Occupational Safety Plan

UNT Health FORT WORTH

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1. Introduction

It is the policy of the University of North Texas Health (UNTH) to provide a safe and healthy working and learning environment for all faculty, students, staffs, visitors and contract employees.

This manual has been prepared by the Office of Environmental Health & Safety (EHS) in an effort to prevent injuries, illnesses and death from work related causes and to minimize losses of resources and interruptions from accidental occurrences. It is directed toward the control of all types of hazards encountered in the performance of official duties.

1.1 Purpose

The purpose of this manual is to provide employees with general guidelines for implementing a high quality safety program. It is not an exhaustive source document but rather an approach to safety.

The manual brings together information that will assist employees and supervisors to carry out their responsibility in ensuring a safe environment at UNTH.

All personnel should become familiar with the information contained in this manual and should conduct their operations accordingly.

1.2 Scope

The information and requirements given in this manual are applicable to all areas of UNTH and represent only general minimum standards. They do not substitute for special operation manuals used in certain buildings or laboratories to meet specific situations. This manual will serve as a basis to which supervisors shall add safety measures relevant to their laboratory or work areas.

It must be emphasized that this is primarily an in-house manual. The procedures and requirements are established based on the facilities and resources available. They represent, nonetheless, a code of standard safe work practices.

This manual contains the objectives, policies, standards, and procedures that pertain to all employees. Specific responsibilities, administrative procedures, and operational requirements are described that are relevant to institutional work, and the prevention of occupational injuries and illnesses.

1.3 Development, Maintenance and Revision Process

All materials in this manual have been developed and maintained under the supervision of the Office of Environmental Health & Safety (EHS).

As regulations and guidelines promulgated by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), the National Fire Protection Association (NFPA), and the National Institute of Occupational Safety and Health (NIOSH), the online version of this manual will be updated.

2. Applicability

This institutional occupational safety manual is adopted under policy 4.201, Campus Operations policy, and must be utilized to protect the campus and personnel. These documents must be readily accessible to all campus personnel.

3. Approval and Implementation

This Occupational Safety Manual is hereby approved for the University of North Texas Health. This plan shall apply to all UNTH personnel participating in all scientific and medical research activities at UNTH facilities or sanctioned activities. The details of this plan are the institutional policies directing occupational safety. This plan is effective immediately and supersedes all previous editions. Annual review of this plan will be conducted by EHS, or as needed.

Anne-Sophie Brocard, PhD, CBSP(ABSA), CSP, CHMM

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Sr. Director Environmental Health & Safety
UNT Health

4. Record of Changes

Change #	Date of Change	Change entered by	Description
1	July 2022		
2	October 2025		Updated information, removed appendix to standalone SOP- added new branding.

5. Contact Information

5.1 EH&S Program Contacts

Subject	Office Name	Telephone	Email
Fire and Occupational Safety	Program Manager	817-735-2698	William.pingry@unthsc.edu
Hazardous Materials/ Chemical Safety Program	Assistant Director	817-735-2691	Alan.corbitt@unthsc.edu
Biosafety/Rad Safety	Director	817-735-5431	Maya.nair@unthsc.edu
Safety	Sr. Director	817-735-2253	Anne-sophie.brocrad@unthsc.edu
Occupational Health	Occupational Health	817-735-2253	Anne-sophie.brocrad@unthsc.edu

5.2 Emergency Phone Numbers

Police/Fire Emergency	Police Dispatch	In-house phone: ext 2600 or 911 Cell phone: 817-735-2600
Emergency Power Outage	Facilities	Ext: 2181 / 817-735-2181
Hazardous Material Release/Spill	Police Dispatch	In-house phone: 2600 Cell phone: 817-735-2600
Hazardous Material Exposure: Skin, Eyes, Ingested, Inhaled, Injected	Occupational Health	EXT. 2273 / 817-735-2273

5.3 Other Important Institutional Phone Numbers

Campus Police/Security Non-Emergency	Ext: 2210 / 817-735-2210
Facilities Non-Emergency	Ext: 2181 / 817-735-2181
Environmental Health and Safety	Ext: 2245 / 817-735-2245
Radiation Safety	Ext: 5431 / 817-735-5431

5.4 UNTH Relevant Website Links

Report an Ethics Compliant	https://secure.ethicspoint.com/domain/media/en/gui/54789/index.html
First Report of Injury	https://www.unthsc.edu/administrative/wp-content/uploads/sites/23/WC_Employee_FoEHS.pdf
Student complaints	https://unthsc.qualtrics.com/jfe/form/SV1Mn0IlToxxTH3QF?Q_JFE=qdg

6. Program Management

6.1 Program Elements

The following program elements are applicable to all university operations and activities. These elements are directed toward the prevention of accidents and health hazards present in the performance of official duties.

6.1.1 Prevention

The EHS will emphasize strategies that preclude or prevent any occurrence that would have an adverse effect on UNTH faculty, students, employees, contractors, patients and visitors, and people in the neighboring community.

6.1.2 Surveillance

The EHS will provide for the systematic inspection of facilities; the collection, analysis, interpretation, and evaluation of safety and health data essential to the planning and implementation of the Occupational Safety program.

6.1.3 Protection and Control

A system for the control of hazards will be maintained and will include, engineering controls, the

use of alternatives that are less hazardous, administrative procedures, and the use of personal protective equipment.

6.1.4 Education, Promotion, and Training

Health and safety awareness will be promoted among managers, supervisors, employees and contractors through orientation programs and regularly scheduled safety education and training sessions, as appropriate.

6.1.5 Notification and Communication

Employees and others (visitors, contractors) will be notified of their exposure, or potential exposure, to hazardous substances or conditions by EHS and will be informed of risks that result, or may result, from exposure to hazardous substances or conditions.

6.1.6 Confidentiality

The EHS, in conjunction with UNTH, will make every effort to ensure the confidentiality of employee health and exposure records.

6.1.7 Program Evaluation

An annual evaluation of the overall program will be conducted by EHS to determine if the program and its policies and procedures are relevant and appropriate, and if they continue to meet or exceed health and safety standards.

6.2 Campus Wide Occupational Safety Assessments

This manual outlines the building assessment program conducted by Occupational Safety for all on and off campus buildings to ensure they maintained in accordance with applicable standards. All deficiencies identified during the building assessments are categorized as Priority High, Medium, or Low; and then reported to the responsible group. Once completed, the work is reviewed by Safety to ensure that it is consistent with the applicable standards.

6.3 Assignment of Program Responsibility

6.3.1 Sr. Director for Environmental Health and Safety

The Director for Environmental Health and Safety (EHS) is responsible for:

- Identifying the applicable standards, guidelines, and recommendations necessary for a safe and healthy workplace.
- Establishing and reviewing the procedure manual.
- Requesting program reviews and audits for methods of continuous improvement.
- Ensuring prompt and thorough accident/incident investigations and delivering accurate results to the appropriate departments.
- Development of metrics to track event trends and initiate problem solving.
- Ensuring UNTH personnel take all necessary and appropriate safety precautions.

6.3.2 Occupational Safety Program Manager

The Occupational Safety Program Manager is responsible for:

- Identifying the applicable safety and health standards, rules, and regulations pertaining to the various areas of the UNTH campus.
- Providing an appropriate level of management when conditions require corrective actions.
- Providing training and education opportunities.
- Investigating and generating incident reports.
- Conducting regular surveys of UNTH campus operations to ensure compliance with safety standards.
- Initiating corrective actions necessary to remediate identified hazards or immediately dangerous to life and health (IDLH) conditions.
- Ensuring UNTH personnel take all necessary and appropriate safety precautions in order to protect themselves, others, property, and the environment.
- Ensuring safe operations through facility and site inspections.
- Maintaining comprehensive records of hazards at the operational level and providing the information to program management.
- Providing training and education opportunities.
- Investigating and generating incident reports.
- Conducting regular surveys of UNTH campus operations to ensure compliance with safety standards.

- Initiating corrective actions necessary to remediate identified hazards or immediately dangerous to life and health (IDLH) conditions.
    - Ensuring UNTH personnel take all necessary and appropriate safety precautions in order to protect themselves, others, property, and the environment.

6.3.3 Supervisors and Managers

Supervisors at all levels throughout the university are responsible for maintaining a safe and healthy workplace. Each member of the management team is required to comply with all applicable safety and health standards, rules and regulations pertaining to the activities immediately under their authority. Supervisors shall ensure that all personnel who report to them are instructed and/or trained in safety and health precautions for their work and work areas. In carrying out this responsibility, EHS shall be called upon for assistance as required.

