stored in the general office. Hazardous materials include, but are not limited to:

- Carcinogens
- Combustibles
- Flammables
- Gas cylinders
- Irritants
- Oxidizers
- Reactives

Preventing Cuts and Punctures

Cuts and punctures happen when people use everyday office supplies without exercising care. Follow these guidelines to help reduce the chance of cuts and punctures:

- When sealing envelopes, use a liquid dispenser, not your tongue.
- Be careful when using kitchen knives, scissors, staplers, letter openers, paper cutters and box openers. Any of these items could cause a painful injury.
- Avoid picking up broken glass with your bare hands. Wear gloves and use a broom and a dust pan.
- Place used blades or broken glass in a rigid container, such as a box, before disposing in a wastebasket.

Preventing Machine Accidents

Only use machines that you know how to operate. Never attempt to operate an unfamiliar machine without reading the machine instructions or receiving directions from a qualified employee. In addition, follow these guidelines to ensure machine safety:

- Secure machines that tend to move during operation.
- Do not place machines near the edge of a table or desk.
- Ensure that machines with moving parts are guarded to prevent accidents. Do not remove these guards.
- Unplug defective machines and have them repaired immediately.
- Do not use any machine that smokes, sparks, shocks, or appears defective in any way.
- Close hand-operated paper cutters after each use and activate the guard.

- Take care when working with copy machines. If you have to open the machine for maintenance, repair, or troubleshooting, remember that some parts may be hot. Always follow the manufacturer's instructions for troubleshooting.
- Unplug paper shredders before conducting maintenance, repair, or troubleshooting.

Some items can be very dangerous when worn around machinery with moving parts. Avoid wearing loose items around machines with unguarded moving parts, including: loose belts, jewelry, long/loose hair, long/loose sleeves or pants, scarves, and ties.

Preventing Slips and Falls

As outlined in the General Safety chapter of this manual, the easiest way to avoid slips and falls is to pay attention to your surroundings and to avoid running or rushing. To ensure safety for others in the office, however, follow these guidelines:

- Arrange office furnishings in a manner that provides unobstructed areas for movement.
- Keep stairs, steps, flooring, and carpeting well maintained.
- Ensure that glass doors have some type of marking to keep people from walking through them.
- Clearly mark any difference in floor level that could cause an accident.
- Secure throw rugs and mats to prevent slipping hazards.
- Do not place wastebaskets or other objects in walkways.
- Always pay attention and be aware of your surroundings.

Reducing Stress

To reduce stress and prevent fatigue, take breaks (when possible), rotate tasks when possible, and stretch your arms, neck, and legs if you do the same type of work for long periods of time. Tip for healthy eyes use the 20-20-20 rule. Every 20 minutes look away from your monitor, and stare at something 20 feet away for 20 seconds. For a quick pick-me-up, breathe deeply several times by inhaling through your nose and exhaling through your mouth. In addition, always try to eat your lunch somewhere other than your desk.

Other examples of stress-relieving exercises that can be done at your desk include the following:

- Head and Neck Stretch: Slowly turn your head to the left, and hold it for three seconds. Slowly turn your head to the right, and hold it for three seconds. Drop your chin gently towards your chest, and then tilt it back as far as you can. Repeat these steps five to ten times.
- Shoulder Roll: Roll your shoulders forward and then backward using a circular motion. Repeat in each direction five to ten times.
- Upper Back Stretch: Grasp one arm below the elbow and pull gently towards the other shoulder. Hold this position for five seconds and then repeat with the other arm.
- Wrist Wave: With your arms extended in front of you, raise and lower your hands several times.
- Finger Stretch: Make fists with your hands and hold tight for one second, then spread your fingers wide for five seconds.

Equipment and Furniture Safety

Common office machines require special safety consideration: copiers, microwaves, adding machines, and computers. To properly use a piece of equipment or furniture, always refer to the manufacturer‘s guidelines for further instruction. If you notice a piece of equipment is damaged or working improperly, unplug the machine, do not use the damaged equipment, and refer to manufacturer‘s guidelines. All equipment should only be repaired by a certified repairperson.

Because file cabinets and shelves tend to support heavy loads, treat them with special care. Follow these safety guidelines for file cabinets and shelves:

- Secure file cabinets that are not weighted at the bottom. Either attach them to the floor or to the wall.

- Ensure that file cabinet drawers cannot easily be pulled clear of the cabinet.
- Do not block ventilation grates with file cabinets.
- Open only one drawer at a time to keep the cabinet from toppling.
- Close drawers when they are not in use.
- Do not place heavy objects on top of cabinets. Be aware that anything on top of a cabinet may fall off if a drawer is opened suddenly.
- Close drawers slowly using the handle to avoid pinched fingers.
- Keep the bottom drawer full. This will help stabilize the entire cabinet.
- Secure shelves by attaching them to the floor or wall.
- Place heavy objects on the bottom shelves. This will keep the entire structure more stable.
- Ensure that there is at least 18 inches between the top shelf items and the ceiling. This space will allow ceiling sprinklers (if present) to function properly if a fire occurs.
- Do not block ventilation grates with shelves.
- Never climb on shelves (even lower shelves). Use an approved ladder.

Regarding office desks, keep desks in good condition (i.e., free from sharp edges, nails, etc.), ensure that desks do not block exits or passageways, ensure that glass-top desks do not have sharp edges, and ensure that desks with spring-loaded tables function properly. The table should not spring forth with enough force to cause an injury. Keep desk drawers closed when not in use. Repair or report any desk damage that could be hazardous.

Do not climb on desks. Use an approved ladder.

Regarding chairs, do not lean back in office chairs, particularly swivel chairs with rollers. Take care when sitting in a chair with rollers and make sure it does not roll out from under you when you sit down. Do not roll chairs over electrical cords and repair or report any chair damage that could be hazardous.

Do not climb on any office chair. Use an approved ladder.

Health problems, such as carpal tunnel syndrome, can result from the stress of repetitive motion. Therefore, it is very important to arrange your work station properly. To reduce the effects of repetitive motion, follow these guidelines:

- Always sit up straight. Make sure your chair is adjusted to provide adequate support to your back.
- Place your feet flat on the floor. Lower legs should be approximately vertical, and thighs should be approximately horizontal. The majority of your weight should be on the buttocks.
- Ensure that there is at least 1 inch of clearance between the top of your thighs and the bottom of the desk or table.
- Keep your wrists in a natural position. They should not rest on the edge of the desk.
- Keep the front edge of your chair approximately 4 inches behind your knees.
- Lighting around computer work stations should illuminate the work area without obscuring the computer monitor or causing glare. Position computer screens, draperies, blinds, and pictures to reduce glare during work hours.
- Position computer keyboards so that the angle between the forearm and upper arm is between 80 and 120 degrees. Place the keyboard in an area that is accessible and comfortable.
- Use wrist supports made of padded material. The support should allow you to type without bending your wrists.
- Use a headset or speakerphone if you use the telephone for extended periods of time.

Ladders and Stepstools

Always use an approved ladder or stool to reach any item above your extended arm height. Never use a makeshift device, such as a chair, desktop, file cabinet, bookshelf, or box, as a substitute for a ladder.

Follow these guidelines when using ladders:

- Do not load a ladder above its intended weight capacity.
- Place ladders on slip-free surfaces even if they have slip-resistant feet. Secure the ladder if a slip-free surface is not available.
- Avoid placing ladders in walkways. Secure a ladder if its location could cause an accident.
- Keep areas around ladders clean and free of debris.
- Do not use a ladder in front of a door unless the door is locked and barricaded.
- Refer to the Shop Safety section in this manual for more information on ladder safety.

7. Shop Safety

General Shop Safety

This section highlights essential safety information for working in a WTAMU shop. Refer to other sections in this manual for more information on handling many shop situations.

It is not possible to detail all the risks involved with shop work. However, it is possible to foresee many hazards by carefully planning each job. To prevent accidents, utilize your knowledge, training, and common sense. Evaluate potential sources of injury, and attempt to eliminate any hazards.

There are several measures you must take to protect yourself from shop hazards. For example, do not wear loose fitting clothing, neckties, loose jewelry, or long-loose hair when working around machinery. If you are wearing a long-sleeved shirt, be sure the sleeves are rolled down and buttoned. Snug fitting clothes and closed-toe shoes are essential for safety in the shop.

Always wear safety glasses with side shields when working with shop equipment. Anytime there is question regarding required wardrobe for personal protection, refer to respective departmental requirements. Additional protection using goggles or face shields may be necessary for grinding, chipping, sandblasting, welding, glass working, etc. Wear approved hard hats whenever there is a chance of objects falling from above. In addition, wear suitable gloves for the job at hand when working with scrap metal or wood, sharp-edged stock, unfinished lumber, etc. Refer to the Personal Protective Equipment section in this manual for more information.

Before beginning work in a shop, be sure you are authorized to perform the work to be done and inspect your tools and equipment. If a procedure is potentially hazardous to others in the area, warn fellow workers accordingly. Use warning signs or barriers, as necessary. Notify your supervisor if you notice any unsafe conditions, including: defective tools or equipment, improperly guarded machines, oil, gas, or other leaks, and any other condition that you feel may jeopardize you or your coworker‘s safety. Inform other employees if you see an unsafe work practice and report it.

Safety Guidelines

Follow these guidelines for general shop safety:

- Know the hazards associated with your work. Be sure you are fully educated on the proper use and operation of any tool before beginning a job.
- Always wear appropriate safety gear and protective clothing.
- Wear appropriate gloves when cleaning with degreasers or ferric chloride.
- Ensure that there is adequate ventilation to prevent exposure from vapors of glues, lacquers, paints and from dust and fumes.
- Maintain good housekeeping standards.
- Keep the work area free from slipping/tripping hazards (oil, cords, debris, etc.).
- Clean all spills immediately.

- Remove sawdust, wood chips, and metal chips regularly.
- It is recommended that electrical cords pull down from an overhead pulley rather than lying on the floor.
- All containers must be labeled with its contents.
- Leave tool and equipment guards in place.
- Leave in place and utilize all shielding on tools and equipment.
- Know where fire extinguishers are located and how to use them.
- Make sure all tools and equipment are properly grounded and that cords are in good condition.
- Double-insulated tools or those with three-wire cords are essential for safety.
- Use extension cords that are large enough for the load and distance.
- Secure all compressed gas cylinders. Never use compressed gas to clean clothing or skin.
- Always use flashback arrestors on cutting/welding torches.
- Take precautions against heat stroke and heat exhaustion.
- Wear infrared safety goggles when appropriate, e.g. when operating brazing or cutting torch.

Hand Tools

Hand tools are non-powered tools. They include axes, wrenches, hammers, chisels, screw drivers, and other hand-operated mechanisms. Use the right tool and replace defective tools to complete a job safely.

