

Asbestos, Environment, Fire, Health, Safety, and Security Policy

1. INTRODUCTION

This document establishes the Texas Tech University Civil and Environmental Engineering Department (CEE) safety policy for the protection of life, environment, health, safety, and security. The intent is to maintain a safe and healthful environment conducive to the accomplishment of the mission of the CEE Department, the College of Engineering (COE) and Texas Tech University (TTU). This policy will be reviewed and changes implemented if necessary in August of odd numbered years.

The CEE Department has significant concern with the welfare of its students, staff, faculty, and administrators. This document reflects that concern in its intent to prevent and control the impact of accidents and incidents involving students, staff, faculty, and administrators, thus avoiding consequences that could disrupt CEE, the COE, or TTU in achievement of their missions.

2. PROGRAM ADMINISTRATION

Overall responsibility for administration of this program resides with the chair of CEE. Because CEE is a large and diverse department the chair delegates authority to the CEE Safety Coordinator who bears primary responsibility for administration of this program. The CEE Safety Coordinator will further delegate responsibility to individuals holding positions identified below. The area manager for the structures laboratory shall be responsible for this policy's administration in the structures laboratory, instructional laboratories associated with materials science, and storage in the vicinity of 4th Street and Quaker Avenue. The area manager for water resources and environmental engineering shall be responsible for this policy's administration in environmental laboratories, water resources laboratories, the fluids laboratories, and the flume project at the East Campus facilities. The lead technician for TechMRT shall be responsible for this policy's administration in geotechnical laboratories, both teaching and research, the asphalt laboratory, and any other facilities related to geotechnical and transportation research. The lead technician for Wind Science and Engineering (WISE) shall be responsible for administration of this policy at facilities located at Reese Center.

3. PROGRAM RESPONSIBILITY

All department employees including student assistants in any capacity, staff, faculty, and administrators share the responsibility to assure compliance with the policies and procedures set forth in this document. All department employees share the responsibility to promote sound work practices and good housekeeping, to develop safe work habits, to identify hazards present in their work area, to follow all procedures and rules, and to contact their supervisor whenever a potential hazard is recognized. Demonstrated failure to discharge conscientiously these responsibilities by either supervisors or other employees may be grounds for dismissal since such failure conflicts directly with the policies set forth in this document as well as CEE's goal of maintaining a safe working environment.

With full cooperation of all employees, CEE can maintain a safe and healthful work environment while minimizing occupational injury and illness to employees and students thus abetting CEE, the COE, and TTU in accomplishing their missions.

4. THE KEY TO SAFETY SUCCESS: THE SUPERVISOR

The actions of supervisors provide the key to the success of any safety program. No safety program can be successful without supervisors' support, cooperation, and participation. Any department employee who may at any time be supervising other individuals assumes the role of supervisor. This includes staff members, faculty members, adjunct faculty members, teaching assistants, research assistants, or student assistants

Supervisors have detailed knowledge of the tasks employees and students in their charge perform. Supervisors are in the best position to observe employee and student attitudes and actions. Supervisors must know what physical hazards are present and provide training in avoiding accidents related to those hazards.

Supervisors have regular contact with the workers and students they supervise in most cases. This routine contact gives the supervisor the opportunity to adopt the role of mentor regarding the safest way for the employees or students to discharge their duties. By teaching employees and students to incorporate safety as they learn their responsibilities, safety becomes a routine ingredient of performing their tasks. For employees and students already trained, regular contact allows the opportunity to detect and correct any unsafe practices resulting from lack of or inadequate training or development of bad safety habits.

In most cases, supervisors have the trust and respect of their workers. This means the worker will often heed warnings from the supervisor more readily than those from labels, Material Safety Data Sheets (MSDS), or safety manuals. This feeling of trust and respect cannot be sustained if employees or students sense the supervisors' failure to maintain safe and healthful work conditions.

Logically, a safe workplace promotes more productivity because workers performing with injuries or absent from work due to injury cannot perform as productively as workers who are on the job functioning at 100% of their physical capability. It follows that supervisors should strive to maintain a safe and healthful work environment to maintain productivity.

Supervisors have the authority, by virtue of their positions, to demand adherence to safety policies and procedures. Nobody else is in a position to enforce safety standards in as immediate and direct a way as the supervisor. The supervisors' ability to make compliance an integral part of a satisfactorily completed job makes these positions unique.