6.3.4 Employees

Employees at all levels throughout the university are responsible for complying with all health and safety standards, rules, regulations and suggestions provided by EHS pertaining to activities in their work area. Employees have the responsibility to ensure that all applicable workplace training

are completed in a timely manner. Each individual must take all necessary and appropriate safety precautions to protect themselves, other personnel and the environment

7. General Health and Safety

7.1 General

It is the goal of UNTH to comply with all applicable regulations and guidelines from OSHA, EPA, NFPA, NIOSH to provide faculty, students, employees and visitors with a safe and healthful working and learning environment. This section will provide basic information on the recognition, evaluation, and control of occupational health hazards to which employees may be exposed.

7.2 Prevention and Control of Workplace Hazards

To help meet the university goals, the Occupational Safety Program was created to maintain safe and healthy working conditions for all UNTH faculty, staff, students, and visitors. All recognized safety and health hazards shall be eliminated or controlled as quickly as possible, based upon the degree of risk posed by the hazards.

7.2.1 Principles of Hazard Control (Hierarchy of Control)

- Elimination – The risk of injury or illness may be reduced by removing the hazard from the environment or experiment.
- Substitution - The risk of injury or illness may be reduced by replacement of an existing process, material, or equipment with a similar item having more limited hazard potential. Care must be exercised in any substitution to ensure that the substitute materials are technically acceptable and to avoid introducing new or unforeseen hazards.
- Engineering Controls
    - Isolation - Hazards are controlled by isolation whenever an appropriate barrier is placed between the hazard and an individual who may be affected by the hazard. This isolation can be in the form of physical barriers, time separation, or distance. Examples include machine guards, electrical insulation, glove boxes, acoustical containment, and remote controlled equipment.
    - Ventilation - The control of a potentially hazardous airborne substance by ventilation can be accomplished by one or two methods: using local exhaust by capturing and removing the substance at its source, or if that is not feasible, diluting the concentration of the substance by mixing with uncontaminated.
- Administrative Control
    - This method of hazard mitigation depends on effective operating practices that reduce the exposure of individuals to chemical or physical hazards. These practices may be in the form of preventive maintenance programs to reduce the potential for leakage of hazardous substances, or adjusted work schedules, which involve control of work in high hazard and low hazard areas or limited access to high hazard areas.
- Personal Protective Equipment. (PPE)

- This method of hazard control is least preferred because personal protective devices may reduce a worker's productivity, while affording less effective protection against the recognized hazard than other methods of control. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods, and personal protective devices must be used, either alone or in conjunction with other protective measures.
- It is the responsibility of each Department to provide appropriate PPE for its employees once deemed necessary. PPE shall be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses.

7.2.2 Application of Hazard Control Principles

Hazardous conditions in the workplace may be prevented through appropriate actions when facilities are designed, when operating procedures are developed, and when equipment is purchased.

Design Reviews - Occupational health and safety issues shall be considered, designed, and engineered into all facilities, which are acquired or constructed. To ensure that appropriate hazard control techniques are applied, EHS shall participate in the review of plans and specifications for construction and renovation projects.

- Operating Procedures - Standard operating procedures, safety policies, or similar directives are to be developed as a collaborative effort between EHS and the effected department(s) to ensure a comprehensive and functional policy or procedure is developed. All university employees and/ or (sub) contractors shall adhere to the appropriate safety policies for the work being performed.
- Purchasing Procedures - Many hazards can be avoided by incorporating appropriate specifications for purchased equipment/material and contracted efforts that involve work at UNTH facilities. UNTH organizations responsible for developing specifications for such purchases should coordinate with EHS personnel to ensure that health and safety requirements are considered.
- Permanent Hazard Abatement - Engineering control methods are the preferred method of hazard control, followed by administrative control and personal protective equipment.

7.3 Hazard Reporting

Identification and reporting of potentially unsafe or unhealthful working conditions is the responsibility of all UNTH employees. All employees are encouraged to report unsafe or unhealthful working conditions to EHS or to their immediate supervisor who will promptly investigate the situation and take appropriate corrective actions.

Any physical hazard or unsafe act by an employee or contractor should be reported immediately by contacting EHS at 817-735-2253 or ***safety@unthsc.edu***. A safety representative will respond to the location to investigate the concern and work directly with a responsible individual to mitigate the hazard.

7.4 Hazard Communication

EHS and laboratory personnel perform a wide range of operations and provide services that commonly require the use of chemicals that have inherent chemical and physical hazards. The Texas Hazard Communication Standard requires employers to provide information to their employees concerning the hazardous chemicals in the workplace through a written program, training sessions, safety data sheets (SDS), labels and warnings, and other pertinent information. On line training is required for all new employees and annually thereafter. For more information, see the UNTH's Chemical Safety Manual.

7.5 Hearing Conservation

Noise is one of the most pervasive occupational health problems. Exposure to high levels of noise causes temporary or permanent hearing loss and may cause other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure. Noise induced hearing loss is an irreversible condition that progresses with increased exposure and is aggravated by the normal aging process. Susceptibility to hearing impairment due to noise varies greatly among individuals.

To help meet the OSHA standard 1910.95 (Occupational Noise Exposure) EHS will conduct noise level monitoring and assist in the selection of appropriate hearing protective devices or engineering control.

7.6 Mold Management Program

Any visible mold contamination, regardless of the species of mold, must be removed in a timely manner to prevent further growth. Mold growth can be potentially damaging to cellulose-based products such as drywall, ceiling tiles, and paper. Complete removal of visible mold and mold contaminated porous building materials, removal of water source, and maintenance of proper indoor air quality (IAQ) parameters is essential to help ensure that mold growth does not reoccur.

Mold assessment and remediation activities are regulated within the state by the Texas Mold Assessment and Remediation Rules (25 TAC §295.301 – 295.338). There are currently no federal regulations governing mold. Please contact EHS if any mold is found within the UNTH buildings. EHS will survey the area to determine the extent of contamination and recommend the course of action.

7.7 Asbestos Management Program

Federal, state, and local regulations govern activities involving asbestos-containing materials (ACM). These regulations set out permissible exposure limits, exposure monitoring specifications, respirator requirements, hygiene facilities and practices, communication standards, medical surveillance, employee training, recordkeeping and waste disposal requirements.

It is only when ACM is damaged that asbestos fibers can become airborne. Materials that commonly contain asbestos include fireproofing, floor tiles, pipe insulation, sprayed-on acoustical ceilings, as well as numerous other insulating materials.

Prior to any renovation or dismantling within the UNTH buildings, a licensed inspector must survey the area for asbestos and EHS shall be contacted to ensure all regulations are followed. If asbestos is found

Facilities Services or EHS will oversees the operations for all asbestos related projects.

7.8 Housekeeping

All places of employment including outside areas should be kept as clean as the nature of the work allows but must be kept free and clear of pallets debris, trash, scrap, spills or other extraneous materials which could create a health or fire hazard and cause an accident. Mechanical and electrical rooms will not be utilized for storage.

8. Employee Health Services

8.1 Health Services

8.1.1 Emergency Treatment of Illness/Injury on the Job

For a life-threatening emergency, call 9-1-1 or seek medical treatment at the nearest Emergency Room. Transportation by emergency services will only be to a hospital emergency room. If a worker does not wish to be transported by emergency services after they have arrived and made an assessment of the illness/injury, the individual will be required to sign a release form stating that treatment/transport is not desired.

It is the individual's responsibility to arrange for appropriate transportation if medical treatment is desired or needed, if they wave transport by emergency services. It must be kept in mind that injuries to limbs or an altered level of consciousness/awareness which would impair the proper operation and control of a motor vehicle will prohibit the individual from driving themselves to obtain emergency care. Transportation should then be provided by a state vehicle, if possible and driver from the individual's work center.

Care of minor injuries (first aid) may be obtained at the point of incident.

8.1.2 Reporting of Injuries and Incidents

All on the job injuries must be reported as soon as possible to a UNT Health Workers' Compensation.

8.1.3 Medical Treatment

Medical examinations for personnel who have been exposed to health hazardous conditions are an essential part of the occupational health program. These examinations shall be specific for the type of exposure or operation involved. Persons who know they have been exposed, or suspect exposure must notify their supervisor and (EHS) immediately. It is imperative that persons who have been exposed to a harmful contaminant which presents the possibility of contaminating other persons and/or the work area remain in an isolated area, if at all possible.

If you are injured on the job and need medical treatment, you must be seen by a workers' comp in-network provider. If treatment is received by an out-of-network primary care physician, this will be at the expense of the injured employee and will not be covered by workers' compensation.

For a life-threatening emergency, call 9-1-1 or seek medical treatment at the nearest Emergency Room.

For non-emergency injuries, your direct supervisor for assistance in obtaining authorization for medical care.

If you are unable to speak to your direct supervisor, during regular business hours, treatment should be obtained at the closest Care Now or Concentra facility.