Follow these guidelines for general hand tool safety:

- Wear safety glasses whenever you hammer or cut, especially when working with surfaces that chip or splinter.
- Do not use a screwdriver as a chisel.
- Do not use a chisel as a screwdriver.
- Do not use a knife as a screwdriver.
- Never carry a screwdriver or chisel in your pocket. If you fall, the tool could cause a serious injury. Instead, use a tool belt holder or tool box.
- Replace loose, splintered, or cracked handles. Loose hammer, axe, or maul heads can fly off defective handles.
- Use the proper wrench to tighten or loosen nuts.
- When using a chisel, always chip or cut away from yourself. Use a soft-headed hammer or mallet to strike a wooden chisel handle. A metal hammer or mallet may cause the handle to split.
- Do not use a wrench if the jaws are sprung.
- Do not use impact tools, such as chisels, wedges, or drift pins, if their heads are mushroom shaped. The heads may shatter upon impact.
- Direct saw blades, knives, and other tools away from aisle areas and other employees.
- Keep knives and scissors sharp.
- Iron or steel hand tools may cause sparks and be hazardous around flammable substances. Use spark-resistant tools made from brass, plastic, aluminum, or wood when working around flammable hazards.
- Have a specific place for each tool.
- Do not place unguarded cutting tools in a drawer.
- Store knives or chisels in their scabbards.
- Hang saws with the blades away from reach.
- Provide sturdy hooks to hang tools on.

Power Tools

Power tools can be extremely dangerous if they are used improperly. When working around power tools, you must wear personal protective equipment and avoid wearing loose clothing or jewelry that could catch in moving machinery. Follow these guidelines for working with power tools:

- Use the correct tool for the job. Do not use a tool or attachment for something it was not designed to do.
- Select the correct bit, blade, cutter, or grinder wheel for the material at hand. This precaution will reduce the chance for an accident and improve the quality of your work.
- Keep all guards in place. Cover exposed belts, pulleys, gears, and shafts that could cause injury.
- Always operate tools at the correct speed for the job at hand.
- Watch your work when operating power tools.
- Securely fasten work materials. Never use your hands to secure work materials.
- Run tools at the correct speed.
- Never attempt to loosen a chuck unless the power is off.
- Do not rely on strength to perform an operation. If undue force is necessary, you may be using the wrong tool or have a dull blade.
- Before clearing jams or blockages on power tools, disconnect from power source. Do not use your hand to clear jams or blockages, use an appropriate tool.
- Never reach over equipment while it is running.
- Never disable or tamper with safety releases or other automatic switches.
- Disconnect power tools before performing maintenance or changing components.
- Keep a firm grip on portable power tools.
- Remove chuck keys or adjusting tools prior to operation.
- Keep bystanders away from moving machinery.
- Do not operate power tools when you are sick or fatigued.
- When possible, secure work pieces with a clamp to free the hands and minimize the chance of injury. Use a jig for pieces that are unstable or do not lie flat.
- Inspect wiring and mechanisms before operating.
- Examine wood and other materials carefully before using with a tool.
- Regardless of the type of saw use, never reach over the sawline to position or guide materials. Keep hands on either side of a cut line. Never reach across a cut line for any reason.
- See that tailstock, tool holder, and work are properly clamped before turning on power.
- Ensure that pneumatic tools which shoot nails, rivets, or staples are equipped to keep fasteners from ejecting unless the muzzle is pressed against a firm surface. Keep your finger off the trigger until you are ready to begin work.
- Do not grind non-ferrous materials.
- All machinery repairs must be completed by the appropriate repair person.

Moving machine parts must be safeguarded to protect operators from serious injury. Belts, gears, shafts, pulleys, fly wheels, chains, and other moving parts must be guarded if there is a chance they could injure an employee.

Inspection and maintenance: All shop equipment must be maintained in a condition which will ensure continued safe operation. Guards must be in place. If a guard is removed to perform maintenance or repairs, follow lockout/tagout procedures. Replace the guard after repairs are completed. Do not disable or move machine guards for any reason. If you notice that a guard is missing or damaged, contact your supervisor and have the guard replaced or repaired before beginning work.

Paints

When working with paint or painting equipment, it is important to have adequate ventilation and to avoid flames or other sources of ignition. Always wear personal protective equipment when working

with paint. In addition, clean paint booths, filters, and ventilation ducts frequently to avoid heavy accumulations of paint, dust, and pigment.

Welding and Cutting

Welding and cutting are two forms of hot work that require special safety considerations. Unless they are done in a designated shop area, welding and cutting are strictly prohibited without proper authorization. Proper selection of personal protective equipment is very important when welding; make sure your welding helmet visor is dark enough to provide adequate protection. Wear a fireproof apron and gloves. In addition, take care to protect other people from the hazards of welding. For example, use a welding curtain to protect other employees from UV radiation. Gas welding and cutting tools are often powered by oxygen or acetylene gas cylinders. These tanks require special safety precautions to prevent explosions and serious injuries.

Before conducting welding or cutting operations, refer to the Hot Work Permitting Plan through the Environmental Safety Office and inspect your equipment, including:

- Welding leads must be completely insulated and in good condition.
- Check all other cords for frays and damages
- Cutting tools must be leak-free and equipped with proper fittings, gauges, regulators, and flashback devices.
- Oxygen and acetylene tanks must be secured in a safe place.
- Conduct welding and cutting operations in a designated area free from flammable materials. When welding or cutting is necessary, have someone nearby act as a fire attendant.
- Periodically check welding and cutting areas for combustible atmospheres.
- Take care to prevent sparks from starting a fire.
- Remove unused gas cylinders from the welding and cutting area.
- Keep hoses out of doorways and away from other people. A flattened hose can cause a flashback.
- Mark hot metal with a sign or other warning when welding or cutting operations are complete.
- Make sure the welding area has a non-reflective, noncombustible surface.
- Ensure that adequate ventilation and exhaust are available.
- Be aware of electrocution hazards, particularly in damp conditions. Be sure that electrical cords are properly grounded. It is advisable for cords to pull down from an overhead pulley.
- Ensure that acetylene/oxygen systems are equipped with flame or flashback arrestors attached to the regulators.
- Store acetylene bottles upright and secured.
- Keep cylinder fittings and hoses free from oil and grease.
- Replace defective hoses.
- Do not tamper or attempt to repair cylinders, valves, or regulators.
- Do not interchange regulators or pressure gauges with other gas cylinders.
- Carefully purge hoses and torches before connecting a cylinder.
- Use the minimum acceptable acetylene pressure flow-rate.
- Never use a match to light a torch. Use an approved lighter.

IMPORTANT: Monitor the work area for several hours after the job is complete to detect delayed spark smolder or fires.

8. Electrical Safety

General Electrical Safety

The danger of injury through electrical shock is possible whenever electrical power is present. When a person's body completes a circuit and thus connects a power source with the ground, an electrical injury is possible. Electrical safety is important in every work environment. The following sections

cover circuit breaker loads, electrical grounding, electrical safety guidelines, and electrical emergency response.

Definitions

The following definitions help clarify general electrical safety:

- **Amps:** The standard unit for measuring electrical current.
- **Watt:** A unit of electrical power, equal to the power developed in a circuit by a current of amp flowing through a potential difference of one volt.
- **Voltage:** Electromotive force expressed in volts.
- **Circuit Breaker:** A device that automatically interrupts the flow of an electrical current.
- **Breaker Box:** An insulated box on which interconnected circuits are mounted.
- **Electrical Panel:** An insulated panel on which electrical wires are mounted. Do not block panel boxes. There should be at least 30 inches of clear space in front of a panel box.
- **Current Flow:** The rate of flow of an electrical charge, generally expressed in amps.
- **Electrical Load:** The amount of power delivered by a generator or carried by a circuit.
- **Ground-Fault Circuit Interrupter (GFCI):** A GFCI detects grounding problems and shuts electricity off to prevent a possible accident.
- **High Voltage:** The term high voltage applies to electrical equipment that operates at more than 600 Volts (for terminal to terminal operation) or more than 300 Volts (for terminal to ground operation). Low voltage, high current AC or DC power supplies are also considered to be high voltage.
- **Hazardous Energy Sources:** This term applies to stored or residual energy such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure.
- **Lockout:** The placement of a lock on an energy-isolating device. This act prevents workers from operating a piece of equipment until the lock is removed.
- **Tagout:** The placement of a tag on an energy-isolating device. A tagout device is a prominent warning device of a lockout.
- **Energy-Isolating Device:** A mechanical device that prevents the transmission or release of energy. Examples include: manually operated circuit breakers, disconnect switches, line or block valves.
- **Authorized Employee:** A person who locks out or tags out equipment for service or maintenance. Authorized employees have been formally trained in proper lockout/tagout procedures.

Proper electrical grounding can help prevent electrical injury. Use a GFCI to ensure electrical safety. GFCIs are required in moist or potentially damp environments, near water sources, etc. Contact the Physical Plant for assistance if a GFCI may be needed.

IMPORTANT: Report all tripped breakers and any electrical questions to the Physical Plant.

Electrical Safety Guidelines

Follow these guidelines for general electrical safety:

- Be familiar with the electrical hazards associated with your workplace.
- Unplug electrical equipment before repairing or servicing it.
- If a prong breaks off inside an outlet, do not attempt to remove it yourself. Call the Physical Plant for assistance.
- Ensure that outlets are firmly mounted. Report loose outlets to the Physical Plant.
- Report all electrical problems, including tripped breakers, broken switches, and flickering lights, to the Physical Plant.
- All appliances used in WTAMU buildings must be UL or FM (Factory Mutual) labeled.
- Do not use an appliance that sparks, smokes, or becomes excessively hot, unless the appliance is specifically designed to exhibit these characteristics.

- Portable electrical heaters are discouraged as a fire hazard.
- Keep electrical equipment away from water, unless the appliance is specifically designed for use around water.
- Use GFCIs whenever possible.
- Be aware of overhead power lines when working with tall equipment.
- Follow lockout/tagout procedures, as appropriate.
- Do not use an adapter or extension cord to defeat a standard grounding device. (i.e., only place three-prong plugs in three-prong outlets; do not alter them to fit in a two-prong outlet.)
- Use extension cords only when necessary and only on a temporary basis. Do not use extension cords in place of permanent wiring. Request new outlets if your work requires equipment in an area without an outlet.
- Use extension cords that are the correct size or rating for the equipment in use.
- Do not run electrical cords above ceiling tiles or through walls.
- Keep electrical cords away from areas where they may be pinched and areas where they may pose a tripping or fire hazard (e.g., doorways, walkways, under carpet, etc.)
- Avoid plugging more than one appliance in each outlet. If multiple appliances are necessary, use an approved power strip with surge protector and circuit breaker. Do not overload the circuit breaker.
- Discard damaged cords, cords that become hot, or cords with exposed wiring.
- Never unplug an appliance by pulling on the cord; pull on the plug.
- Always unplug and secure an extension cord when not in use.

Electrical Emergency Response

When someone suffers electrical shock, he or she may be knocked unconscious. If the victim is still in contact with the electrical current, immediately turn off the electrical power source. If you cannot disconnect the power source, try to separate the victim from the power source with a nonconductive object, such as a wood-handled broom.

IMPORTANT: Do not touch a victim that is still in contact with a power source; you could electrocute yourself. Have someone call #911 for emergency assistance immediately. Administer first-aid, as appropriate.

IMPORTANT: Do not use water on an electrical fire. Instead use a fire extinguisher approved for electrical fire use. Stay away from live power lines and downed power lines. Be particularly careful if a live power line is touching a body of water. The water could conduct electricity. If a power line falls on your car while you are inside, remain in the vehicle until help arrives.