All of the above reasons for supervisors being the key to a successful safety program really come back to one thing: responsibility. The supervisor has responsibility for the productivity and welfare of those in his supervision, for properly and safely training them, and for evaluating their performance in safety as well as other areas. Altogether, this amounts to a rather hefty burden. Many resources exist at the federal, state and university levels. These include the accident investigation and workplace survey programs, advice on specific problems and help on safety training needs. The Civil and Environmental Engineering Department will rely heavily on the university environmental health, fire, security and safety professionals seeking their advice, complying with their procedures, and coordinating annual and bi-annual tours and meetings with department employees.

5. THE ROLE OF THE SAFETY COORDINATOR

All department employees have a duty to ensure safe operations. The safety coordinator is the focal point for safety and serves as the chair's primary agent concerning safety matters. The safety coordinator acts as the point of contact within the department and as liaison with all other college, university, state and federal safety agencies. The safety coordinator's responsibilities include: being knowledgeable about how to fill out accident forms and hazard reports as well as having forms on hand; being the conduit for information from and questions to college, university, state and federal safety agencies so questions can be answered as they arise; determining and arranging for safety inspections twice a year; reporting unsafe conditions and stopping unsafe acts where possible; coordinating visits by safety agency personnel and accompanying them during these visits; and promoting general safety awareness in the department. The safety coordinator is not a safety expert. The safety coordinator is CEE's person who coordinates all safety related activities.

6. ACCIDENT REPORTING

TTU Environmental Health & Safety (EH&S) has copies of accident reporting forms, MS 1090, and can assist the department in filling them out. The forms are:

- i. Employer's First Report of Injury/Illness, TWCC-1S, - accident involving lost time or medical costs – supervisor, chair
- ii. Witness Statement, WCD-74 – witness/witnesses
- iii. Employee's Election Regarding Utilization of Sick Leave, C-80 – employee
- iv. Employee's Report of Injury, WCD-29 – employee
- v. Authorization for Release of Information, 24-016-C – employee
- vi. Supplemental Report of Injury/Illness, TWCC-6 – employee
- vii. Supervisor's Investigation of Employee's Accident/Incident, AGS-10-91/TWCC-121 – supervisor, chair
- viii. Accident Report for University Vehicles, MS 1101, 2-3841, Contracting & Risk Management
- ix. Incident Report Form, to EH&S for incident & near miss, no lost time & no medical cost injury
- x. Hazard Report Form, to EH&S

7. ACCIDENT INVESTIGATIONS

The investigation of accidents will be conducted at the discretion of TTU EH&S. If an investigation is deemed necessary, TTU EH&S established procedure will be followed; the department will assist as directed.

8. PERIODIC WORKPLACE SURVEYS

The CEE safety coordinator and chair will participate in the biannual workplace surveys and visits by TTU EH&S. Activities on the visits may include, but are not limited to: measurement of noise and lighting, hazard communication program review, and inspection of facilities for identification of hazards. During these safety surveys, recommendations for the abatement of hazards will be presented orally and a memorandum will be sent to the chair with a copy to the safety coordinator.

9. HAZARD COMMUNICATION PROGRAM

The Texas Hazard Communication Act (THCA) requires that all employees who work in non-exempt areas be informed about chemical hazards in their workplace by means of container labeling, Material Safety Data Sheets (MSDS) and training. Areas which are exempt have been informed of this fact in writing by EH&S. The Civil and Environmental Engineering Department is not exempt.

To comply with the THCA, the following actions have been taken:

- i. The supervisor/safety coordinator has enabled a Hazard Communication Program which is accessible to employees on all work shifts.
 - a. The department semiannually updates employees at faculty/staff meeting
 - b. Within the first week of employment briefs new employees
 - c. During the first lab session briefs students
 - d. During the first research session briefs research assistants
 - e. Maintains MSDS notebooks in each respective lab/office area
 - f. Ensures that all containers for products containing hazardous chemicals are properly labeled
- ii. Ensure that all employees know that the University has a centralized collection of MSDS's located in EH&S (MS 1090, 303 Drane Hall). Copies of MSDS's have been requested from EH&S by memorandum to EH&S or to supplier and maintained in a notebook in each respective lab/office area
- iii. Supervisors/safety coordinators must provide the following information and training to all employees working in a non-exempt area:

- a. The requirement of the THCA
 - b. The location and availability of the written Hazard Communication Program
 - c. The location and availability of MSDS's within the department or work area
 - d. Identification of chemicals or chemical products present in the work place operations
 - e. Physical and health effects of the hazardous chemicals
 - f. How to use the identified chemical products safely
 - g. How to read labels and MSDS's to obtain appropriate hazard and safety information
- iv. Training must be documented and the documentation kept on file within the department for 30 years

The Civil and Environmental Engineering Department's hazard communication program must be permanent and continuous. When new products are received, an MSDS must be made available and, if the product introduces a new hazard to the workplace, all employees must receive training on the new hazards prior to working with the product. All new employees must be trained prior to working with any hazardous substances.

10. OBTAINING MSDS'S

MSDS requirements are set by the Occupational Safety and Health Administration (OSHA). TTU EH&S will assist the department in determining if the chemical requires a MSDS. The manufacturer/supply is the first option to provide the MSDS. TTU EH&S will also assist the department in obtaining the required MSDS. Copies of MSDS will be stored in alphabetical order in notebooks in the respective department lab/office area. Original MSDS will be maintained by TTU EH&S.

11. INTERPRETING MATERIAL SAFETY DATA SHEETS

The Civil and Environmental Engineering Department's initial and periodic training will review interpreting of MSDS. Specifically:

- i. Identity – the product name used to identify the substance on the MSDS must be the same as on the product label and on your inventory. This section often contains synonyms which may be useful when looking for information in references.
- ii. Physical and Chemical Characteristics – this section contains information such as flash point, vapor pressure, appearance, odor, specific gravity, boiling and freezing points, etc. This data can be very useful for determining things like whether vapors from the substance will rise or sink. The odor and appearance information can be used to train workers about how to recognize the presence of a particular substance.
- iii. Physical Hazards-information concerning the potential for fire, explosion, or reaction is found here. The type of extinguishing agent appropriate for the product will be given here. Checking this section can tell you whether or not you have the right type of extinguisher in your work area. If reactivity data is given, information about what substances are incompatible with the product will normally accompany it.
- iv. Health Hazards-this section presents information about the signs and symptoms of overexposure, acute and chronic health effects, and any medical conditions which might be aggravated by exposure. Please don't interpret this to mean that if you use this product, these things will happen to you. The information is given so you will be aware of how you might react to a significant exposure and is usually based on accidental overexposure or animal studies. The information should be used as an indicator of possible overexposure or sensitivity.
- v. Primary Routes of Entry-the way the substance may enter or interact with your body is detailed here. This is typically given as ingestion (entry through the mouth), inhalation (entry through the respiratory system), absorption (entry through the skin or eyes), and contact (doesn't enter the body, but damages or irritates the skin or eyes). This information should be used to reinforce administrative controls and work practices such as washing hands after product handling or prohibiting food and drink in areas where hazardous materials are to be used.
- vi. Exposure Limits-OSHA Permissible Exposure Limit (PEL), the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), National

- Institute of Occupational Safety and Health (NIOSH) recommended Exposure Limit (REL), or other recommended exposure limits will be presented in this section. These values are given in parts per million (ppm) or milligrams per cubic meter (mg/m³) and are based on an eight hour time-weighted average (TWA) for a forty-hour work week. Some type of sampling and analysis or readings with equipment followed by calculations is necessary in order to have data to compare to these exposure standards. This function will be performed by EH&S or other personnel with specialized training.
- vii. Carcinogenic Effects-this section must disclose information about whether the substance is recognized as a known or suspected carcinogen (cancer-causing agent) by the National Toxicology Program (NTP), International Agency for Research on Cancer (IARC) or OSHA. Products with carcinogenic ingredients must be handled with extra caution and require written procedures as to how they will be stored and used.
 - viii. Handling data-this section provides information regarding any special precautions for handling and use. Appropriate hygiene practices, decontamination procedures, and spill and cleanup actions are found here.
 - ix. Control Measures-here you will find data concerning engineering controls, work practices, administrative controls, and personal protective equipment. These requirements are based on worst case conditions, but must be followed unless EH&S has performed an evaluation and informed you in writing that less stringent controls will be satisfactory.
 - x. Emergency and first aid procedures-necessary emergency response and first aid procedures are detailed here. Remember when reading this information that it is assumed that you have the required training and equipment to perform any emergency response or rescue actions discussed. If you don't, attempting response or rescue will probably just add another victim, so please call for qualified, properly equipped assistance.
 - xi. Date of MSDS preparation-manufacturers or importers are required to list the date of preparation or date of the last change on the MSDS. Please check these dates if you have more than one copy of MSDS's for a product. The MSDS must cover the period of manufacture for the stock of product you have on hand. If the formulation has changed, the hazards may have changed as well.
 - xii. Manufacturer's data-this must contain the name, address, and telephone number of someone who can provide additional information on the hazardous substance and emergency procedures, if necessary.