An injured employee is not required to seek medical treatment if they do not wish to do so. The supervisor must still complete the Workers' Comp Employee Injury Report Form. If the employee determines they need medical treatment at a later date, email Risk Management Service at RMS@unt.edu informing them of the need for treatment and go to the closest Care Now or Concentra facility for treatment.

8.2 Women of Childbearing Age

Employees should notify their supervisors as early as possible should they become pregnant in order to facilitate a work assignment suitability survey regarding health and safety factors. Pregnancies shall be referred to Human Resources so specific job limitations can be recommended if necessary after consultation with the individual's physician.

Female laboratory/animal workers, especially those known to be pregnant, avoid exposure to certain potential hazards such as pregnant sheep or cat feces (possibility of toxoplasmosis infection). Working with hazardous drugs, agents or toxic chemicals during pregnancy is also strongly discouraged.

Personal protective equipment (PPE) should be worn at all times and additional precautions observed for pregnant women, as outlined by the principal investigator, supervisor, EHS or physician prior to the start of work with hazardous materials. Communicate your work conditions to your medical provider.

8.3 Handicapped Employees

Architectural barriers should be eliminated and a 'buddy" system developed to assure that employees can be mobile in an emergency. The Uniform Federal Accessibility Standards developed under the Architectural Barriers Act, 42 U.S.C. 4151-4157 and 36 CFR Part 119, Americans with Disabilities Act (ADA), contain all applicable standards.

8.4 Immunocompromised Individuals

Individuals with compromised immune systems should discuss their workplace hazards with their personal care physician. These individuals are also encouraged to self-report to HR so that appropriate workplace precautionary measures can be assessed.

8.5 Medical Surveillance and Exposure Control Programs

Certain jobs at UNTH have inherent risks requiring more extensive review and medical evaluation or surveillance by the Occupational Health Program. Depending on risk assessments, an individual may be required to enter a specific monitoring or medical surveillance program. The purpose of medical

surveillance is to monitor for early detection and prevention of occupational disease and to identify conditions that may increase the risk of occupational disease, and the current programs are described below.

Enrollment in a medical surveillance program, if needed, requires that an individual fills out a medical questionnaire. The information in the questionnaire is confidential and will not be reviewed by anyone at UNTH. These forms are sent to the occupational health care physician or licensed health care professional (PLHCP) for review and determination if additional medical evaluation or preventive medical services (e.g. vaccination or serological testing) is needed, such as:

- Review of workplace history and hazard evaluation
- General physical examination
- Blood and urine tests
- Vision and hearing tests
- Pulmonary function test
- Immunization (if needed)
- Allergy testing
- Referral for any special tests if needed, such as chest x-rays or laser eye exams

After evaluation, a written opinion from the PLHCP will be provided to UNTH and the employee indicating medical clearance with conditions of approval, PPE and work practice recommendations, as applicable. The nature of medical conditions requiring limitations, restrictions, or modifications of work will not be disclosed to UNTH. Recommendations may be made to UNTH EHS may be made related to workplace risk or exposure assessments.

Covered Individuals must update medical questionnaires as determined in the medical clearance, or when employee reports changes in health status. Periodic medical reviews only apply to personnel exposed to hazards covered under applicable regulations or guidelines. Surveillance Program enrollment is based on individual workplace risks.

Current Surveillance Programs at this time include:

- Animal Worker Medical Surveillance and Allergy Prevention Program:
    a. Applies to all Covered Individuals in contact with animals or animal tissues to determine their likelihood of occupational-induced or laboratory-acquired animal allergy or illnesses.
    b. The purpose of UNTH's Animal Exposure Surveillance Program is to reduce human health risks associated with the care and use of animals in research, teaching, and service.
    c. Any person experiencing allergy symptoms related to work should seek medical evaluation with a UNTH Worker's Compensation authorized treating physician.
    d. Mechanisms in place at UNTH to prevent the development of occupational illnesses and allergies related to animal use include:
        i. Annual occupational health risk assessments
        ii. Training, including information distributed after enrollment in the Occupational Health Program,

iii. Personal Hygiene
iv. Facilities, procedures, and monitoring
    1. Building ventilation/HVAC system
    2. Caging systems with HEPA filtration, air pressure differentials and directional air flow for enhanced containment.
    3. Work place practices to reduce allergen levels should include transportation of waste and bedding in sealed containers, and use of wet or damp floor cleaning implements instead of dry sweeping.
v. Personal Protective Equipment
    1. Protective clothing, gloves, and respiratory protection available for all animal work,
vi. Annual Animal Allergy/Exposure Medical Surveillance and preventative medicine as described above

Vaccinations may be recommended or required if the individual works with an infectious agent that has an FDA approved vaccine.

A) Tetanus Immunizations are recommended every ten years for certain employees and may be required for certain work areas such as the vivarium or animal laboratories. Immunization history will be determined at the time of risk assessment.
B) Rabies immunization: Pre-exposure immunizations with follow-up antibody titers every six-month; and repeat immunizations are provided based on risk assessment for personnel who work directly with the rabies virus, have direct contact with animals quarantined for rabies surveillance, are exposed to animals or animal parts with potential of containing the rabies virus, are responsible for the control of wild animals on campus, have regular contact with potentially rabid animal species, and certain laboratory workers.
C) Hepatitis B vaccinations are available to employees who could reasonably anticipate exposure to bloodborne pathogens during performance of regular job duties.
D) Other vaccinations will be available, based on risk assessment.

9. Incident Reporting and Investigation Procedure

9.1 Introduction

An incident report system shall record any incident involving UNTH personnel, arising in the course of employment, which has the potential for property damage, personal injury, illness, or death.

9.2 Purpose

- All incidents shall be reported in order to facilitate investigations, establish a written record of factors, and to provide statistical information for incident tracking.
- Track and analyze incidents, as well as serious events or near misses, which represent a hazard or potential hazard to employees, visitors, and other personnel on campus.
- Meet regulatory reporting requirements.

9.3 Applicability and Scope

The incident reporting requirements apply to all incidences involving UNTH personnel arising out of or in the course of employment which results in (or might have resulted in) personal injury, illness,

and/or property and vehicle damage.

9.3.1 Incident

Incident refers to any unplanned event or event sequence, whether it results in loss, injury, illness, disease, death, or none of these. Incident losses can take many forms. Besides injury, illness, disease, and death, there are damage to property, equipment, materials, and the environment.

Injuries and illnesses that require reporting are those that occur on the job which result in lost time, work restrictions, first aid or other medical attention, permanent physical bodily damages, or death.

Examples include, but are not limited to:

- Heat exhaustion from working in hot environments
- Strained back muscles from moving equipment
- Acid burns on fingers
- Damage to a State vehicle
- Fire/explosion
- Property damage
- Chemical releases requiring evacuation of at least that immediate spill area
- overexposures to chemical, biological, or physical agents
- trips and falls

9.3.2 Near Misses

Near misses are still classified as incidents even though they may not result in an actual or observable loss, injury, illness, disease, or death are still required to be reported. The information obtained from such reporting can be extremely useful in identifying and mitigating problems before they result in actual personal or property damage.

Examples of near miss incidences required to be reported include the falling of a compressed gas cylinder, overexposures to chemical, biological, or physical agents (not resulting in an immediately observable manifestation of illness or injury), and slipping and falling on a wet surface without injury.

9.4 Responsibilities

9.4.1 EHS

Review and investigate each incident to determine the root cause, which resulted in the injury or event. Provide a brief summary narrative of the event to management along with any recommended corrections and/or preventative actions to prevent a reoccurrence of the incident.

9.4.2 Workers' Compensation and Insurance

Human Resources has the overall responsibility for maintaining employee records upon receiving

any workers' compensation or insurance claims. Workers' compensation and insurance provides benefits to eligible employees who sustain an injury while within the course and scope of their job duties

9.4.3 Managers and Supervisors

Managers and Supervisors are primarily responsible for ensuring that the incident report form is completed and that all copies are sent to the appropriate locations.

9.4.4 UNTH Personnel

All UNTH personnel have the responsibility to initiate the incident reporting sequence by informing their supervisors immediately of an actual or potential injury or illness as soon as possible after an incident has occurred.

9.5 Incident Reporting Procedures and Practices

This section describes the specific procedures that shall be followed by UNTH personnel in order to effectively report incidents, occupational injuries and illnesses, and other events.

9.5.1 Incident Scene

The active scene of all incidents shall be secured, and a full investigation of the incident has been completed. Work in the area will be terminated indefinitely until the completion of the investigation and permission to continue is provided by EHS following consultation to executive management.

9.5.2 Record Keeping

HR will maintain the records of all First Report of Injury forms. The injury and illnesses data from reports are used in identifying and mitigating problems. The data is also presented in various safety meetings.