Electrical Lockout/Tagout Procedures

When preplanning for lockout or preparing for shutdown, an initial survey shall be made to determine which switches, valves, or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or others) may be involved. Any questionable identification of sources shall be cleared by the employees with their supervisors. Before lockout commences, job authorization should be obtained from the supervisor.

Only supervisors or authorized individuals shall prescribe the appropriate duties and responsibilities relating to the actual details of affecting the lockout/tag-out. Energy isolating devices shall be operated only by authorized individuals or under the direct supervision of authorized individuals. Where high voltages greater than 480V are involved the supervisor electrician shall be responsible for turning off the main power controls.

All energy isolating devices shall be adequately labeled or marked to indicate their function. Only authorized personnel are to secure a lockout/tag-out device. Pulling a fuse is not a substitute for locking out. A pulled fuse is no guarantee the circuit is dead, and even if it were dead, there's nothing to stop someone from inadvertently replacing the fuse.

Lockout and tag the energy isolating device with an assigned individual lock, even though someone may have locked the control before you. You will not be protected unless you put your own padlock on it.

Before lockout or tag-out devices are removed and energy is restored to the machine or equipment, inspect the work area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact. Check work area to ensure that all employees are in the clear. Notify affected employees that lockout/tag-out devices have been removed.

The employee who applied the device shall remove each lockout/tag-out device from each energy-isolating device. The energy isolating devices may be opened or closed, to restore energy to equipment. Contact authorized personnel when energy is restored and return lockout/tag-out device. (Proper Documentation Required).

The supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it shall be the responsibility of the supervisor to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the supervisor shall not remove a crew lock until it has been verified that all individuals are clear.

High Voltage

In addition to the guidelines associated with general electrical safety and lockout/tagout procedures, there are more stringent safety requirements for high voltage procedures. For more information, please refer to Title 29 Section 1910.269 of the Code of Federal Regulations or NFPA 70 (National Electric Code).

IMPORTANT: Contact the Physical Plant regarding high voltage and ensure that only authorized employees work around high voltage equipment. Do not work alone near high voltage.

9. Construction

General Construction Guidelines

Personal protective equipment, fire safety, electrical safety, confined space entry, emergency preparedness, biological safety, chemical safety, hazardous waste disposal, vehicle safety and other precautions are essential for safe construction work.

Barriers and Guards

University employees must use barriers and guards as necessary to protect employees, students, contractors, and visitors from physical hazards. If you suspect a hazard is not sufficiently protected, notify the attending workers and the Physical Plant immediately.

Standard types of barriers and guards include: guardrails, saw horses, tape, boards, and cones. Signs that state DANGER, WARNING, or CAUTION are important when barriers or guards are necessary. Any area that poses a physical threat to workers and/or pedestrians requires barriers and/or guards. When necessary, reroute pedestrian and vehicular traffic to completely avoid a construction site. Guard any permanent ground opening into which a person could fall with a guardrail, load-bearing cover, or other physical barrier. If a barrier is not immediately available, have someone guard the opening.

Heavy Equipment Safety

When using heavy equipment, know how to properly operate the equipment you are using. Do not use heavy machinery when you are drowsy, intoxicated, or taking prescription medication that may affect your performance. Use only equipment that is appropriate for the work to be done. Inspect your equipment to ensure that it is in good working condition before beginning a job. In addition,

ensure that regular inspections and maintenance are conducted as appropriate. Do not stress or overload your equipment.

Follow these guidelines when operating heavy equipment:

- Never get on or off moving equipment.
- Do not attempt to lubricate or adjust a running engine.
- Turn the engine off before refueling.
- Keep all shields and safety guards in place.
- Avoid underground utilities and overhead power lines.

Refer to the product documentation that accompanied your equipment for more information and specific instructions.

Forklifts

Only authorized employees may operate forklifts. The following list provides general safety guidelines:

- Do not allow riders.
- Do not raise people on a forklift.
- Always wear your safety belt.
- Never leave keys in an unattended forklift.
- Do not speed.
- Drive up and back down ramps.
- Do not walk, stand, or work under the elevated portion of a forklift (even if it is not loaded).
- Ensure that the forklift has an overhead barrier to protect the operator from falling objects.

In addition, follow these guidelines for safe forklift operation:

- Always work within the capacity limits of your forklift. Consult with the manufacturer before modifying the operation or capacity limits of a forklift.
- Do not operate a forklift in areas with hazardous concentrations of acetylene, butadiene, hydrogen, ethylene, or diethyl ether, or other explosive environment.
- Never lift a load while moving. Wait until you are completely stopped before raising the mast.
- Be sure the top load sits squarely on the stack. An uneven load could topple.
- Travel with loads slightly tilted back to provide stability.
- Travel with loads at the proper height.
- Lift stacked loads in the same manner as loads on the floor.
- When preparing to leave the forklift unattended, lower the mast, neutralize the controls, shut the power off, and set the brakes. The forklift is "unattended" when the operator is more than 25 feet away or the forklift is out of view.
- When ascending or descending a grade in excess of 10 percent, drive the forklift with the load upgrade.
- Do not try to look around a load and drive forward.

Backhoes

Only authorized employees may operate backhoes and front-end loaders. The following list offers general safety guidelines for both types of machinery:

- Always operate at a safe speed.
- Travel with the bucket low to the ground.
- Always lower the bucket before servicing the equipment or leaving the loader unattended.
- Use a rigid-type coupler when towing loads.
- Always check with the utility company before digging.
- Be extremely careful when operating near banks and slopes.
- Do not drive on an overhang.

Hoists

Only authorized employees may use hoists to move heavy objects and equipment. Follow these safety guidelines when working with heavy equipment:

- Never walk, stand, or work beneath a hoist.
- Isolate hoisting area with barriers, guards, and signs, as appropriate.
- Never exceed the capacity limits of your hoist.
- Wear gloves and other personal protective equipment, as appropriate, when working with hoists and cables.
- Ensure that hoists are inspected regularly before each use.
- Ensure that hoists are inspected annually by a certified inspector.
- Always hold tension on the cable when reeling it in or out.
- When the work is complete, always rig the hoist down and secure it.
- Always be prepared to stop operations immediately if signaled by the safety watch or another person.
- Do not hoist loads when any portion of the hoisting equipment or suspended load can come near high-voltage electrical lines or equipment.
- Inspect hoists before use according to the manufacturer's instructions. If there is any question about the working condition of a hoist, do not use it.

Mobile Crane Safety

When using a mobile crane, check for: crane leveling and stability, physical obstructions to movement or operation, proximity of electrical power lines, outriggers being used in accordance with manufacturer's recommendations.

A crane's main frame, crawler, track and outrigger supports, boom sections, and attachments are all considered part of the structural components of lifting. Wire ropes, including stationary supports, help determine lifting capacity and are part of the structural elements of crane operations. The work area must be secured to prevent unauthorized entry to the area. The barricades must encompass the length that the boom is extended and the area within the boom swing.

Fall Protection

Standards for fall protection deal with both the human and equipment-related issues in protecting workers from fall hazards. To help prevent falls, do the following:

- Wear fall protection gear and equipment.
- Use proper installation of safety systems.
- Supervise employees properly.
- Use safe work procedures.
- Train workers in the proper selection, use, and maintenance of fall protection systems.

At a minimum, employees must use fall protection when working 6 feet or more above a lower level.

Scaffolding

Scaffolds must be designed and erected in accordance with applicable standards. The Physical Plant must authorize any use of scaffolding on campus. The following provides guidelines for using small scaffolds:

- Ensure that scaffold anchors are sound, rigid, and capable of supporting the maximum intended load without shifting.
- Do not use unstable objects such as barrels, boxes, bricks, or blocks to support scaffolds or planks.
- Keep floors free of debris where mobile scaffolds are used.
- Lock scaffolds with wheels into position.
- Install guardrails, midrails, or toeboards on the open sides and ends of platforms that are above floor level. Use lifelines for scaffolds that are more than 10 feet off the ground.

- Secure scaffolds to permanent structures with anchor bolts or other means.
- Do not load scaffolds in excess of their maximum load limits.
- Repair damaged scaffolds immediately.
- Do not work on scaffolds in high winds or during storms.
- Remove ice or snow from scaffolds in winter weather.
- Do not allow tools, equipment, or other debris to accumulate on scaffolds.
- Dismantle and remove scaffolds when they are no longer needed. Do not use temporary scaffolding as a permanent installation.

10. Contractor Safety

West Texas A&M University requires all Contractors to follow Safe Work Practices at all times. Contractors will follow all local, state, and federal regulations. Safe Work Practices minimize the risk of injury, illness and property damage. Safe Work Practices are general in nature and are dependent of the type of work being performed.

Safe Work Practices include:

- Proper use of PPE.
- Elimination of hazards.
- Maintaining proper housekeeping and area cleanliness.
- Avoiding unsafe conditions.
- Avoiding horseplay, harassment, and fighting at all times.
- Posting the proper signage.
- Properly illuminating work sites.

WTAMU reserves the right to require safe work practices at all times. Each department that coordinates or uses the services of a Contractor or Subcontractor to perform maintenance, repair, installation, renovation or construction-related operations is expected to designate one or more persons to coordinate this program within his or her department. These coordinators are expected to assure that the Contractor is informed of potential of hazards in or near the work area, WTAMU requirements related to the Contractor safety, and University expectations regarding safety compliance and the control of worksite hazards.

11. Hot Work Safety

Hot Work Safety is used to prevent the outbreak of fire, fire alarm activations, smoke and flames caused by heat and/or sparks. This includes, but is not limited to: brazing, grinding, cutting, torch soldering, thawing pipes, torch applied roofing and welding.

This applies to work performed by any WTAMU employee, student and/or contractor performing work in existing buildings, new construction in existing buildings, or new construction attached to existing buildings. When hot work is performed outdoors, necessary precautions should be taken to ensure combustible materials have been cleared and the risk of fire has been eliminated. This does not apply to new construction where there is no attachment to existing buildings or to areas that are specifically designed and equipped for such operations, i.e. maintenance shop areas and designed welding areas.

Hot work should not be performed if the work can be avoided or performed in a safer manner. When practical, objects to be welded, cut or heated should be moved to a designated safe location, i.e. maintenance shops. If hot work must be performed, a Hot Work Permit must be completed. All precautions on the Hot Work Permit must be met prior to any work commencing. The supervisor or the employee performing the hot work must complete the permit. The Hot Work Permit is only good for the date specified on the permit. A Hot Work Permit must be displayed at the work site during all

hot work. All building occupants must be suitably protected against hazards generated by the work. i.e. heat, sparks, fumes, welding rays, etc.

Procedures before hot work begins:

- An appropriate fire extinguisher must be available and operable.
- Flammable and ignitable materials and debris must be moved at least 35 feet from the hot work area or covered and protected from the hot work by fire resistant material.
- Explosives, oxygen acetylene tanks, flammable liquids, compress gas cylinders or stored fuel must be moved at least 50 feet from the hot work area or covered and protected from the hot work by fire resistant material.
- Smoke and fire detectors in the immediate area of the hot work must be temporarily disabled until the hot work is completed. This can be accomplished by contacting the Environmental Safety Office.
- Adequate ventilation is being used (especially when cutting or welding material with painted or metal coated surfaces). For questions or assistance, on ventilation issues, contact the Physical Plant.
- Building occupants must be protected and separated from the hot work area. If work impacts building occupants, the work must be discussed with the building coordinator.
- Cracks or holes in floors, walls, and ceiling (including ductwork) are properly covered or plugged.
- Hot work equipment must be in good repair.
- Drums, barrels and tanks must be cleaned and purged of flammables and toxics, i.e. all tank feeds closed and the tank vented.

