

MAY 2014 REPORT OF ACTIVITIES AT TTU TO IMPROVE LABORATORY SAFETY

TTU introduced a Safety First culture with establishment of the Institutional Laboratory Safety Committee (ILSC) in AY 2011-12 and the ILSC revision of the TTU Chemical Hygiene Plan (CHP) in AY 2012-13. However, there is still work to do. In accordance with the Management Action Plan prepared by PSVPAA Schovanec and VPR Duncan, this initial report begins with campus-wide safety initiatives, followed by recent activities undertaken by the academic and research offices to assure laboratory safety at Texas Tech University.

Campus-wide safety initiatives

- TTU leaders have communicated the expectation that faculty teach TTU students to assess the risks that accompany creative research and scholarship, that TTU faculty and staff make safety a core component of their units, and that TTU EH&S personnel assist with safety questions and concerns. Communications are sent to the TTU community by TTU email and posted at <http://www.depts.ttu.edu/vpr/integrity/CSB-response/ttu-ongoing-response.php>.
- The Safety@TTU campaign (<http://safety.ttu.edu/>) received the Silver “Web-Blog” CASE Accolades award from CASE District IV, which is part of the Council for the Advancement and Support of Education and represents nearly 3,000 members from over 200 institutions in Arkansas, Louisiana, New Mexico, Oklahoma, Texas and the Republic of Mexico. Safety@TTU, initiated in Fall 2013, covers the wide range of safety topics that arise in our complex facilities.
- Safety topics are core components of TTU’s Responsible Conduct of Research (RCR) program, included in faculty development seminars offered through the TTU Teaching, Learning, and Professional Development Center (TLPDC), and featured in the annual TTU RCR Conferences. The 4th Annual RCR Conference (<http://www.depts.ttu.edu/ethics/RCRConference.php>), held 8 April 2014, included a presentation on leadership in the research laboratory by Dimitri Pappas (Associate Professor, Department of Chemistry & Biochemistry) and a presentation on student-centered safety in energetics materials research by Michelle Pantoya (J.W. Wright Regents Endowed Chair Professor, Department of Mechanical Engineering).
- Individual colleges and departments have provided opportunities for faculty to report safety activities in annual reporting and/or tenure and promotion materials, have developed faculty safety committees, and have increased student participation in safety committees.
- The Spring 2014 redesign of the OVPR Office of Responsible Research website, <http://www.depts.ttu.edu/vpr/integrity/index.php>, includes a prominent permanent safety section, <http://www.depts.ttu.edu/vpr/integrity/Safety/index.php>, that features senior TTU leadership.

Hazard-based survey program for TTU laboratories, stages, studios, and research sites.

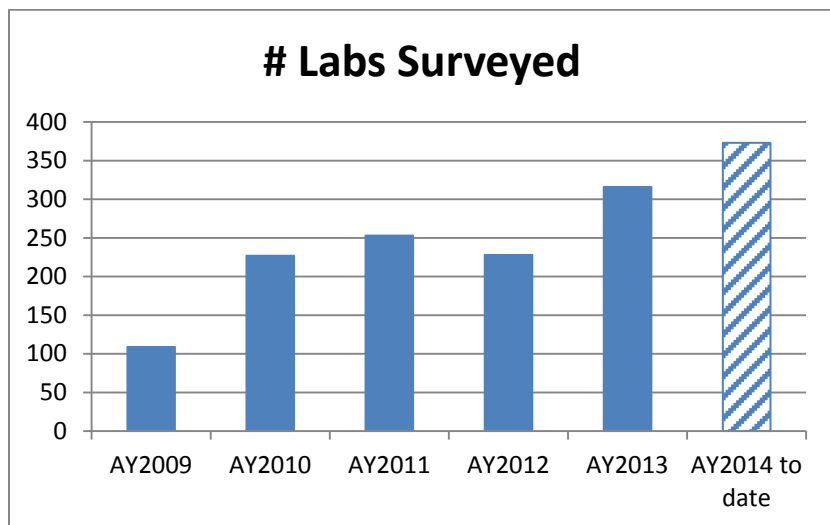
- In AY 2011-12, TTU established a faculty-led Institutional Laboratory Safety Committee (ILSC; <http://www.depts.ttu.edu/vpr/ILSC/index.php>), charged with improving the safety culture in TTU research facilities, stages, studios, teaching facilities, and field research sites.
 - Goals met in AY 2012-13 include
 - The ILSC has completed a comprehensive revision of the TTU Chemical Hygiene Plan (CHP) into a comprehensive safety document that clarifies roles and responsibilities, mandates user assessment, and incorporates ongoing revisions on at least a yearly

basis or upon a change in TTU programs, whichever occurs first. Campus-wide assessment of CHP users began in March 2013. The table below shows results in the first year of assessment:

Number demonstrating knowledge of the TTU CHP, as of March 31 2014		
<i>Students and staff</i>	<i>Graduate student and faculty instructors</i>	<i>Tenure-line faculty</i>
2098	431	193