9.6 Incident Investigations

EHS Occupational Safety personnel will review each significant incident forwarded to them through HR Workers' Compensation & Insurance based upon several factors:

- Type or severity of incident
- Number of injuries
- Level of continued risk the hazard poses to people and

property Based upon the initial incident assessment, EHS

Occupational Safety will:

- Determine if an investigation is required
- Make recommendations for corrective actions necessary to reduce or eliminate hazardous conditions

- Monitor the remediation process to ensure safety policies are properly enforced

10. Risk Assessment

Risk assessment is the process of evaluating a workplace, processes, and/or methods to identify potential risks that may be involved. After identifying, analyzing and evaluating the severity of the risk, the appropriate safety measures should be applied to effectively eliminate or mitigate the risk.

Risk assessment steps:

- Hazard identification: identifying hazards and risk factors that have the potential to cause harm.
- Risk analysis, and risk evaluation: analyzing and evaluate the risk associated with that hazard.
- Determining appropriate ways to eliminate the hazard or control the risk when the hazard cannot be eliminated.

10.1 Importance of Risk Assessments

Risk assessments are very important as they form an integral part of an occupational health and safety management plan. They help to:

- Create awareness of hazards and risk.
- Identify who may be at risk (e.g., employees, cleaners, visitors, contractors, the public, etc.).
- Determine whether a control program is required for a particular hazard.
- Determine if existing control measures are adequate or if more should be done.
- Prevent injuries or illnesses, especially when done at the design or planning stage.
- Prioritize hazards and control measures.
- Meet legal requirements where applicable.

10.2 Goals of a Risk Assessment

The goal of a risk assessment is to remove or minimize all hazards by adding control measures, as necessary. This helps create a safer and healthier workplace.

10.3 When to Do a Risk Assessment

There are many reasons a risk assessment is needed, including:

- Before new processes or activities are introduced.
- Before changes are introduced to existing processes or activities, including when products, machinery, tools, equipment change or new information concerning harm becomes available.
- When hazards are identified.

10.4 Completing a Risk Assessment

A person or team of individuals who have a good working knowledge of the situation and/or process should conduct the assessments. Supervisors and workers who are familiar with the process under review should be include on the team or as sources of information, as these individuals are most accustomed with the operation. In the laboratory setting, the Principal Investigator is ultimately responsible for the risk assessment.

In general, to do an assessment:

- Identify hazards.
- Determine the likelihood of harm, such as an injury or illness occurring, and its severity.
    - Consider normal operational situations as well as non-standard events such as maintenance, shutdowns, power outages, emergencies, extreme weather, etc.
    - Review all available health and safety information about the hazard such as safety data sheet (SDS), manufacturers literature, information from reputable organizations, results of testing, workplace inspection reports, records of workplace incidents (accidents), including information about the type and frequency of the occurrence, illnesses, injuries, near misses, etc.
    - Understand the minimum legislated requirements for your jurisdiction.
- Identify actions necessary to eliminate the hazard, or control the risk using the hierarchy of risk control methods.
- Evaluate to confirm if the hazard has been eliminated or if the risk is appropriately controlled.
- Monitor to make sure the control continues to be effective.
- Keep any documents or records that may be necessary. Documentation may include detailing the process used to assess the risk, outlining any evaluations, or detailing how conclusions were made.

When doing an assessment, also take into account:

- The methods and procedures used in the processing, use, handling or storage of the substance, etc.
- The actual and the potential exposure of workers (e.g., how many workers may be exposed, what that exposure is/will be, and how often they will be exposed).
- The measures and procedures necessary to control such exposure by means of engineering controls, work practices, and hygiene practices and facilities.
- The duration and frequency of the task (how long and how often a task is done).
- The location where the task is done.
- The machinery, tools, materials, etc. that are used in the operation and how they are used (e.g., the physical state of a chemical, or lifting heavy loads for a distance).
- Any possible interactions with other activities in the area and if the task could affect others (e.g., cleaners, visitors, etc.).

- The lifecycle of the product, process or service (e.g., design, construction, uses, decommissioning).
- The education and training the workers have received.
- How a person would react in a particular situation (e.g., what would be the most common reaction by a person if the machine failed or malfunctioned).

It is important to remember that the assessment must consider not only the current state of the workplace but any potential situations as well.

By determining the level of risk associated with the hazard, the employer, and the health and safety committee (where appropriate), can decide whether a control program is required and to what level.

10.5 Identifying Hazards

The goal is to find and record possible hazards that may be present in the workplace. It may help to work as a team; include both people familiar with the work area, as well as people who are not - this way both the experienced and fresh eye can conduct the inspection. In either case, the person or team carrying out the assessment should have a good knowledge of the hazard being assessed, any situations that might likely occur, and protective measures appropriate to that hazard or risk.

To be sure that all hazards are found:

- Look at all aspects of the work.
- Include non-routine activities such as maintenance, repair, or cleaning.
- Look at accident / incident / near-miss records.
- Include people who work off site either at home, on other job sites, drivers, teleworkers, with clients, etc.
- Look at the way the work is organized or done (include experience of people doing the work, systems being used, etc).
- Look at foreseeable unusual conditions (for example: possible impact on hazard control procedures that may be unavailable in an emergency situation, power outage, etc.).
- Determine whether a product, machine or equipment can be intentionally or unintentionally changed (e.g., a safety guard that could be removed).
- Review all of the phases of the lifecycle.
- Examine risks to visitors or the public.
- Consider the groups of people that may have a different level of risk such as young or inexperienced workers, persons with disabilities, or new or expectant mothers.

10.6 Determining Risk

Each hazard should be studied to determine its' level of risk. To research the hazard, you can look at:

- Product information / manufacturer documentation.

- Past experience (knowledge from workers, etc.).
- Legislated requirements and/or applicable standards.
- Industry codes of practice / best practices.
- Health and safety material about the hazard such as safety data sheets (SDSs), research studies, or other manufacturer information.
- Information from reputable organizations.
- Results of testing (atmospheric or air sampling of workplace, biological swabs, etc.).
- The expertise of an occupational health and safety professional.
- Information about previous injuries, illnesses, near misses, incident reports, etc.
- Observation of the process or task.

Remember to include factors that contribute to the level of risk such as:

- The work environment (layout, condition, etc.).
- The systems of work being used.
- The range of foreseeable conditions.
- The way the source may cause harm (e.g., inhalation, ingestion, etc.).
- How often and how much a person will be exposed.
- The interaction, capability, skill, experience of workers who do the work.

10.7 Ranking and Prioritizing Risks

Ranking or prioritizing hazards is one way to help determine which risk is the most serious and thus which to control first. Priority is usually established by taking into account the employee exposure and the potential for incident, injury or illness. By assigning a priority to the risks, a ranking or an action list is created.

There is no one simple or single way to determine the level of risk. Nor will a single technique apply in all situations. The group has to determine which technique will work best for each situation. Ranking hazards requires the knowledge of the workplace activities, urgency of situations, and most importantly, objective judgement.

For simple or less complex situations, an assessment can literally be a discussion or brainstorming session based on knowledge and experience. In some cases, checklists or a probability matrix can be helpful. For more complex situations, a team of knowledgeable personnel who are familiar with the work is usually necessary. Figure. 3.A shows an example of the relationship between probability and severity.

	Severity				
Probability	Negligible	Minor	Serious	Critical	Catastrophic
Frequent	Low	Moderate	High	High	High
Probable	Low	Moderate	High	High	High
Occasional	Low	Moderate	Moderate	High	High
Remote	Low	Low	Moderate	Moderate	High
Improbable	Low	Low	Low	Moderate	Moderate

Figure 3.A Risk Matrix: "Probability" is the likelihood that an event will happen. "Severity" is how bad it will be.

10.8 Methods of Mitigation

Once priorities are established, the group can decide on ways to control each specific hazard. Hazard control methods are often grouped into the following categories:

- Elimination (including substitution).
- Engineering controls.
- Administrative controls.
- Personal protective equipment.

10.9 Documentation for Risk Assessment

Keeping records of your assessment and any control actions taken is very important. You may be required to store assessments for a specific number of years. Check for local requirements in your jurisdiction.

The level of documentation or record keeping will depend on:

- Level of risk involved.
- Legislated requirements.
- Requirements of any management systems that may be in place.

Your records should show that you:

- Conducted a good hazard review.
- Determined the risks of those hazards.
- Implemented control measures suitable for the risk.
- Reviewed and monitored all hazards in the workplace.

11. Personal Protective Equipment Program

11.1 Introduction

The objective of the Personal Protective Equipment (PPE) Program is to protect employees from the risk of injury by creating a barrier against workplace hazards. Personal protective equipment is not a substitute for good engineering, administrative controls, or good work practices but should be used in conjunction with these controls to ensure the safety and health of employees.