After the work is complete, a fire watch must be implemented when conditions warrant. The work area and any potentially affected surrounding areas must be inspected for fire, fire damage or the potential for fire for a minimum of one hour following completion of the hot work (contact the ESO to reactivate smoke/fire alarms). Closed-out permits must be returned to the worker's supervisor to maintain for documentation.

12. Personal Protective Equipment

Personal Protective Equipment (PPE) includes all clothing and work accessories designed to protect employees and students from hazards. Protective equipment should not replace engineering, administrative, or procedural controls for safety — it should be used in conjunction with these controls. Employees and students must wear protective equipment as required and when instructed.

IMPORTANT: Personal protective equipment that is used to prevent exposure or contamination should always be removed before coming in contact with other individuals or going in or near elevators, break rooms, classrooms, bathrooms, etc. Do not launder personal protective equipment at home.

Arm and Hand Protection

Arms and hands are vulnerable to cuts, abrasions, temperature extremes, burns, bruises, electrical shock, chemical spills, and amputation. Always wear the appropriate hand and arm protection. Wear appropriate, approved gloves for hand protection. For arm protection, wear a long-sleeved shirt, a laboratory coat, chemical-resistant sleeves, or gauntlet-length gloves.

Follow these guidelines to ensure arm and hand safety:

- Inspect and test new gloves for defects.
- Always wash your hands before and after using gloves. Wash chemical-protective gloves with soap and water before removing them.
- Do not wear loose fitting gloves near moving machinery; the gloves may become caught.

- Do not wear gloves with metal parts near electrical equipment.

IMPORTANT: Gloves are easily contaminated. Avoid touching surfaces such as telephones, door knobs, etc. when wearing gloves.

Body Protection

Hazards that threaten the torso tend to threaten the entire body. A variety of protective clothing, including laboratory coats, long pants, rubber aprons, coveralls, and disposable body suits should be used for specific work conditions.

Do not launder contaminated chemically, biologically, or radiologically protective clothing at home or in any facilities outside of the university.

Ear and Hearing Protection

If you work in a high noise area, wear hearing protection (i.e. disposable earplugs, reusable earplugs, headband plugs, sealed earmuffs). Most hearing protection devices have an assigned rating that indicates the amount of protection provided. Depending on your level of exposure, you may choose from the following devices:

Earplugs may be better in hot, humid, or confined work areas. They may also be better for employees who wear other PPE, such as safety glasses or hats. Earmuffs, on the other hand, may be better for employees who move in and out of noisy areas, because the muffs are easier to remove. Before resorting to hearing protection, attempt to control noise levels through engineering or operational changes.

Eye and Face Protection

Employees and students must wear protection if hazards could cause eye or face injury. Eye and face protection should be used in conjunction with equipment guards, engineering controls, and safe practices.

IMPORTANT: Safety glasses are required in laboratories. Chemical goggles should be worn when handling chemical materials. Refer to the Academic and Research Environmental Health and Safety Office posted Standard Operating Procedures for all course, lab, and research work.

Always wear adequate eye and face protection when performing tasks such as grinding, buffing, welding, chipping, cutting, or pouring chemicals. Safety glasses with side shields provide protection against impact, but chemical safety goggles provide protection against impact, splashes, and hazardous atmospheres.

Follow the below information regarding eye protection:

- If you wear prescription glasses, wear goggles or other safety protection over the glasses.
- Safety glasses with side-shields provide primary protection to eyes and are four times as resistant as prescription glasses to impact injuries.
- Goggles protect against impacts, sparks, dust, and irritating mist. Wear chemical splash goggles, not just safety glasses, when working with chemicals.
- A welding helmet protects from flash burn due to welding, soldering, or brazing, but does not provide primary eye protection; safety glasses or goggles should be worn with the helmet.
- A face shield is designed to protect the face from some splashes or projectiles, but does not eliminate exposure to vapors. A face shield should be worn with goggles or safety glasses.
- To reduce eyestrain from glare and outdoor sun exposure use safety glasses with UV protection to minimize the ultraviolet light exposure.

Foot Protection

To protect feet and legs from falling objects, moving machinery, sharp objects, hot materials, chemicals, or slippery surfaces, employees should wear closed-toed shoes, boots, foot-guards, leggings, or safety shoes as appropriate. Safety shoes are designed to protect people from the most common causes of foot injuries — impact, compression, and puncture. Special foot protection is also available for protection against static electricity, sparks, live electricity, corrosive materials, and slipping.

IMPORTANT: Do not wear sandals, crocs, or open-toed shoes in laboratories, shops, food-prep, food serving, or other potentially hazardous areas.

Head Protection

Accidents that cause head injuries are difficult to anticipate or control. If hazards exist that could cause head injury, employees should try to eliminate the hazards, but they should also wear head protection.

Safety hats protect the head from impact, penetration, and electrical shock. Head protection is necessary if you work where there is a risk of injury from moving, falling, or flying objects or if you work near high-voltage equipment. Hard hats should be water resistant, flame resistant, and adjustable. Check the shell and suspension of your headwear for damage before each use. Do not wear a hard hat backwards, unless this is necessary to accommodate other protective equipment (e.g., welders face shield).

Respiratory Protection

Employees and students who use respiratory protection must be physically capable of using and wearing the equipment. In some cases, a physician must determine if an the person is healthy enough to use a respirator. In addition, all those required to wear respirators must be formally trained and instructed in proper equipment usage. This training should include instruction on common respiratory hazards and symptoms of exposure.

The Environmental Safety Office can provide training and fit testing for personnel who need respiratory protection. Fit testing must be done annually or more frequently based on substantial weight gain/loss or facial surgery.

IMPORTANT: Respirators are available in different sizes. Always fit test a respirator to select the proper size and fit. You may not have facial hair that interferes with the seal of a tight fitting respirator. If you were fit tested without facial hair or with a minimal amount of facial hair, you must not wear your respirator with additional hair growth. Only use respirators that are approved by NIOSH.

The respirator is necessary to prevent the inhalation of particulates, gases, vapors, aerosols, or other contaminants. Be sure you have notified the Environmental Safety Office of all hazardous chemicals or materials you will be working with to ensure you have been provided the best possible respiratory protection. If you identify any worn or weak parts, do not use the respirator. Perform a positive pressure and negative pressure seal check every time you put on the respirator. Clean and disinfect the respirator after each use if shared by more than one person (NOTE: respirators may be shared only by individuals who have been properly trained and fit tested for that respirator).

13. Biological Safety

The Institutional Biosafety Committee (IBC) is charged by federal law with the planning and implementation of the WTAMU Biosafety Program to ensure the health and safety of all personnel working with rDNA and biohazardous agents. The IBC reviews research conducted at WTAMU for compliance with the NIH Guidelines for Research Involving Recombinant DNA Molecules and the Select Agent Rule. The IBC also drafts campus biosafety procedures and reviews individual

research proposals for biosafety concerns. Possession and use of biohazardous materials for research requires prior approval of the Institutional Biosafety Committee (IBC).

A Biohazardous Use Authorization (BUA) is required by posted AR-EHS procedure for laboratory research involving biohazardous materials and for clinical research involving human gene transfer. Obtaining a BUA will help ensure that research is conducted in compliance with biohazardous materials regulations. The Institutional Biosafety Committee (IBC), which is composed of WTAMU faculty, staff, and community members, will perform a risk assessment of research experiments (as listed on the BUA application) and assign an appropriate level of biological safety containment. A BUA is required prior to use of biohazardous materials.

General Biosafety Guidelines

Biohazardous materials require special safety precautions and procedures. Follow these guidelines when working with infectious agents:

- Wash your hands thoroughly, after working with any biohazard.
- Wash your hands thoroughly, after removing gloves, laboratory coat, and other contaminated protective clothing.
- Wash your hands thoroughly, before eating, drinking, smoking, or applying cosmetics.
- Wash your hands thoroughly, before leaving the laboratory area.
- Do not touch your face when handling biological material.
- Never eat, drink, smoke, or apply cosmetics in the work area.
- Always wear a wrap-around gown or scrub suit, gloves, and a surgical mask when working with infectious agents or infected animals.
- Wear gloves over gown cuffs.
- Never wear contact lenses around infectious agents.
- Do not wear potentially contaminated clothing outside the laboratory area.

Biological safety depends on proper cleanup and removal of potentially harmful agents. Disinfection and sterilization are two ways to help ensure biological safety. Choosing the best method for disinfection and sterilization is very important. Once you have chosen the proper method for disinfection or sterilization, follow these guidelines to ensure safety:

- Frequently disinfect all floors, cabinet tops, and equipment where biohazardous materials are used. When necessary, use higher concentrations or longer contact time.
- Use autoclavable or disposable materials whenever possible. Keep reusable and disposable items separate.
- Minimize the amount of materials and equipment present when working with infectious agents.
- Sterilize or properly store all biohazardous materials at the end of each day.
- Use indicators with autoclave loads to ensure sterilization.
- Clearly mark all containers for biological materials (e.g., BIOHAZARDOUS - TO BE AUTOCLAVED).

A biological safety cabinet is a primary barrier against biohazardous or infectious agents. A biological safety cabinet is often referred to by other names such as biohood, tissue culture hood, or biological fume hood. Although biological safety cabinets surround the immediate workspace involving an agent, they do not provide complete containment (i.e., aerosols can escape). Therefore, careful work practices are essential when working with agents that require a biological safety cabinet.

IMPORTANT: Employees working with infectious agents or potentially infectious materials must be aware of the hazards associated with their work. These workers must be proficient in biosafety procedures.

Biological Spill Response

The exact procedure for responding to a biological spill depends on the material, amount, and location of the spill. In general, follow these steps immediately after a biological spill occurs:

- Warn others in the immediate area.
- Leave the room; close the door.
- Remove contaminated garments.
- Wash your hands.
- Notify your department head, supervisor, ESO and AR-EHS. Always call 911 for injury assistance.

Follow these steps to clean up a biological spill:

- Wait for any aerosols to settle.
- Put on PPE and protective clothing, as appropriate.
- Apply disinfectant to the contaminated area, use the appropriate disinfectant and allow it to stand for 10 to 15 minutes before removing it.
- Cover the area with paper towels to absorb the disinfectant.
- Wipe up the towels and mop the floor.
- Autoclave all contaminated wastes.

IMPORTANT: Spill cleanup must be appropriate for the hazards involved. Call AR-EHS or ESO for assistance.

Disposal of Biological Waste

Biohazardous waste should be treated and disposed of promptly and not allowed to accumulate. Containers holding biohazardous material must be clearly labeled, including the Biohazard Symbol. Biological waste may be held temporarily under refrigeration, prior to disposal, in a safe manner that does not create aesthetic (visual or odor) problems. Storage enclosures must be clean and orderly with no access to unauthorized persons (warning signs must be posted).