12. SAFETY ACTIVITY REPORTING

The Civil and Environmental Engineering Department will complete a TTU Department Safety Activity Report (SAR-93) annually in accordance with OP 78.29 to TTU EH&S by 15 September to report data for the previous fiscal year.

13. HAZARDOUS WASTE DISPOSAL

Minimize amount of waste generated by:

- i. Surplus chemicals can be exchanged among labs, sections, or departments. This applies not only to 'virgin' materials, but to the end products of processes or experiments which could be of use to someone else.
- ii. Materials may be distilled to recover them to a point of usability, if not to the original user, to another user on campus. This is greatly facilitated by segregating potential wastes to the extent practical at the point of generation.
- iii. Substitution of a less hazardous material for one requiring special handling will not only cut disposal costs, but reduce hazards in the laboratory as well.
- iv. Micro-scale operations reduce the waste volume by proportionately reducing the amount of chemicals input for the reaction.
- v. Neutralization – Acids and bases, uncontaminated with substances of a different hazard category, can be treated to bring the pH within the range of 5 to 9 and washed down the drain with 50 times their volume in water. There is no reason to turn in materials that can be neutralized at the point of generation.
- vi. Steps must be taken to ensure faculty and staff members do not depart until all substances in their work areas are clearly marked as to contents. Compliance with the

Texas Hazard Communication Act will eliminate most problems of this type, however, the cost of analysis for the identification and hazard classification of unknowns is high enough to make this a cost effective endeavor.

Once it has been determined that the substance can't be exchanged, recycled, or neutralized, contact EH&S to arrange for it to be picked up for entry into the waste stream. Waste pickups are made on Tuesday and Thursday of each week. Wastes should not be allowed to accumulate as this presents health and environmental hazards. When calling EH&S to arrange for a waste pickup, provide the following information:

- i. Name and telephone number of person requesting pickup.
 - ii. Department and room number where waste is located.
 - iii. Department and room number of requestor, if different than above
 - iv. Types and numbers of containers, e.g. one 5 gallon can, two 4 liter bottles, one 55 gallon drum, etc.
 - v. Whether or not the 'Request for hazardous waste pickup & disposal' form is complete
- The above information should be available prior to calling to arrange a pickup.

EH&S labels are available. The waste generated should fill out the following information:

Contents – List all wastes in the container

Building – your facility

Room #-self explanatory

Accumulation start date-the date you first placed any waste in the container

Hazard-Check the appropriate block for the hazard(s) associated with the waste

14. DEPARTMENT OF PETROLEUM ENGINEERING, TEXAS TECH UNIVERSITY LABORATORY POLICY FOR STUDENTS

The following policies apply to all students (graduate and undergraduate) working in the departmental labs, research facilities and touring field locations. Violation of these policies will result in suspension of lab and research privileges.

- i. The University does not provide insurance to cover medical bills incurred by a student. Consequently, students injured in the lab are responsible for their own medical bills.
- ii. All students must complete a safety training class and sign a statement to this effect before they will be allowed to use the equipment in the lab. This safety training will be conducted during the first lab session; a student missing the safety training will be removed from the respective course.
- iii. Students must review the Material Safety Data Sheets before using any chemicals.
- iv. Many of the experiments are hazardous if not handled properly. Ask the lab instructor about safe operating procedures.
- v. Students must operate all lab equipment in a safe manner. Students must wear safety goggles when operating machinery, cutting, handling caustic soda or concentrated acids, or working with pressurized vessels.
- vi. Whenever a student observes a dangerous situation; a chemical spill, broken glass, someone who is not following safe procedures, the student must report the hazard to the instructor.
- vii. Students will wear appropriate clothing (this may include long sleeved shirts, long pants, steel toed shoes, safety goggles, gloves, and hardhats) that is not loose or bulky that might become entangled in moving equipment. Any long hair must be secured in such a manner that it will not become entangled with moving equipment.
- viii. Fire Extinguishers are marked. In case of fire call 9-911.
- ix. All labs are equipped with eye-wash and shower stations. Wash off immediately, with water any chemical that make skin contact.
- x. In general, students will be very safety conscious, and exercise common sense such as:
(a) not leaving equipment laying on the floor that could cause tripping, (b) cleaning up oil or other fluids that could cause slippage, (c) not distracting other people while they are operating equipment.