Appropriate personal protective equipment will be provided by each department, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injury and/or illness. This program addresses eye, face, head, and hand protection. Separate programs exist for respiratory and hearing protection.

11.2 Responsibilities

Each department/program shall be responsible for the procurement and implementation of the PPE Program in their work area.

11.2.1 Managers and Supervisors

- Shall be responsible for providing PPE required and making it available to employees.
- Responsible for training their personnel in the selection, use, inspection, and care of PPE required for their unique work situations.
- Maintaining records of such training.
- Proper equipment storage must be provided to protect against environmental conditions, which might degrade the effectiveness of the equipment or result in contamination during storage.
- Ensuring defective or damaged equipment is immediately replaced.
- Notifying EHS when new hazards are introduced or when processes are added/changed to re-evaluate PPE needs.

11.2.2 Employee

- Complete the medical evaluation by the expiration date
- Follow the requirements of the PPE Program.
- Wearing PPE as required
- Attending required training sessions
- Caring for, cleaning, and maintaining PPE as required
- Informing the supervisor of any need to repair or replace PPE.

11.2.3 Environment Health and Safety (EHS)

- Development, implementation, and administration of the PPE Program.
- Conducting workplace hazard assessments to determine the presence of hazards, which necessitate the use of PPE.
- Conducting periodic workplace reassessments as requested by supervisors and/or as determined by EHS.
- Providing guidance for the selection and purchase of approved PPE.
- EHS is also responsible for providing training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.
- Reviewing, updating, and evaluating the overall effectiveness of the PPE Program.
- Assign medical clearance needs

11.3 Program Components

- Hazard Assessment and Equipment Selection
- Types of Protective Devices
- Eye and Face Protection
- Head Protection
- Foot Protection
- Hand Protection
- Cleaning and Maintenance
- Training and Recordkeeping.

11.3.1 Hazard Assessment and Equipment Selection

Departments and Programs are responsible for ensuring their employees are provided with the appropriate safety equipment. PPE being used will ensure a level of protection equal to or greater than the minimum required to protect the employees from the hazards. EHS will provide consultative services to help determine the suitability of the PPE presently available. If EHS recommends new or additional equipment to meet requirements, it shall be the departments/programs responsibility to purchase or make changes as recommended in a timely manner.

11.3.2 Standards for Protective Devices

All personal protective clothing and equipment will be of safe design and construction for the work to be performed and shall be maintained in a sanitary and reliable condition. Only those protective clothing and equipment that meet NIOSH or ANSI (American National Standards Institute) standards will be procured or accepted for use. Careful consideration will be given to comfort and fit of PPE in order to ensure that it will be used. In addition, care should be taken to ensure that

the right size is selected.

11.3.3 Eye and Face Protection

Preventing eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, researchers, contractors, or others passing through an identified eye hazard area. Suitable protectors shall be used when employees are exposed to hazards from flying particles, molten metal, acids or caustic liquids, chemical liquids, gases, or vapors, bio-aerosols, or potentially injurious light radiation.

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

- Prescription Safety Eyewear

  OSHA regulations require that each employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses (goggles, face shields) without disturbing the proper position of the prescription lenses or the protective lenses.

- Types of Eye/Face Protection
  - Safety Glasses: Protective eyeglasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles. Safety glasses are also available in prescription form for those persons who need corrective lenses. Safety glasses must be worn when working with lasers and must be appropriately rated for the type of laser used.
  - Single Lens Goggles: Vinyl framed goggles of soft pliable body design provide adequate eye protection from many hazards. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.
  - Face Shields: These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/biological

splash. Face Shields should also be worn when working with UV boxes and handling liquid nitrogen.

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

11.3.4 Head Protection

Head protection shall be furnished to and used by all personnel working where there is danger of head injury from impact, falling or flying objects, or electrical shock and burns. This includes operators of materials handling equipment, personnel engaged in construction work, warehousing, personnel working in excavations, and all personnel using pickaxes, sledgehammers, or chains.

- ANSI Standard Z89.1-1969
  - This standard establishes specifications for industrial protective helmets for the protection of heads of occupational workers from impact and penetration from falling and flying objects and from limited electric shock and burn.
- Head Protection Classes
  - Class A - General service, limited voltage. Protection against impact hazards.
  - Class B - Utility service, high voltage. Used by electrical workers.
  - Class C - Special service, no voltage protection.

11.3.5 Foot Protection

Safety shoes shall be worn in the shops, warehouses, maintenance, cage wash, glassware, and other areas as determined by EHS. The requirements for the hazards is necessary, ASTM F2413 shall be referenced for the required protection for the work being performed by the employee. ASTM F2413 – Standard Specific for Performance Requirements for Footwear replaced ANSI Z41-99 as the standard for footwear requirements.

- Construction Site Footwear Requirements:
  - UNTH personnel accessing construction sites only for specific non-construction purposes such as meetings, inspections, or testing/commissioning of building systems must wear footwear which meets or exceeds ASTM F2413, Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear. Ankle protection is not required by the ASTM standard, nor does it prohibit athletic style safety footwear.
  - If UNTH personnel are engaged in actual construction activities, they must comply with the construction specification for safety footwear, including protection of the ankle. It is not anticipated VIPs (donors and executive leadership) will utilize protective footwear when they visit a construction site. In this case, the contractor should clear and make safe areas for the VIPs to walk and view areas of interest or concern, as well

as limit work in the area to be toured. VIPs will be escorted at all times by Senior General Contractor staff to ensure the avoidance of hazards.

- For purpose of definition of the term "Very Important Person (VIP)" as it is related to this policy, the following categories of people shall be considered:
- Donors (of any type) or esteemed guests of UNTH
- President of UNTH
- Executive Vice Presidents/ Senior Executive Leadership of UNTH
- Faculty Chairpersons, Deans, and/or Provosts of various departments with specific interests in the project.

11.3.6 Hand Protection

Suitable gloves shall be worn when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, biological agents, and harmful temperature extremes are present. Glove selection shall be based on performance characteristics of the gloves, conditions, duration of use, and hazards present. One type of glove will not work in all situations. Allergies to latex and nitrile need to be considered as well in the selection process.

11.3.7 Respiratory Protection Plan

Refer to the Respiratory Plan SOP-v1-EHS-500 02 found on the EHS website.

11.3.8 Cleaning and Maintenance

It is important that all PPE be kept clean and properly maintained. Personal protective equipment shall not be shared between employees until it has been properly cleaned and sanitized. PPE will be distributed for individual use whenever possible. It is also important to ensure that contaminated PPE, which cannot be decontaminated, is disposed of in a manner that protects employees from exposure to hazards.

11.3.9 Training

Any worker required to wear PPE shall receive training in the proper use and care of PPE. EHS shall offer retraining to both the employees and the supervisors upon request. The training shall include, but not necessarily be limited to, the following subjects:

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

After the training, the employees shall demonstrate that they understand the components of the PPE program and how to use PPE properly, or they shall be re-trained.

11.3.10 Recordkeeping

Records shall be kept of the names of persons trained, the type of training provided, and the dates when training occurred.

12. Occupational Safety Plans

12.1 Responsibilities

12.1.1 Managers and Supervisors

Managers and Supervisors must recognize those factors in the workplace with accident potential. The supervisor shall provide frequent inspections of job sites, work methods, and materials/equipment used. Any unsafe equipment and/or material shall be tagged and rendered inoperative or physically removed from its place of operation until repaired or replaced.

All Departments are responsible for:

- Ensuring safe working conditions
- Providing necessary protective equipment (PPE)
- Taking immediate action to halt work and correct any observed or reported safety violation
- Ensuring that required guards and protective equipment are provided, used, and properly maintained
- Ensuring that tools and equipment are properly maintained and used
- Ensuring that the employees understand the work to be done, the hazards that may be encountered, and the proper procedure for doing the work safely
- Ensuring workers exposed or potentially exposed to hazardous chemicals/materials have access to appropriate Safety Data Sheets (SDS)

12.1.2 Employee

Employee must recognize those factors in the workplace with accident potential. The employee shall complete trainings in relation job sites, work methods, and materials/equipment used.

12.2 General Shop and Work Areas

12.2.1 Employee Training

Employees shall be thoroughly trained in the use of protective equipment, guards, and safeguards for chemicals and safe operation of equipment, machines, and tools they use or operate. Only employees who have been trained and those undergoing supervised on-the-job training shall be allowed to use shop equipment, machines, and tools.