Properly trained personnel must be responsible for transporting treated biological waste from the generation site to the dumpster or outside trash barrel. Untreated biohazardous waste must only be handled by properly trained technical personnel. Treated waste must be properly contained and labeled before transport to the trash toters for disposal. Transport of either untreated biohazardous materials or visually offensive material through nonlab or populated areas must be avoided. Trash/laundry chutes, compactors, and grinders cannot be used to transfer or process untreated biohazardous waste.

Refer to the posted Academic and Research Environmental Health and Safety Standard Operating Procedures for biological safety and disposal requirements for biohazard materials.

14. Laboratory Safety

Laboratory Safety is overseen by Academic and Research Environmental Health and Safety. The Academic and Research Environmental Health and Safety (AR-EHS) program provides the necessary programmatic and activity-specific guidance to:

- Address applicable environmental protection.
- Promote student, faculty, and staff safety and health requirements.
- Advance best management practices.

The AR-EHS program requires that employees complete the basic AR-EHS orientation, as well as appropriate activity-specific training. Supervisors, as well as employees, are encouraged to identify needed training and to request and complete the training.

The overall goal of the AR-EHS program is to:

- Support academic and research staff in providing a safe educational and research environment for students and staff.
- Conduct all activities in accordance with all environmental regulations and laws.

The cooperation and support of faculty and staff is essential to the success of the program. The program includes conducting laboratory inspections, testing of chemical fume hoods and other safety equipment, and providing general laboratory safety training.

To ensure laboratory safety, follow safe laboratory practices, including:

- Know about the chemicals and hazards associated with a laboratory.
- Know what to do in different emergency situations.
- Know how to read and interpret MSDS's.
- Wear personal protective equipment, as appropriate.
- Safety glasses are required in laboratories.
- Do not wear sandals or open-toed shoes in laboratories, shops, or other potentially hazardous areas.
- Follow safe practices for working with chemicals.
- Ice from a laboratory ice machine must not be used for human consumption.
- Dedicate microwave ovens, other heating devices and refrigerators exclusively for laboratory operations. Ensure that these appliances are clearly labeled to indicate their function.
- Do not eat, drink, store or prepare food or drink in the laboratory.
- Do not wear contact lenses around chemicals, fumes, dust particles, or other hazardous materials.
- If the eyes are exposed to hazardous materials or irritating elements, immediately flush the eyes with water for at least 15 minutes and contact a physician.
- Protect unattended operations from utility failures and other potential problems that could lead to overheating or other hazardous events.
- Avoid working alone in a laboratory.
- Avoid producing aerosols.
- Use extreme care when working with needles, blades, and glass.
- Do not use tobacco products in the laboratory.
- Do not mouth pipette.
- Clean contaminated equipment and spills immediately.
- Avoid contaminating equipment with mercury. Clean mercury spills immediately. Follow mercury spill protocols.
- Do not allow children in the laboratory. It is a violation of state law for a child to be unattended in a place that presents a risk of harm.
- Keep laboratory doors closed.
- Decontaminate all affected equipment.
- Avoid using dry ice in enclosed areas. Dry ice can produce elevated carbon dioxide levels.
- Hallways, corridors, and exit ways must be kept clear. Do not locate, even temporarily, laboratory equipment or supplies in these areas.

Laboratory Close Out

To ensure appropriate laboratory close out, the principal investigator or departmental administrator must contact AR-EHS as soon as the need for lab evacuation is determined (preferably three months prior to exit). All components listed on the laboratory close-out form must be completed, with required signatory verification, as part of the principal investigators university exit process. The close-out form must be filed with AR-EHS.

IMPORTANT: Never underestimate the hazards associated with a laboratory. If you are unsure about what you are doing, get assistance. Do not use unfamiliar chemicals, equipment, or procedures alone.

Specific information on safe lab practices can be found in the posted AR-EHS Standard Operating Procedures. These procedures contain information on the different hazards that may be found in laboratories - including chemical hazards, physical hazards, biological hazards and radiological hazards - and how to minimize the risks associated with those hazards. The procedures also provide information on training requirements for laboratory personnel, how to safely work in a laboratory, and how to plan for an emergency situation in a laboratory.

For specific questions regarding Laboratory Safety, contact Academic and Research Environmental Health and Safety.

15. Glassware Disposal

Discarded glassware, both intact and broken, poses a genuine hazard and should be properly discarded to avoid injuries to lab occupants, office employees, students, and other university employees. Glassware is any item that could puncture regular trash bags and potentially cause injury, including: bottles, flasks, vials apparatus, and pipettes not used for bio-hazardous or infectious materials. For additional information, refer to the posted AR-EHS standard operating procedures for glass handling and disposal.

Glassware does not include sharps, which are objects that can be reasonably anticipated to penetrate the skin or any other part of the body and to result in a bloodborne pathogen exposure incident, such as needle devices, scalpels, lancets, broken capillary tube, exposed ends of dental wire or dental knives, drills, or burs.

Approved Containers

Any cardboard box, vendor purchased broken glassware box, or plastic buckets with lids, may be used as a glassware receptacle, provided: it is sturdy, has a sealable lid, is plastic-lined to prevent leakage, and is of a size that will not weigh more than 20 pounds when full.

- Clearly label the box, “CAUTION: BROKEN GLASSWARE” or similar wording.
- Position the box so that the label remains readily visible.
- Do not place sharps, liquid wastes, or infectious materials in the container.
- Empty product containers, not containing hazardous chemical or infectious residue, must first have labels removed or defaced before being placed in a glass disposal container.
- Twist and tape closed the bag top, close the container lid, and tape it shut, ensuring that the label remains visible after the box/container has been sealed.
- Carry the sealed, labeled container directly to the dumpster.
- The generator of the waste must take the broken glassware to the trash toter, not the custodial staff.

16. Sharps

Since the handling of sharps pose a significant safety and health risk, extreme caution must be exercised while handling sharps. Also, federal, state, and local regulations govern the safe handling and disposal of sharps. A sharp is any device having corners, edges, or projections capable of cutting or piercing the skin, including: regulated sharps, unregulated biohazardous sharps, unregulated and uncontaminated sharps that pose a safety hazard to personnel.

The following items are considered sharps and should be placed in a sharps container, whether or not they are contaminated with medical, chemical, or bio-hazardous waste, including: needles, needles with syringes, needles from vacutainers, needles with attached tubing blades (razors, scalpels, X-acto, etc.).

Additional items contaminated with medical, chemical, or biohazardous waste must be placed in a sharps container, including: broken glassware, glassware with sharp edges or points, Pasteur pipettes, and glass slides.

Sharps Containers

Sharps containers should be red and must be puncture-resistant and labeled as sharps waste, or with a biohazard symbol and the word biohazard, or as unregulated sharps. Sharps containers must be placed in the area of sharps waste generation. Do not overfill sharps containers.

Contact the Environmental Safety Office for pickup and disposal of your sharps container.

IMPORTANT: All employees and students handling sharps and other bloodborne pathogen (BBP) materials must confirm and document training prior to handling these materials. After completing the BBP training, a HBV vaccination form must be signed and sent to the Environmental Safety Office, the Academic and Research Environmental Health and Safety Office, and the Risk Management Office.

If a bloodborne pathogens exposure incident should occur, call 911 for medical attention and report the incident immediately to the supervisor and the Environmental Safety Office. If contaminated sharps were involved, a Contaminated Sharps Injury Reporting Form must be filled out. Personal protective equipment must be utilized whenever contact with bloodborne pathogens may occur. Examples of personal protective equipment include: gloves, gowns, laboratory coats, masks, face shields, eyewear with side shields, mouthpieces, resuscitation bags, pocket masks, aprons, and shoe covers. Gloves must be worn whenever it is reasonably anticipated that hand exposure to bloodborne pathogens may occur. Masks, in combination with eye protection devices, must be worn whenever splashes, spray, or splatter can reasonably be anticipated. Appropriate protective body coverings such as gowns, aprons, caps, and/or shoe covers are worn when gross contamination can be reasonably anticipated. All garments that are penetrated by blood must be removed immediately, or as soon as feasible, and disposed of properly.

17. Hazardous Chemical Management

Hazardous chemicals must be handled, transported, stored, and disposed of properly. Federal, state, and local regulations, along with University rules and TAMUS policies stipulate the procedures related to the safe handling, transportation, storage, and disposal of hazardous chemicals. The posted AR-EHS standard operating procedures establish additional requirements for the ordering and safe handling of chemicals on campus.

Product Ordering and Shipping

Before ordering, consider safer alternatives, and check for chemical stocks already on hand. Order no more than needed, do not order in bulk. Hazardous materials must be unloaded by the carrier and signed for before they can be moved.

Receiving and Storage

Store chemicals segregated by hazard class and compatibility and in proper storage cabinets. Do not keep expired chemicals. Use caution when using and storing highly reactive chemicals, such as certain peroxides, picric acid, and ethers/peroxide-forming compounds.

IMPORTANT: The best container for storing a chemical is the one in which it was shipped. All chemicals must be labeled and include: name, health hazard, flammability, reactivity, and

compatibility. Contact AR-EHS for ordering and storage of any chemicals involving laboratories, research, and/or the classroom.

Empty Containers

While empty containers may not be regulated as hazardous wastes they could pose health and safety risks to WTAMU staff, students, or the public if not properly managed. For example, containers that have held flammable materials could pose a fire or explosion risk if subjected to ignition sources. Containers that once held toxic materials could pose a risk if used as drinking water containers. Many containers that have held these types of materials may appear as useful and could be collected from the waste receptacles and then be used without proper decontamination or safe handling practices. These types of attractive, re-useable containers (i.e., potentially re-useable drums, five-gallon cans, one-gallon cans, bottles, or jugs) should be managed in a manner that protects human health and safety. If the user has these types of containers they should maintain control of the containers to prevent inappropriate use of the containers.

Transportation and Shipment of Hazardous Materials

- Do not ship by commercial carrier or transport over public roads or via air carrier in any form or quantity unless properly trained and approved by the Environmental Safety Office (ESO).
- Authorization must be given by the ESO for the transportation and shipping of hazardous materials, in accordance with the TAMUS Export Controls policy and other applicable regulations.
- Unauthorized shipments will be refused by commercial carriers.
- If you need a chemical shipped, contact the ESO.
- Only a certified hazardous materials shipping agent may ship hazardous materials.
- You must correctly identify the materials for any shipping or transportation.
- Personal vehicles are not authorized for transporting or shipping hazardous materials.

Satellite Waste Accumulation

Accumulate hazardous waste only in designated Satellite Accumulation Areas (SAAs).

Accumulation containers must be labeled and must be compatible with the waste being stored. Unbreakable or shatter resistant containers should be used. All waste containers should be in good condition. Caps should be a screw top (or similar) and not a cork or stopper, which can separate from the container should it tip or fall. Only one container per hazardous waste should be used. Once labeled and filled, containers must be sealed.

Each department housing waste accumulation must designate a primary operator to be responsible for notifying AR-EHS and the ESO on the 24-hour contact information of the responsible party. The primary operator is responsible for documenting weekly inspections of the size and scope of satellite waste accumulation.