15. NEW DEPARTMENT EMPLOYEES ORIENTATION BRIEFING

The Civil and Environmental Engineering Department safety coordinator will brief all new employees (faculty, staff, teaching assistant, research assistant and student assistant) during their first week on environment, fire, health, safety, and security issues and procedures related to their job assignments. This may include:

- 1) Material Safety Data Sheets
- 2) Proper Lifting Procedures
- 3) Fire Procedures
- 4) Storm and Tornado Procedures
- 5) Handling of Hazard Chemicals
- 6) Electrical Hazards and Procedures
- 7) Pressure Vessels
- 8) Unique Issues Related to Research and Lab Facilities
- 9) Health Issues
- 10) Safety Issues
- 11) Security Issues
- 12) Environmental Issues
- 13) Other Issues

16. RESEARCH AND LAB FACILITIES

The Civil and Environmental Engineering Department has several unique research and lab facilities which require special consideration. Prior to accessing each of these facilities permission must be granted and training received by the respective facility faculty coordinator. The department chair and department safety coordinator will assist individuals to gain access by coordinating with the respective facility coordinator. Each facility has additional separate safety and health issues.

- i. Land at 4th and Quaker:
 - a. Remote location requires minimum of two individuals on site and reporting in and out to departmental office.
 - b. High Voltage Equipment with special operating instructions.
 - c. High Pressure Equipment with special operating instructions.
 - d. Large Moving Equipment which starts and stops automatically.
 - e. Tripping and overhead hazards.
 - f. Steel Toed shoes, Safety Glasses, and Hard Hat area.
 - g. Tall equipment, climbing hazards.
 - h. High Pressure N₂ and CO₂ gas cylinders.
- ii. CEE Structures Laboratory
 - a. High Pressure gas cylinders.
 - b. Volatile fluids used, special storage cabinet.
 - c. Overhead Crane.
 - d. Welding Equipment.
 - e. Machinery.
- iii. CEE Asphalt Laboratory
 - a. Volatile fluids used, special storage cabinet.
 - b. High Temperature Ovens.
 - c. List other issues for safety considerations
- iv. CEE Geotechnical Laboratories
 - a. Machinery
 - b. List other issues for safety considerations
- v. CEE Materials Laboratory
 - a. Test Equipment
- vi. CEE Environmental Laboratories
 - a. Chemicals

- vii. CEE Fluids Laboratory
 - a. Flumes
 - b. Other Test Equipment
 - c. Chemicals
- viii. CEE Computer Laboratories
 - a. Department computer security procedure.
- ix. Reese Center
 - a. Missile Impact Equipment
 - b. Machinery
 - c. Tornado Simulator
 - d. Machinery
 - e.

17. SAFETY RELATED OPERATING POLICIES/PROCEDURES

Asbestos	60.08 Asbestos Compliance and Abatement Program
Chemical Hygiene	60.17 Chemical Hygiene Plan
Chemical Hygiene	60.02 Hazard Communication Act
Chemical Hygiene	60.04 Use of Laboratory Hoods, Biological Cabinets and Special Exhaust Ventilation
Electrical Safety	60.06 Lockout/Tagout System Procedures
Emergencies	60.03 Hazardous Material Spills
Fire Safety	60.14 Building Decorations and Decorative Materials
Fire Safety	60.13 Reporting of Fires/Fire Drills
Fire Safety	60.12 Fire Safety Program
General Safety	60.01 University Health & Safety Program
Lab Safety	60.10 Use and Disposal of Sharp Objects
Radiation Safety	60.11 Procurement, Usage & Disposal of Radioactive Materials, Radiation Producing Devices and Lasers
Respirators	60.05 Respiratory Protection Program
Reporting	60.16 Safety Activity Reporting
Reporting	60.07 Safety Hazard Report
Workers' Compensation	70.13 Workers' Compensation Insurance
Appendix A	Copies of Relevant Forms