12.2.2 Food and Beverages

No food or drink shall be brought into or consumed in areas exposed to toxic materials, chemicals, or shop contaminants. Workers shall wash their hands before eating or drinking after exposure to any contaminant. A separate area shall be designated as being safe for food and drink consumption.

12.2.3 Dress Code

Workers shall not wear rings, earrings, bracelets, wristwatches, or necklaces in the vicinity of operating machinery and power tools. Long full beards, unrestrained long hair, and loose clothing shall be restrained so as not to get caught in moving equipment.

12.2.4 Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is not a substitute for engineering controls or feasible work or administrative procedures. While these controls are being implemented, or if it has been determined that control methods are not feasible, personal protective equipment is required whenever there are hazards that can do bodily harm through absorption, inhalation, or physical contact. This equipment includes respiratory and hearing protective devices, special clothing, and protective devices for the eyes, face, head, and extremities. All PPE shall be of a safe design and constructed for the work to be performed and shall be maintained in a sanitary and reliable condition.

12.2.5 Shop Layout

Proper layout, spacing, and arrangement of equipment, machinery, passageways, and aisles are essential to orderly operations and to avoid congestion.

- Equipment and machinery shall be arranged to permit an even flow of materials and to provide sufficient space to handle the material with the least possible interference from or to workers or other work being performed.
- Passageways/aisles shall be provided and marked to permit the free movement of employees bringing and removing material from the shop. These passageways are independent of clear zones and storage spaces. They shall be clearly recognizable.
- Where powered materials handling equipment is used, facility layout shall provide enough clearance in aisles, on loading docks, and through doorways to permit safe turns. Aisles shall be at least 3 feet wider than the widest vehicle used or most common material being transported.

12.2.6 Illumination

Adequate illumination shall be provided to ensure safe working conditions.

- Portable lamps shall have UL approved plugs, handles, sockets, guards, and cords for normal working conditions.
- For work in boilers, condensers, tanks, turbines, or other grounded locations that are wet or may cause excessive perspiration, a low voltage lighting system should be used. In situations where these lighting systems are not available, a ground fault circuit

interrupter lighting system shall be used.

- Flashlights for use near energized electrical equipment and circuitry shall have insulated cases.
- At least 50 foot-candles of illumination shall be provided at all workstations. However, fine work may require 100 foot-candles or more. This can be obtained with a combination of general lighting plus supplemental lighting.

12.2.7 Exits and Exit Markings

- Every exit shall have "EXIT" sign in plain legible letters not less than 6 inches high with the strokes of the letters not less than three-quarters of an inch wide. The signs shall be powered by normal and emergency power circuits only.
- Doors, passageways, or stairways which are neither exits nor ways to an exit (but may be mistaken for an exit) shall be clearly marked "NOT AN EXIT" or by a sign indicating their actual use, for example: "STORAGE ROOM" or "BASEMENT."
- When the direction to the nearest exit may not be apparent to an occupant, an exit sign with an arrow indicating direction shall be used.
- Exit access shall be arranged so it is unnecessary to travel toward any area of high hazard potential in order to reach the nearest exit (unless the path is effectively shielded by suitable partitions or other physical barriers).
- Exit signs shall be clearly visible from all directions of egress and shall not be obstructed at any time. If occupancy is permitted at night, or if normal lighting levels are reduced at times during working hours, exit signs shall be suitably illuminated by a reliable light source.
- A door from a room to an exit or to a way of exit access will be the side-hinged swinging type and will swing in the direction of travel if 50 or more persons occupy the room.
- Areas around exit doors and passageways shall be free of obstructions. The exit route shall lead to a public way. No lock fastening device shall be used to prevent escape from inside the building.
- Where occupants may be endangered by the blocking of any single exit due to fire or smoke, there shall be at least two means of exit remote from each other.
- Exits, exterior steps, and ramps shall be adequately lit to prevent mishaps.

12.2.8 Housekeeping

Good housekeeping shall be maintained in all shops, yards, buildings, mechanical rooms, chases and mobile equipment. Supervisors are responsible for good housekeeping in or around the work they are supervising. As a minimum, the following requirements shall be adhered to:

- Material shall not be placed where anyone might stumble over it, where it might fall on someone, or on or against any support unless the support can withstand the additional weight.
- Aisles and passageways shall be kept clear of tripping hazards.

- Nails shall be removed from loose lumber or the points turned down.
- Trash and other waste materials shall not be allowed to accumulate and will be kept in approved receptacles
- Disconnect switches, distribution panels, or alarm supply boxes shall not be blocked by any obstruction which may prevent ready access.
- Machinery and equipment shall be kept clean of excess grease and oil and (operating conditions permitting) free of excessive dust.
- Mechanical and electrical rooms will not be utilized for storage, of spare parts, construction supplies, and other articles. But instead will be kept clean and properly illuminated to allow access for maintenance.

12.2.9 Use of Tools

- Hand Tools
  - Incidents at the job site involving hand tools are usually the result of misuse. Hand tools are precision tools capable of performing many jobs when used properly. Hand tool safety requires that the tools be of good quality and adequate for the job. All tools shall be kept in good repair and shall be stored properly.
  - When personnel use hand tools while they are working on ladders, scaffolds, platforms, or work stands, they shall use carrying bags for tools which are not in use.
  - Supervisors shall frequently inspect all hand tools used in the operation under their supervision. Defective tools shall be immediately removed from service and tagged.
- Portable Power Tools
  - Portable power tools can be more hazardous to use than their stationary counterparts. Personnel who are required to use portable power tools in their work shall be thoroughly trained in safe operating practices. Safe operating procedures shall be set up for each type of tool consistent with the manufacturer's instructions.

12.2.10 Use of Compressed Air Sources

Compressed air has the appearance of a relatively harmless gas. The improper or inadvertent connection of items not designed for shop air pressure, i.e., equipment, storage vessels, or containers, to a shop air supply may cause serious personal injury and more than likely will damage the item being connected.

The maximum air pressure approved for general use in the shops and laboratories is 30 psi (pounds per square inch).

12.2.11 Barricades

Appropriate barriers shall be erected around excavations, open manholes, open electrical panels, or other such operations that present hazards to personnel working in or near the affected area. Barricades shall delineate the boundaries of work areas. Signs must be posted to warn people of dangers and to identify protective equipment required while in the work zone.

12.3 Lock-Out/Tag-Out

OSHA Standard 29 CFR 1910.147, the Lockout/Tagout Standard, covers situations where injury could be caused by unexpected startup, energization, or release of stored energy while a machine or piece of equipment is being serviced or repaired. The standard requires that each piece of equipment be examined to determine what energy source needs to be locked out and that an energy control program be developed consisting of documented:

- Energy Control Procedures
- Periodic Inspection
- Training

The standard does not apply to work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or startup of the equipment is controlled by unplugging the equipment from the energy source and by the plug remaining under the exclusive control of the person performing the servicing or repair.

The UNTH lockout/tagout program along with specific details and form is SOP-v1-EHS-500-03 on the EHS website

12.4 Fall Protection

The procedures in APPENDIX C is to prevent the injury of personnel due to falls or slips any time personnel are working on portable stairs, ladders, or scaffolding, or at elevations of more than four feet above grade. The applicable information in the OSHA standards. 29 CFR 1910.21-.68. shall be use for additional resources.

Employees performing work at elevated surfaces shall utilize protective measures to protect against fall injuries. Guard rails shall be employed for large projects to prevent falls from one level to another when feasible. During maintenance activity, Fall Arrest System shall be utilized to safeguard workers.

Fall Arrest Systems consist of a Body Harness, a Shock Absorbing Lanyard or Retractable Lifeline and a Tie-off Point. These Systems are designed to arrest a free fall should a worker slip from an elevated work site and also function to minimize forces imposed on the worker as the Fall Arrest System activates and checks the fall.

EHS may offer assistance in identifying and evaluating fall protection issues and training in fall protection.

12.5 Electrical

All electrical work shall be performed in accordance with published OSHA standards for Electrical Safety-Related Work Practices. 29 CFR 1910.331 through .335, National Fire Protection Association (NFPA) 70 National Electrical Code, and NFPA 70E Electrical Safety Requirements for Employee Workplaces as amended. It is the responsibility of all electrical/electronic maintenance and repair personnel and their supervisors to become familiar with the procedures in the above publications and to employ the mandated safe work practices.

Working on exposed circuit/parts that are energized will not be permitted unless the workers are qualified and trained to do so. Safety related work practices shall be used to prevent electric shock or other electrically induced injuries. Qualified workers are those who have been trained to work safely on energized circuits and, when appropriate, to use the proper personal protective equipment, insulating and shielding materials, and insulated tools. Two workers shall work together any time work must be performed on high voltage energized circuitry or equipment.