IMPORTANT: Refer to the posted AR-EHS procedures for additional information on site accumulation and disposal. Contact the Environmental Safety Office for pickup of full waste containers for central accumulation, consolidation, shipping, treatment, and/or disposal.

18. MSDS Management

Material Safety Data Sheets (MSDS) provide important information to the user and surrounding individuals of the chemical hazards associated with chemicals. Federal, state, and local regulations require the employer to make available certain right-to-know information. The posted AR-EHS standard operating procedures cover additional information to meet MSDS requirements.

Every chemical used on campus must have a MSDS provided by the manufacturer. If no MSDS is available, then the product should not be used on campus. Contact the AR-EHS or ESO for MSDS information. MSDS's must be easily accessed by any individual on campus.

MSDS's must be made available to emergency response groups, including: Canyon Fire Department, Canyon Emergency Management, Randall County Local Emergency Planning Committee (LEPC), and Emergency Medical Providers.

Each department at WTAMU that uses chemicals must maintain local access to current MSDS's for their chemicals. The Dean, Director, or Department Head must identify the individual responsible for maintaining their department's MSDS inventory. Notify AR-EHS and the ESO of the responsible person.

- MSDS must be updated if the chemical ingredients of the product change.
- MSDS must be located in a common, accessible area.
- All departmental employees must be trained on the use of MSDS and be told of the location of MSDS.

IMPORTANT: It is the responsibility of each employee to read the MSDS for each chemical before he or she uses the chemical(s). Employees must obey the cautions listed on the MSDS and utilize the personal protective equipment (PPE) for themselves and for students required to handle that chemical safely.

19. Hazardous Materials Transportation

Hazardous materials mean a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has been designated as hazardous under Section 5103 of the Federal Hazardous Materials Transportation Law (49 U.S.C. 5103). Hazardous materials, for the purpose of transportation, are those in one or more one of the following groups:

- Explosive materials
- Gases
- Flammable liquids
- Combustible liquids
- Flammable or & water-reactive solids
- Oxidizers
- Poisonous materials
- Infectious materials
- Radioactive materials
- Corrosive materials
- Miscellaneous hazardous materials

The US Department of Transportation (DOT) and the International Air Transport Association (IATA) have detailed regulations for shipping hazardous materials or dangerous goods. When shipping within the United States or Internationally, it is critical to comply with all shipping regulations to protect the shipper, the carrier, and the environment to prevent stiff penalties from being imposed. Hazardous materials shipments from WTAMU require a trained and authorized employee to send shipments. Contact the Environmental Safety Office for authorization.

The Hazardous Materials Regulation (HMR) Parts, 171 – 180 of Title 49 CFR contain all the regulations pertaining to the transport of hazardous materials. The purpose of the HMR is to provide the shipper with instruction on how to properly package, mark, label and document a hazardous material to be placed in commerce (i.e. ground, air, water and rail). The International Air Transport Association's Dangerous Goods Regulation is the guide that is recognized by all airlines that carry dangerous goods in all countries. This regulation provides procedures for the shipper and the operator by which Dangerous Goods can be safely transported by air on all commercial air transport.

Both regulations serve the same purpose, to provide safety to the shipper and carrier and to minimize the risk of contamination to the environment.

The DOT information is summarized in the Hazardous Material section 172.101 of the DOT regulations. It is important to note that just because the material being shipped is not listed in the hazardous materials section does not imply that the material is not regulated. For assistance in resolving questions about the proper shipment and classification of hazardous materials contact the Environmental Safety Office.

20. Agriculture Safety

The following information provides information on basic safety, tractor safety, pesticide and chemical safety, and fertilizer safety. For further safety information concerning Agriculture, please contact the Department of Agriculture Sciences, the Academic and Research Environmental Health and Safety Office, or the Environmental Safety Office.

Agriculture workers are exposed to different potential hazards, including operating agricultural equipment or heavy machinery, applying pesticides and other chemicals, and handling livestock. Safety is everyone's responsibility. It is up to everyone associated with the agricultural industry to use safe working practices. Always train new equipment operators before letting them work on their own. Be sure to read the operator's manuals for all equipment. Never disable safety devices or controls on farm equipment.

The following sections discuss general guidelines for farm equipment safety, including farmstead equipment, farm field equipment, guards, shields, and power take-off equipment (PTOs):

- Safety = Good Working Equipment + Able and Aware Operator
- Keep all guards, shields, and access doors in place when the equipment is in operation.
- Adjust equipment speed to fit operating conditions.
- Keep children and other people away from the working area.
- Take breaks from work, as necessary.
- Always stop the engine, disconnect the power source, and wait for all moving parts to stop, before servicing, adjusting, cleaning, or unclogging equipment.
- Display the slow moving vehicle emblem on equipment driven on public roadways.
- Allow the engine to cool before refueling.

Farmstead Equipment

Farmstead equipment is agricultural machinery that is normally stationary. This includes materials handling equipment and accessories for such equipment whether or not the equipment is an integral part of a building. Examples of farmstead equipment include cotton gins, grain augers, crushers, sorters, and miscellaneous belt-driven equipment.

Farmstead equipment should have an audible warning device to indicate that the machine is about to be started. Refer to Electrical Lockout/Tagout procedures to safely perform repairs or maintenance on electrical equipment. Farmstead equipment that is not properly guarded and shielded may pinch, crush, electrocute, or otherwise harm humans. Refer to the operator's manual for specific safety instructions for each piece of equipment.

IMPORTANT: Moving grain augers in their elevated position may result in electrocution if the equipment contacts overhead power lines. Farm owners, managers, and operators should ensure that augers are in the lowered position before moving them. In addition, all augers should have warning signs that indicate the potential electrical hazards associated with moving the auger upright. Functional components of augers must be guarded to the fullest extent possible.

Hydraulic Equipment Safety

Farm equipment operators must be extremely careful when working around hydraulic equipment. Hydraulic pressure is often strong enough to knock a person out if a leak or explosion occurs.

Follow these guidelines when working with hydraulic equipment:

- Inspect hydraulic equipment regularly for leaks. Report and fix any leaks immediately.
- Ensure that all couplings are properly installed and in good working condition.
- Ensure that all lines and fittings are in good condition. Repair or replace any equipment that is not in good condition.
- Lock transport wheels and support jacks on implements in place before disconnecting hydraulic cylinders. This action will prevent sudden shocks to the machine or personal injury.
- Keep couplings and hoses in good repair so that the hydraulic system can safely sustain maximum pressure.

Guards, Shields, and PTOs

Guards and shields are extremely important because they keep operators from inadvertently contacting, or being caught, by moving machinery parts. Ensure that moving parts are guarded or shielded whenever possible. In addition, to prevent burns or fires, shield heat-producing components (e.g., exhaust pipes).

Since all moving parts cannot be guarded due to their function, stay clear of these machines when they are in operation. In addition, turn these machines off if they need service, maintenance, or repair. Guards and shields are absolutely essential for PTO farm equipment. Leave the master shield in place when the implement is unhitched. Replace missing or damaged guards and shields immediately.

Stationary Fuel Storage Tanks

Petroleum products for agricultural use, including gasoline and diesel fuel, are stored in Aboveground Storage Tanks (AST) or Underground Storage Tanks (UST). The TNRCC regulates ASTs and USTs. Fuel tanks with volumes greater than 1100 gallons require notification, registration, annual fees, and recordkeeping.

Portable Fuel Tanks

Even small quantities of fuel, such as gasoline, kerosene, or diesel fuel must be properly labeled and stored. Always use DOT approved metal tanks or UL or FM labeled containers to store small amounts of fuel. Store small portable fuel tanks in well-ventilated areas, away from other flammable materials or ignition sources. Do not use containers such as empty plastic milk jugs to store fuels.

IMPORTANT: Clearly label fuel containers to indicate contents.

Liquefied Petroleum Gas

The Texas Railroad Commission regulates the sale and use of Liquefied Petroleum Gas (LPG). There are several safety considerations associated with LPG. All LPG tanks must comply with Department of Transportation (DOT) standards for storage and use. Locate LPG tanks away from flammable materials and possible ignition sources. LPG tanks cannot be downhill from flammable liquid tanks such as gasoline or diesel. Stationary LPG tanks cannot be placed in any area beneath an electric transmission or distribution line. LPG tanks must be equipped with hydrostatic relief valves, excess flow valves, etc, as required by the Texas Railroad Commission.

IMPORTANT: Portable LPG containers must be stored in a separate location outside of a building.

Grain Storage

Grain storage bins and hoppers pose severe hazards, including entrapment and suffocation. Grain materials are unpredictable and they move quickly — entrapment, burial, and suffocation can occur within seconds.

In some cases, the surface material in a grain bin acts like quicksand. When a storage bin is emptied from the bottom, the grain material forms a funnel. The flow rate of this funnel can be strong enough to trap a person. A condition known as bridging can also create serious hazards. A bridge occurs when grain or other loose material sticks to the side of a bin that is being emptied from below. The bridge is highly unstable and dangerous. If it collapses, it can trap any worker either on or below it.

Follow these guidelines to reduce the risks associated with grain storage:

- Assume that all stored materials are bridges and that the potential for entrapment and suffocation is constant.
- Do not enter a storage area from the bottom if material is adhering to the sides.
- If you must enter a storage area, use a safety belt or harness with a lifeline. Always stay above the highest level of material. Never stand on top of stored material.
- Lock out supply and discharge equipment whenever a worker enters the storage area.
- Post signs that indicate the hazards of working with stored materials.

General Tractor Safety

The following guidelines offer general safety tips for operating tractors:

- Confirm training on how to use a tractor safely. Regularly review the safety precautions in the operator's manual.
- Prepare for tractor work by inspecting the vehicle and wearing appropriate clothing.
- Ensure that all workers are properly trained in tractor operation.
- Never allow riders. A tractor should have only one person on board.
- Install an approved roll-over protective structure (ROPS) and seat belt on any tractor that is not equipped with these features. ROPS prevent tractor turnover injuries, but only if the seat belt is worn.
- Always place a tractor in neutral or park before starting it.
- Never start a tractor from the ground.
- Always wear a seat belt, when driving a tractor equipped with a ROPS.
- Disengage drives and turn the engine off before leaving the tractor unattended.
- Keep yourself and others away from moving parts.
- Hitch loads only to the drawbar. When using three-point rear hitches, add front end weights to maintain stability and control steering.
- Never bypass start the engine.

Accidents usually occur because highway safety precautions are not followed. It is difficult to avoid highway travel when going between farm sites. Procedures should be discussed for traveling on highways with agricultural equipment. Common sense and good judgment should be emphasized.

Slow moving vehicles, including tractors, traveling on public roads are legally required to have a slow-moving vehicle sign attached. Trailers must be equipped with turn signals, brakes, and lights. Generally, the lighting and marking laws for tractors or self-propelled machines are consistent with the recommendations by the American Society of Agricultural Engineers (ASAE) and the Society of Automotive Engineers (SAE). Only one vehicle classified as farm machinery may be towed by a licensed motor vehicle. Lights and emblems must be clearly visible. If lights or emblems are blocked during towing, attach lights and emblems to the rear of the implements. Most tractors can be equipped with auxiliary connectors allowing implement electrical systems to be plugged into the circuit operating the tractor lights. Use common sense and obey traffic patterns when traveling on the roadways with a tractor.