12.6 Machinery and Machine Guarding

For most applications machine guarding is an engineering control method that is the best of several of available options for protecting personnel working around machinery and equipment. The installation of machinery and machine guards is a governing factor in controlling and preventing accidents and injuries. The selection of a guarding method to be used if the machine does not have a manufacturer's installed guard may depend on a number of things such as space limitations; size of stock, and frequency of use. The following general guidelines are provided to assist in that selection. For detailed information consult OSHA Standard 29 CFR 1910.211.

Design and construction characteristics of machine guards include:

- The guard must be considered a permanent part of the machine or equipment.
- The guard must afford positive protection. Personnel should not be able to reach a hazard by reaching into, over, under, or through a properly designed and installed guard.
- The guard must prevent access to the danger zone during operation of the equipment.
- The guard must be as convenient as possible and must not interfere with normal operation of the machine or maintenance functions. This may include hinging guards to allow for access, using drift pins, latches, or minimizing the number of cumbersome attachments
- The guard should be designed for the specific job and specific machine, with provisions for lubricating, inspecting, adjusting, and repairing the machine.
- The guard must be durable and constructed strongly enough to resist normal wear.
- The guard must not present a hazard in itself.
- The guard should not be easily bypassed or defeated. The use of "dead man" controls is the preferred method because if the safety device fails or is bypassed, the machine will not present a hazard to personnel.

Under no circumstance shall any UNTH machine guard be removed to simplify operator use. Nor, shall any UNTH machine/machinery be operated without the required guard being in place. If required guards are to be serviced or removed to permit service, lockout/tagout procedures must be followed accordingly.

12.7 Plumbing

Plumbing maintenance normally includes the installation, preventive maintenance, and repair of water supply systems, sewage and water disposal systems, natural liquefied petroleum gas (LPG) or other gas supply systems (to include gas appliances), and oxygen supply systems. Hazards that may be encountered

during plumbing maintenance include, but are not limited to, entry into an oxygen deficient atmosphere (confined space), fire or explosion by introducing an ignition or flame source into a hazardous environment, falls, cave-in of excavated area, burns from heat producing equipment, strains and sprains of the back or other muscle group, and cuts and/or bruises.

Personal protective equipment worn during plumbing maintenance operations normally consists of eye and/or face protection, work or chemical resistant gloves, and safety-toe shoes. A bump cap or hard hat may be required under conditions that could result in head injuries. Eye or face protection is required while working plumbing connections, with chemicals, or where an eye hazard could exist while using tools or machines, and while working on pressure systems.

Plumbing workers should be trained and authorized to inspect, maintain, or install compressed air systems. Before opening a compressed air line, workers shall ensure the line has been completely drained of existing air to prevent a sudden release of air which will cause the line to whip. The reverse is also true; when personnel have installed a new compressed air system, all parts of the system shall be secured together before air is put into the system. Workers shall wear eye and face protective equipment while working on compressed air systems.

12.8 Gas System Maintenance

Maintenance of gas systems include natural gas, LPG, nitrogen and oxygen. Shop personnel shall be familiar with the properties of the gases in the systems they maintain. Tools used to repair leaks in, or perform maintenance on, gas lines shall be spark-free and protective clothing shall be static-free

12.9 Carpentry and Structural Maintenance

Personnel performing duties in carpentry and structural maintenance are potentially exposed to a wide variety of hazards in many different environments and locations. Potential hazards include exposures to flammable and combustible adhesives, dusts, hazardous noise, eye hazards, working at heights above ground level, lifting hazards, electric and pneumatic power tools, and working with unfinished material which could expose them to splinters. Potential physical and health hazards can be effectively controlled by proper work procedures and controls, and by using required personal protective equipment.

Personal protective equipment shall be worn when operating machinery, equipment, and saws within the shop and on job sites. The PPE consists of eye protection, safety-toe shoes, dust masks, hard hats, and hearing protection.

Supervisors shall ensure that periodic inspections are accomplished on all shop equipment. Machine guards shall not be removed or made inoperative except for authorized maintenance. When guards are removed during machine repair, power control switches shall be locked in the "OFF" position and properly tagged. The machine shall remain locked until the guards are replaced.

Machines that develop fine dust or other airborne contaminants should be equipped with effective industrial exhaust ventilation. In shops where small numbers of installed machines are not continuously in operation, portable collection systems may be used.

Exhaust ducts and pipes shall be constructed and sized to minimize clogging. They shall discharge into an enclosed container.

Refuse shall be removed daily in all operations that are not required to have an exhaust system or where the refuse cannot be handled by an exhaust system.

12.10 Refrigeration and Air Conditioning Maintenance

Potential hazards associated with refrigeration and air conditioning maintenance include hazardous noise, electrical hazards, exposure to refrigerants, lifting hazards, and compressed gases and cylinders.

Equipment rooms where air conditioning equipment is installed shall be kept free and clear of all trash and clutter which could present tripping or fire hazards. Refrigerant piping shall be properly insulated, both to improve operating efficiency and to prevent injury to workers who may accidentally come in contact with it. Equipment rooms are not normally designed for, nor intended for, storage of materials.

Workers shall ensure that containers are legibly marked with the type of gas contained and stored with minimum intermingling of types of refrigerant. Cylinders shall be stored separately from flammable gases and oxygen. Where caps have been provided for valve protection, they shall be kept in place at all times until the cylinder is actually in use.

12.11 Heating Systems and Boiler Plant Maintenance

12.12 Painting Operations

Proper preventive measures must be taken for operations involving paints, varnishes, lacquers, cleaners, solvents, plastic coatings, and other finishing materials which readily ignite at relatively low temperatures and which could cause fire and health hazards. Many of the materials used in painting and spraying are volatile and may form vapors which may produce explosive and/or toxic mixtures in the air if not removed by adequate ventilation. Conspicuous "NO SMOKING' signs shall be posted where flammable materials are used or stored. The quantity of flammable or combustible liquid kept in the vicinity of spraying operations shall be kept to the minimum required for daily use. All flammable liquids and similar materials shall be stored in approved safety containers and/or storage cabinets.

12.13

A forklift safety plan is essential for ensuring the safe operation of powered industrial trucks in the workplace. This plan outlines the responsibilities, procedures, and training requirements necessary to prevent accidents and injuries. All forklift operators must be at least 18 years old and complete OSHA-compliant training, which includes both classroom instruction and hands-on evaluation. Operators must also pass a performance assessment before being authorized to use a forklift and must undergo refresher training every three years or after any incident or unsafe behavior.

Before each shift, operators are required to perform a pre-operation inspection of their forklift. This includes checking the brakes, steering, horn, lights, tires, forks, fluid levels, and safety devices such as seatbelts and backup alarms. Forklift Operation Any defects must be reported immediately, and the forklift must be taken out of service until repairs are made.

Safe operating procedures must be followed at all times. Operators should wear seatbelts, drive at safe speeds, and use the horn at intersections or blind spots. Loads must never exceed the forklift's rated capacity, and forks should be kept low while traveling. Sudden stops, sharp turns, and horseplay are strictly prohibited. Only authorized personnel may operate forklifts, and passengers are not allowed unless the forklift is designed for them.

Proper load handling is critical. Operators should inspect loads for stability, center them on the forks, and tilt the mast back slightly for balance. Loads should be raised and lowered only when the forklift is stationary. Under no circumstances should people be lifted on the forks unless using an approved platform.
In the event of an emergency, such as a tip-over, operators should remain seated, brace themselves, and lean away from the direction of the fall. All accidents, near misses, and equipment damage must be reported immediately. The company will maintain records of training, inspections, and incidents to ensure compliance and continuous improvement.

Supervisors are responsible for enforcing safety rules, scheduling training, and ensuring that only certified operators use forklifts. Operators must adhere to all safety procedures and report hazards promptly. A designated safety officer will oversee the implementation of this plan, conduct audits, and update procedures as needed to maintain a safe working environment.

12.14 Confined Space Entry

Confined spaces are among the more dangerous work environments. A "confined space" may be generally defined as any area which has limited means of egress, is subject to an oxygen deficient or enriched atmosphere or to the accumulation of flammable or toxic gases or vapors, and is configured so as to make rescue difficult. OSHA Standard 29 CFR 1910.146 provides definitive guidelines relative to entering/working in a confined space in addition to specific mandates dealing with the required training and emergency equipment required to support this type of work.

Examples of confined space working areas at UNTH include sewers, pits/sumps, chemical/septic waste tanks, vessel voids/bilges, trenches over 4 feet deep, elevator shafts, ventilation ducts, neutralization pits, and man holes.