Roll-over Protective Structures (ROPs)

Rollover protective structures (ROPS) became available for tractors as standard equipment on new tractors after 1985. Many tractors built before then are still in use and are not ROPS and seat belt equipped. ROPS and seatbelts need to be installed on all tractors operated by employees. Enclosures on tractors built before 1985 were designed for operator comfort, not for rollover

protection, and they are not considered ROPS. ROPS must meet regulations and standards that certify that they provide adequate protection in a tractor rollover. To find out if a frame or enclosure is certified, look for a certification label, contact the manufacturer, or check for a manufacturer installed seatbelt.

To reduce the risk of a rollover:

- Set wheels as far apart as possible.
- Lock the brake pedals together before high speed road travel.
- Match speed to operating conditions and loads (Do not let the front wheels bounce).
- Slow down before turning.
- Use engine braking when going downhill.
- Keep front-end loader buckets as low as possible when moving.
- If right front tire goes off the road into the ditch--turn downward rather than attempting to turn back onto the roadway.
- Use front weights to increase tractor stability.
- Start forward motion slowly and change speed gradually.
- If possible, avoid backing downhill.
- Drive around ditches.
- Back out or be towed out of ditches or mud.

IMPORTANT: Always wear a seat belt, when driving a tractor equipped with a ROPS.

Tractors that do not require ROPS include:

- Low profile tractors used for work that would interfere with a ROPS (e.g., picking orchards, vineyards, hopyards, etc.).
- Tractors with mounted equipment that is incompatible with a ROPS (e.g., cornpickers, cottonstrippers, fruit harvesters, etc.).

Bypass Starting

Bypass starting occurs when an operator "bypasses" normal safety procedures and the normal starting system. A typical bypass occurs when someone standing on the ground touches a screwdriver or other metal object to the starter contacts and activates the engine. This action avoids standard safety devices that keep the engine from starting without someone in the driver's seat. Another method of bypass starting occurs when someone uses the starting button to start a tractor from the ground.

IMPORTANT: Any method of bypass starting is extremely dangerous. If the tractor is in gear when the bypass occurs, the machine will start and can injure or kill anyone in its path. This situation is even more serious if the tractor is equipped with a hydraulic clutch. If a tractor with a hydraulic clutch is bypass started, it will not move immediately, but it will lurch suddenly with the buildup of hydraulic pressure.

Towing Safety

When towing a trailer or other equipment, follow these guidelines to ensure driving safety:

- Ensure that the trailer and hitching attachments meet local and state requirements. The trailer must have a current tag and registration.
- Inspect the trailer and the towing vehicle‘s wheels and lights to ensure they are in good working order.
- Ensure that the trailer hitch is sufficiently strong and properly mounted.
- Make sure that the towing ball is the correct size for the trailer hitch.
- Always secure a safety chain between the trailer and the towing vehicle.
- Inspect all indicator lights to ensure they are working.
- Adjust mirrors as necessary to view the roadway behind the trailer.
- Adjust your speed and apply brakes evenly to allow for increased stopping distances.
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Pesticide Chemical Safety

This section covers agricultural chemical safety for pesticides, including rodenticides, insecticides, herbicides, etc. Pesticides are chemicals that protect crops and livestock from rodents, insects, disease, or weeds. They also control pests that endanger human health. Because pesticides are poisonous, they can be extremely dangerous to humans. Before applying commercial pesticides, always ensure your safety, the safety of others, and the safety of the environment.

There are four ways toxic materials can be taken into the body. They are: oral, dermal, inhalation, and ocular exposures. These types of exposures are explained in Table 1.1 below.

TABLE 1.1

Type of Exposure	Definition	Cause of Exposure
Oral Exposure	Swallow or ingest a	• Not washing hands before eating, drinking, smoking or chewing tobacco. • Mistaking a pesticide for food or drink. • Accidently applying pesticides to food. • Splashing pesticide into the mouth through carelessness or accident.
Dermal Exposure	Having pesticide on your skin	Not washing hands after handling pesticides or their containers. • Splashing or spraying pesticides on unprotected skin. • Applying pesticides in windy weather. • Wearing inadequate personal protective equipment while handling pesticides or their containers.
Inhalation Exposure	Breathing in a pesticide.	• Prolonged contact with pesticides in closed or poorly ventilated spaces. • Breathing vapors from fumigants and other pesticides. • Breathing vapors, dust, or mist while handling pesticides without appropriate protective equipment. • Inhaling vapors immediately after a pesticide is applied. • Using the wrong respirator, or an improperly fitted respirator, or using filters, cartridges, or canisters that are "full' of chemicals, dust, etc.
Ocular Exposure	Pesticide gets in the eye.	• Splashing or spraying pesticides in eyes. • Applying pesticides in windy weather without eye protection. • Rubbing eyes with contaminated gloves or hands. • Pouring dust, granules or powder formulations without eye protection.

Exposure is considered:

- Acute: One-time case of pesticide exposure. For example: a spill on the body.
- Chronic: Low-level exposure over a longer period of time.
- A combination of the two exposures can be dangerous. For example, daily exposure to a pesticide through contaminated clothing combined with an acute exposure like spilling a pesticide on your skin.

In order to avoid exposure, it is important to avoid the causes of exposure. For example, by wearing the proper eye protection you can prevent a pesticide from getting in the eyes.

To avoid exposure:

- Wear proper personal protective equipment.

- If you do start to breathe pesticide mist or dust, move away from that area as quickly as possible and get into fresh air.
- Use a closed handling system.
- Maintain and clean personal protective equipment.
- Wash exposed body parts often to reduce dermal exposure.
- Read pesticide labels thoroughly.
- Using improper personal protective equipment can lead to exposure to the pesticide.

There are several government agencies that govern the use of commercial pesticides. For more information on pesticide usage, contact: Texas Department of Agriculture, Texas Department of Health, Structural Pest Control Board, Texas Commission on Environmental Quality (TCEQ), and Environmental Protection Agency (EPA).

General Pesticide Safety

The following sections provide general or specific guidelines for handling pesticides. To help reduce the hazards associated with pesticides:

- Do not transport, mix, or use chemicals unless you can call for help, if needed.
- Keep an ample supply of water nearby to flush exposed areas, if a spill occurs.
- Check all pesticide equipment before you use it to ensure proper working condition.
- Read pesticide labels carefully. Follow the label directions when mixing, applying, storing, or disposing of pesticides.
- Wear personal protective equipment to prevent dermal, inhalation, and mucous membrane exposure.
- Do not eat, drink, or smoke when handling pesticides.
- Launder clothing and bathe after working with pesticides to ensure that all chemicals are removed from clothing and skin.
- Do not use agricultural pesticides around the home or office.
- Observe assigned reentry intervals. Always wear the appropriate protective clothing when entering fields before the reentry date.
- Always handle pesticides downhill from wells, cisterns, sink holes, ditches, or standing water.
- Do not apply pesticides when rain is imminent or if wind could affect the spraying area.
- Triple-rinse spray equipment and empty containers. Apply the rinse water to the treated field.
- Properly dispose of empty containers.

Preparing to Apply Pesticides

Always read chemical labels before attempting to work with pesticides. Prepare for a possible emergency by maintaining a personal decontamination site, a chemical spill kit, and by knowing the proper first aid procedures. Careless chemical transportation can cause spills and contamination. Do not carry pesticides in an enclosed area, such as a car. Be sure to secure the pesticides to prevent shifting or bouncing. In addition, never leave your vehicle unattended when transporting chemicals. Always wear a long-sleeve shirt and pants when working with pesticides. Wear additional protective equipment, as necessary. Before applying pesticides, inform all people in or around the application area. Notification allows people to protect themselves from harmful chemicals.

Mixing Pesticides

Always read and carefully follow label directions when mixing pesticides and always wear protective gear when handling hazardous chemicals. Even if you are familiar with a particular chemical, reread the label to ensure that you have the latest safety information. A pesticide mixing and loading area should be well ventilated, well lighted, and downhill from any water sources. Measure and mix pesticides carefully. Never mix different pesticides except as directed by the label or chemical manufacturer. Do not use more chemical than prescribed by the pesticide label. The overuse of pesticides is illegal. Always wear a face shield and take care not to splash chemicals when pouring pesticides. Never use your mouth to siphon pesticides.

Applying Pesticides

When you apply pesticides, you are responsible for protecting yourself, other people, and the environment. Take care to minimize your exposure to any chemical. Avoid working in pesticide spray, mist, or runoff. Always work with another person when working with hazardous chemicals. Avoid spraying areas that humans normally occupy. Pesticides that fall outside the targeted application area can be very hazardous. Choose weather conditions, equipment, and chemicals that do not lend themselves to these hazards. Avoid equipment accidents by following all operating instructions.

Pesticide Storage and Disposal

Always try to use all the pesticide in your application tank. If pesticides remain, use them on other target locations. After emptying the tank, clean and store the equipment. The following summary of EPA storage criteria should be followed for pesticides labeled with the signal words DANGER, POISON, or WARNING, or the skull and crossbones symbol. Movable pesticide equipment must be labeled as contaminated and not removed from the site until decontaminated. Contaminated water must be disposed of as excess pesticide, as well as contaminated runoff collected and treated as excess pesticide.

IMPORTANT: Always update and maintain a complete chemical and pesticide inventory to update the ESO and AR-EHS office.

Safety Precautions:

- Call 911 for emergency medical assistance.
- Inspect pesticide containers for leaks before handling them.
- Do not allow unauthorized personnel in the storage area.
- Do not store pesticides next to items intended for consumption by animals or humans.
- Do not eat, drink, smoke, or chew tobacco where pesticides are present.
- Do not store beverages, food, eating utensils, or smoking material in the storage or loading areas.
- Wear rubber gloves while handling containers of pesticides.
- Wash hands immediately after handling pesticides. Remove contaminated protective clothing immediately.
- Where large quantities are stored, inform the ESO, AR-EHS, and the Canyon Fire Department (CFD).
- Furnish the ESO, AR-EHS, and the CFD with contact telephone numbers of responsible persons.
- Dispose of unused or outdated pesticides as hazardous chemicals.
- See the AR-EHS Hazardous Waste Disposal procedure for additional information.
- Never leave pesticide containers at a field site. Be sure to account for every container used, and safely dispose of empty containers.
- Store herbicides separately from other pesticides. Some herbicides may volatilize and contaminate the pesticides.
- Clean the inside and outside of pesticide equipment, including nozzles. Dispose of contaminated rinse water as directed on the chemical label.

IMPORTANT: Do not allow pesticide rinse water to contaminate water supplies.

Fertilizer Chemical Safety

Ammonia fertilizers are widely used because of their effectiveness in getting large amounts of nitrogen into the soil. Anhydrous ammonia fertilizer is essentially dry ammonia gas compressed into liquid form. This material is very harmful if accidentally spilled or sprayed onto body surfaces. It can cause blindness if it gets into the eyes. Also, high concentrations of ammonia gas in the air are very irritating to the lungs. Always use appropriate personal protective equipment and exercise rigorous

care when handling, applying, and storing toxic or irritating materials. Always wear chemical goggles and adequate skin cover.