The UNTH detailed confined space entry SOP-v1-EHS-500-01 will be found on the EHS website

12.15 Ladder Safety

Ladders will be inspected by the worker prior to each use. Ladders with broken or missing rungs, broken or split side rails, or with other faulty parts shall be removed from use and disposed of immediately. Do not place a ladder in front of a door which opens toward the ladder unless the door is locked or otherwise blocked, barricaded, or guarded. No one shall go up or down a ladder without the free use of both hands. Individuals using ladders must maintain three points of contact at all times. If handling material, a rope shall be used to raise or lower the material.

Portable ladders placed against a wall or other fixed object shall be securely fastened or held by a co-worker to prevent slippage. The ladder's base should be placed at a distance from the vertical wall equal to one-fourth the working length of the ladder in order to assure the proper angle (4:1 ratio). No ladder shall be used to gain access to a roof unless the top of the ladder extends at least three feet above the point of support, at eave, gutter, or roof line. Ladders shall not be placed on boxes, barrels, or similar

unstable bases to obtain additional height. When using portable ladders on smooth floors or sloping surfaces they shall be equipped with nonslip bases.

13. General Safety Requirements

13.1 Introduction

Personnel safety shall be paramount in all operating procedures to assure maximum practical protection for personnel and to prevent unnecessary exposure to injury and health hazards. It is the responsibility of all individuals to comply with established safety rules and regulations. Management and supervisory personnel at all levels are responsible for assuring that safety precautions are understood and carried out in respective work areas.

This section is limited to basic guidance in some of the essential areas of safety and health, which are generally applicable to all areas of UNTH. It is emphasized that these are basic requirements to good safety and health performance and do not represent a comprehensive safety and health program for every area.

13.2 Compliance with Safety Regulations

All UNTH personnel shall observe all safety and health rules and regulations. All personnel will be responsible for warning others when it is believed that they are endangered by known hazards or by failure to comply with applicable safety and health precautions. Safety and health precautions must not be disregarded or subordinated due to the urgency of a particular job.

Safe work practices and administrative controls are measures aimed at reducing exposures to hazards, which include written procedures, safety policies, rules, and practices.

Safe work practices and administrative controls exist at all organizational levels, and include:

- Use and adherence to written protocols and Standard Operating Procedures (SOPs) that detail procedures and safety protocols
- Safety Audits and Oversight: In order to provide ongoing hazard and risk assessment, as well as assessing the adequacy of control measures, routine health and safety audits are performed by various entities and include Biosafety, Radiation Safety, IBC, IACUC and EHS. Medical professionals contribute by providing medical evaluation and risk assessment.
- General safety guidelines and manuals to be followed by all employees, students, and volunteers
    - Biosafety
    - Chemical Hygiene
    - Radiation Safety
    - Electrical Safety
    - Mechanical Safety

13.3 Safety Training

Supervisors shall ensure that all new or reassigned personnel are instructed in safe methods of performing particular tasks prior to starting and during the early stages of each new job. A general safety briefing shall be held in conjunction with the Hazard Communication Standard training and all applicable training for every new and reassigned personnel.

13.4 Two-Person Rule

The two-person rule shall apply whenever dangerous experiments or other potentially life-threatening operations are being performed. No one shall work alone if there is any reason to believe that a situation may develop where the person could not summon assistance within a reasonable time or where assistance from another person would not be available in case of an accident.

When the distance or physical arrangement separating employees is great enough to prevent visual observation or voice communication for long periods, the activities shall be restricted to those with a low probability of an incapacitating accident of such magnitude that help cannot be summoned in a reasonable period.

13.5 Refrigerators and Freezers

Flammable liquids or chemicals capable of giving off flammable or explosive vapors, which require refrigeration, should not be placed in domestic-type refrigerators. Such material shall be stored in explosion-proof refrigerators. In such confined spaces, a very small quantity of flammable liquid can develop into an explosive atmosphere, which could be ignited by the interior light switch or thermostat switch of the refrigerator. Standard refrigerators and freezers shall have a "NO FLAMMABLES" sign/label posted on the door.

At no time will food products for human consumption be stored in any refrigerator or freezer, which is being used for storage of chemicals, biological or radioactive samples. Laboratory refrigerators and freezers located in hallways must have a “Not for Food Use” sign/label posted on the door.

13.6 Smoking

The Surgeon General of the United States has determined that using tobacco products is a leading cause of illness and death. Texas recognizes the right of individuals working or visiting in state buildings to an environment free of contaminants.

The UNTH policy is to ensure a healthy working environment for all workers. Smoking is forbidden in all areas of campus, including all buildings, individual offices, and enclosed spaces (automobiles, trucks, vessel cabins, aircraft, etc.) under the management control of UNTH

Valid, documented, legitimate complaints by non-smoking and smoking employees are of equal concern and will be dealt with on an individual basis. EHS will serve as the functional point of contact and provide assistance or recommendations to the Dean and Director for any employee complaints or concerns about this policy.

13.7 Housekeeping

High standards of housekeeping must be maintained in all shops, offices, laboratories, buildings, work areas, and surrounding grounds.

- All work areas such as workshops and laboratory which might contain potentially grave danger and hazardous materials, must be kept clean and neat at all time.
- Floors shall be kept free from holes and obstructions, especially where the floors form part of the aisles or walking spaces. It is essential that floors are not littered with small objects, such as scraps of metal, nails, and tools. Report all damaged floors to facilities to ensure prompt repairs and prevent injury. Reporting is done through the WO portal.
- Aisles, passageways, stairways, and exits shall be kept clear at all times. All exit signs shall be suitably illuminated by a by a reliable light source.
- Restrooms will be kept in a clean and sanitary condition at all times.
- All UNTH provided and personal microwave ovens and refrigerators used for the cooking and storage of food shall be kept clean at all times. Failure to maintain an acceptable degree of sanitation shall be grounds for removal of these appliances.
- Broken glass shall not be placed in wastebaskets. It should be kept in a separate puncture-resistant container that is marked "Broken Glass Handle Carefully" for the cleaning crew to remove or taken directly to a dumpster for disposal. Broken glass containers should not weigh more than 30Lbs.
- Other sharp objects, such as scalpel blades, needles, and razor blades, used microscope slides, shall be disposed of in appropriate and labeled sharps containers. When the container is filled, the containers shall be disposed of as required per the UNTH Biosafety Manual.
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13.8 Slippery Surfaces

Surfaces, which cause hazardous footing to personnel due to the presence of oil or other slippery substances, will be cleaned or treated to provide good footing. Linoleum and other polished floor surfaces shall be treated with a slip resistant preparation.

13.9 Compressed Gas Cylinders

Compressed gas cylinders shall always be stored in an upright position and secured to prevent toppling. The protective caps shall be installed on all cylinders not in use. Cylinders shall not be handled, shipped, or stored without valve protection caps. Compressed gas cylinders must be kept away from excessive heat (125°F, 51.5°C) and shall not be placed where they can be exposed to an electrical circuit. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

13.10 Compressed Air

Compressed air shall not be used for cleaning purposes when vacuum cleaners or an alternative will do the job. If not practicable or possible to use other means, compressed air may be used for cleaning when

reduced to less than 30 psi with eye protection and safeguarding of other personnel in the area. The use of compressed air for cleaning clothing or any part of the body at any pressure is prohibited.

13.11 Working Over, Near, or On the Water

Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard approved personal flotation devices (PFDs). Prior to and after each use, the PFDs shall be inspected for defects which would alter their strength or buoyancy.

At least one lifesaving skiff should be immediately available at locations where employees are working over or adjacent to water.

13.12 Work Clothing

Clothing worn around moving machinery shall be close fitting. Neckties and other loose items shall not be worn. Long sleeves will be worn in operations involving welding or burning and in tasks where the exposure to chemicals or ultraviolet and infrared rays is likely. Long sleeves are recommended for brush cutting.

In industrial operations where there is no hazard to the upper arms, short sleeve shirts and blouses may be worn provided they cover the upper torso. All personnel working in industrial operations shall wear trousers, slacks, or coveralls, which cover the lower extremities.

Safety shoes are required for all personnel involved in work which has the potential for crushing or lacerating foot injuries. This includes personnel in shops, outside maintenance/grounds and others as determined. This requirement is more fully addressed in the section on personal protective clothing.

Persons working in laboratories shall wear appropriate clothing. Lab coats or aprons should be worn for the majority of operations, especially when there is a possibility of splash or spill. Similarly, footwear that provides protection from splash and spill should be worn at all times in laboratories. Going "bare foot" in any laboratory is forbidden. As open- toed shoes, sandals, and "flip-flops" provide no protection from splash or spill, they also are forbidden. Routine cleaning of lab coats and aprons is the responsibility of the individual laboratory. Lab coats and aprons must not be laundered at home.

Persons working in the water should wear appropriate clothing or equipment. Footwear is especially important for person wading where there is any potential for material on the bottom that might lacerate unprotected feet.