IMPORTANT: In case of an accident, flush affected areas with clean water for 15 minutes and get medical help as soon as possible.

When storing ammonium nitrate, all non-combustible flooring in the storage areas shall have adequate ventilation without open drains or traps. Ammonium nitrate must be stored separately from flammable or other combustible materials (e.g. paper, rags, hay, oils). Fire control, including portable fire extinguishers, must be available in the storage area. Maintain the storage as a restricted area.

Livestock Safety

The following guidelines offer general safety instructions for working with animals:

- Take good care of animals and treat them kindly.
- Use adequate restraining and handling facilities when working with animals.
- Always leave yourself an escape route when working with animals (i.e., do not work in small, confined areas or back yourself into a corner).
- Do not put your hands, legs, or feet in gate or chute closures where you may become pinned or crushed by a large animal.
- Reduce the chance for slips and falls by keeping handling areas free from debris. Attach "no slip" safety strips to slick areas.
- Stay away from frightened, sick, or hurt animals whenever possible. Take care around animals with young offspring.
- Wear protective clothing around animals, as appropriate.
- Do not handle livestock when you are alone.
- Keep children away from unfamiliar or unfriendly animals.
- Cattle can see almost 360 degrees without moving their heads, a quick movement from behind can scare them just as easily as a sudden movement from the front. Loud, sudden noises can upset cattle.
- The size and weight of cattle can make them dangerous. Always leave yourself an escape route when working with cattle. Keep small children and strangers away from cattle.
- Cattle tend to kick forward and then backward with their back legs.
- When moving cows into a constraining place, such as a milk parlor, always give them time to adjust before beginning work.
- Hogs can be dangerous because they can bite with enough force to cause serious injury. Likewise, a hog's size and weight can easily harm a person if the animal steps on, lies on, or charges a person. As with cattle, you should announce your presence to a hog by speaking calmly.
- Take care not to spook horses with loud noise. If you intend to work with a horse, you should know how to ride properly, saddle, and handle a horse. Ride with extra care around trees, water, or rough terrain.

Manure Pits

Manure pit systems are often used to store large amounts of raw manure under animal confinement buildings, which contain hazardous atmospheres. Due to the nature of these pits, workers should always treat manure pits as confined spaces. Within the confined space of a manure pit, gases can create an oxygen deficient, toxic, and/or explosive atmosphere. Ensure that manure pits are properly ventilated. Always wear a safety belt or harness with a lifeline when working within a manure pit.

Outdoor Burning

Refer to the previous Fire Safety section regarding outdoor burning.

21. Grounds Maintenance

General Lawn Safety

WTAMU employees are responsible for safely maintaining the grounds on campus. Gardening tools and mechanical lawn care devices, such as lawn mowers, power blowers, and chain saws, present safety concerns for grounds maintenance personnel.

Regardless of the type of landscape equipment used, follow these basic guidelines to ensure safety:

- Read the equipment owner's manual.
- Use the right equipment for the job at hand.
- Inspect the equipment before each use.
- Know how to control and stop the equipment quickly.
- Wear personal protection equipment, including: eye protection, hearing protection, long pants, close-toed shoes, work gloves, high visibility safety apparel.
- Apply sunscreen to exposed areas of skin.
- Be careful to avoid fatigue and heat stress (refer to the previous General Safety section) by drinking plenty of water (5-7 oz. every 20 minutes) and taking breaks.
- Do not operate powered equipment if you are tired, sick, or taking medication.
- Take special precautions when working with electrical equipment. If you are using an extension cord, take care not to accidentally cut it.
- Do not smoke around gas powered equipment. Allow hot equipment to cool before refueling.
- Make sure that all guards are in place and in good condition.
- Power leaf blowers can produce air gusts up to 200 mph. Always follow all manufacturer safety precautions.
- Always wear hearing and eye protection when operating a blower.
- Avoid touching rocks, debris, and gravel with trimming equipment. These items could cause a serious injury if a kickback occurs.
- Make sure all screws and chains are tight. Vibrating equipment can cause screws to loosen.
- Walk towards your work. Do not back away from your work when using a blower or trimmer.
- Information on the safe use of pesticides (insecticides, herbicides, etc.) and fertilizers is given in the Agriculture Safety section of this manual and in the posted AR-EHS standard operating procedures.

IMPORTANT: Keep pedestrians and bystanders at least 30 feet away when using powered equipment. Follow manufacturer's instructions prior to conducting maintenance activities on any equipment.

Mower Safety

To avoid injury with power mower equipment, you must pay close attention to your surroundings. Whether you use a riding mower or a walk-behind mower, follow these guidelines for lawn mower safety:

- Conduct a pre-mowing inspection of the lawn and remove any debris, rocks, limbs, or other items that could become a projectile. Look for concealed hazards such as holes.
- Keep hands and feet away from moving blades.
- Fill the tank with gas before beginning work. (By filling the tank initially, you can avoid having to fill the tank later when it is hot.)
- Replace loud or faulty mufflers.
- Shut off the engine before unclogging, servicing, or adjusting the mower and before removing the grass bag. For added protection, remove the ignition wire before working on the machine.
- Inspect mower to verify all guards and safety devices are in place and operating properly.

- For riding lawn mowers, before starting the engine, make sure the transmission is out of gear and the mower blade clutch is disengaged.
- Never allow extra riders on a riding lawn mower.
- Slow down when turning and when working on slopes.
- Always look behind you before backing.
- If you hit a large rock or stump, stop the mower and inspect the blades and shaft. Replace damaged blades.
- Never leave a running lawn mower unattended. Before leaving the seat, park the mower on a flat area, disengage the mower blades, and remove the ignition key.
- Wear sturdy shoes with good traction. Never wear open-toed shoes around walk-behind mowers.
- Do not bypass the safety device that stops the blade when the operator releases his/her grip on the handle.
- Work slowly and patiently when mowing tall grass or tough weeds. Forcing the mower may cause repeated clogs and engine stalls.
- Never leave a running mower unattended. If you stop momentarily, cut the throttle to idle and make sure the mower will not roll away.

Chain Saw Safety

To avoid injury, you must respect chain saw hazards and handle chain saws carefully. Follow these instructions for safely using chain saws:

- Stay alert while sawing.
- Do not use a chain saw alone. Have someone else stand nearby in case of an emergency.
- Inspect a chain saw carefully.
- Use the correct size chain saw for the job.
- Ensure that the chain is sharp and the tension is taut.
- Ensure that smaller chain saws have a safety tip to prevent kickbacks.
- Wear protective safety equipment as necessary, including: hard hats, eye protection, face shields, hearing protection, gloves, and protective chaps.
- Always operate a chain saw with two hands.
- Always use a ladder that allows the saw to be in a lower and safer position relative to your body.
- Never allow the tip of a running chain saw to touch the ground. This could cause a serious kickback injury.
- To avoid kickback injuries, stand to the side of a running chain saw. Do not stand directly behind it.
- Move brush and limbs as you work to maintain a clear operating area.
- Never force a chain saw through a limb.
- Never stand on a log or limb while cutting it.

22. Confined Space

A confined space is defined as a space that is large enough that an employee can bodily enter and perform assigned work, which has limited or restricted means for entry or exit and is not designed for continuous employee occupancy. Confined spaces may contain atmospheric gases and other hazards that make them particularly hazardous for personnel entry. Ventilation alone cannot reduce some atmospheric hazards to safe levels. Use atmospheric testing to confirm whether a ventilation system has been successful. Some examples of confined spaces include manholes, boilers, tanks, vats, and sewer pipelines.

Any individual entering into a confined space on WTAMU property will do so in accordance with OSHA regulation 29 CFR 1910.146. Only trained and authorized personnel are to enter confined spaces on campus. Physical Plant procedures are utilized to ensure that only authorized employees

enter confined spaces. WTAMU employees authorized to enter any confined space must ensure that all necessary safety precautions are followed.

Safeguarding Confined Space Operations

Life support safety is critical during confined space operations. Employees must wear appropriate personal protective equipment at all times. Employees must use harnesses, lifelines, and/or winches, as appropriate.

An Authorized Safety Attendant is specifically responsible for:

- Keeping a log of all authorized entrants working within the confined space.
- Maintaining constant contact with the authorized entrants within a confined space.
- Taking necessary precautions and measures to prevent unauthorized persons from entering a confined space.
- Initiating evacuation procedures whenever conditions within or outside the confined space pose a new hazard.

IMPORTANT: If you are unsure about whether you will be entering a confined space, you must STOP contact your supervisor, the Physical Plant, or the Environmental Safety Office. Under no circumstances should unauthorized employees enter a confined space during an emergency.

23. Trenching, Shoring, and Excavation

A trench excavation is a narrow excavation made below the surface of the ground where the depth is greater than the width, but the width of a trench (measured at the bottom) is less than 15 feet. Hazards associated with excavation include: cave-ins, striking of underground utilities, falling tools and equipment, hazardous air contaminants or oxygen-deficient environments.

All WTAMU employees and contractors are to comply fully with the following requirements. Only authorized personnel can be placed in charge of all excavations. All materials in proximity to the excavation site must be stored, arranged, or secured in such a manner as to prevent the material from accidentally falling into the trench. The authorized Department, the Physical Plant, and/or the Contractor Supervisor are responsible to ensure underground utilities are located prior to excavation work. While the excavation is open, the underground utilities must be protected, supported, or removed as necessary. Employees are not are allowed in the excavation while heavy equipment is digging. Adequate means of egress must be maintained at all times. Excavations located near public traffic must be barricaded and employees must be required to wear warning vests. In excavations greater than four (4) feet in depth, or where oxygen deficiency or other hazardous atmospheres could exist, testing must be performed prior to the entry of employees. If a hazardous atmosphere is verified at a trenching site, emergency rescue equipment must be made available and attended (SCBA, Lifelines, etc.).

Inspection of trenching operations for hazardous conditions must be performed daily or when changing conditions warrant (rain, different soil type, etc.). Upon detection of a hazardous condition employees must be removed from excavation at once. When necessary, both visual and manual soil testing must be performed by authorized personnel to determine soil type before employees are allowed to enter a trench. Excavation beneath the level of adjacent foundations, retaining walls, or other structures must be avoided unless specific regulatory requirements for that type of activity have been met. All excavations or trenches of 4' or greater in depth shall be appropriately benched, shored, or sloped. Excavations or trenches 20 feet deep or greater must have an approved protective system in place.

24. Safety Training

WTAMU offers a variety of safety training materials and encourages all departments to take advantage of material available for training purposes. Employees who work with, or are potentially exposed to, hazardous chemicals must receive Hazard Communication training on the safe use of hazardous materials. This training is available on TAMUS Train-Traq and through both the ESO and AR-EHS office. Some additional available trainings include: Back Safety, Fire and Life Safety, Bloodborne Pathogens, Fall Protection, Flammables and Combustibles, Forklift, Heat Stress, Hot Work, Lab Safety, Lock Out and Tag Out, Child Protection, and First Aid/CPR.

Along with the above materials, the Environmental Safety Office, Academic and Research Environmental Health and Safety, and Risk Management can develop specific training materials based on the departmental needs and conditions. Please contact each of these departments for additional information.

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