- ILSC developed initial Standard Operating Procedures (SOPs) for high-hazardous chemicals and templates for faculty safety plans for laboratories and studios. Assessment of facility-specific safety plans was added to EH&S safety surveys in Spring 2014.
 - Goals ongoing in AY 2013-14 include
 - Ensuring that we accurately understand and mitigate all known potential hazards that may exist in labs, studios and other teaching and research spaces, a faculty self-assessment survey of potential hazards began in March 2014. As of April 15 2014, the survey has 698 respondents.
 - The AY13-14 revision of the CHP focuses on expectations of faculty, students, and staff with respect to safety. The ILSC has consulted with faculty and academic administrators to identify appropriate steps in cases of safety incidents and in cases of repeated or severe safety violations. Steps used by academic and research administrators in AY 2013-14 in response to specific safety concerns have included restricting access to campus resources, requiring hazard-specific training, and mandating new or altered equipment and infrastructure.
 - Summer 2014 training seminars for departmental chemical hygiene officers and departmental safety officers.
 - Goals identified for AY 14-15 include
 - Faculty focus groups to target gaps in identification and mitigation of hazards and in communication of safety responsibilities and goals
 - Student focus groups to target gaps in identification and mitigation of hazards and in communication of safety responsibilities and goals
 - Hazard-specific signage for laboratories and studios
- With an expanded professional staff (see next section), TTU EH&S has increased the frequency of safety surveys, developed a graded, color-coded inspection system to rank inspection findings by severity, and is piloting strategies to increase survey frequency in areas with highest hazard. This graph shows number surveys (of laboratories, studios, stages, and research sites) provided to faculty

and their chairs since AY09-10 (data for AY13-14 include the first 6 months of the academic year, through March 2014).

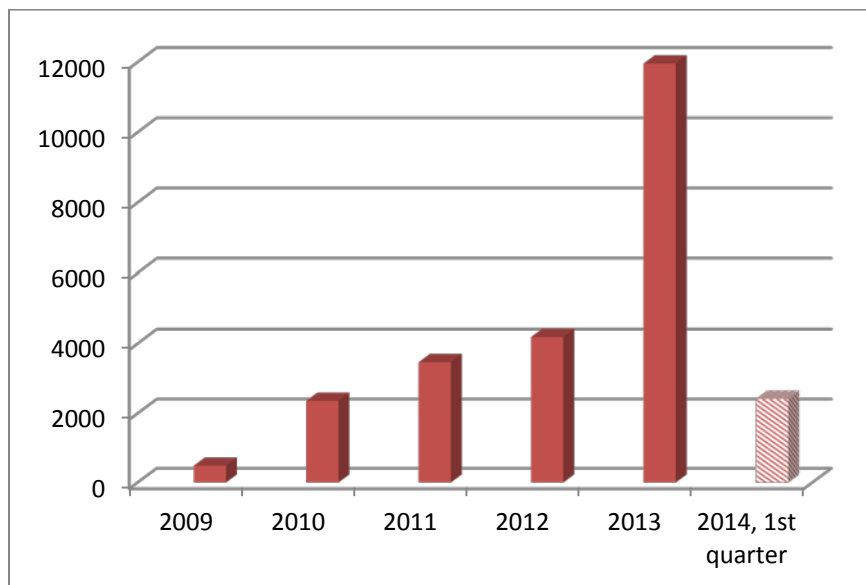


Resources and professional expertise to support TTU programs of teaching, research and creative activity.

- TTU increased the number of EH&S laboratory safety staff from 1 (2010) to 3 (2014); provided specialized training required for safety surveys of diverse laboratories, studios, stages, and research sites; and instituted a professional development program to support safety licensure.
- TTU established a Chemical Gateway program to facilitate campus-wide inventory of chemicals, reduce faculty burden, and reduce storage of legacy chemicals. TTU has entered into a two-year contract with Fisher Scientific, under which chemical specialists from Fisher began work in February 2014 to inventory and barcode all chemicals in academic and operational facilities, with a two-year completion target. In early 2014, TTU Purchasing established new purchasing processes for chemicals, in order to facilitate EH&S review and a centralized chemical inventory for the campus. This Gateway and purchasing system were introduced in March 2014.
- TTU purchased and installed ChemWatch software to 1) provide online access to (M)SDS's, 2) provide multi-language access to (M)SDS's, 3) provide expanded training and resources about hazardous chemicals, and 4) meet new OSHA requirements for hazard communication.
- In collaboration with OVPR and the Provost's Office, TTU Human Resources expanded its enterprise software system to integrate safety training information with the HR database so that units can track safety training as part of employee records.
- In Spring 2014, Operations identified resources to continue improvements in safety infrastructure in laboratories and studios. The Spring 2014 program has focused on adding ground fault circuit interrupters (GFCIs) to electrical outlets mounted near water sources in laboratories and studios.

Expanded safety training in teaching and research.

- TTU departments, colleges, and operational units emphasize safety training relevant to courses, research, and work responsibilities. This graph shows completion of safety training modules since 2009 (data for 2014 include Jan-Mar only).



- Individual departments and colleges have embedded safety into their programs. Examples include a new Chemical Process Safety course (CHE 4356) developed by Professor Brandon Weeks and required of all undergraduates in the Chemical Engineering program, investment in laboratory equipment and supplies to reduce crowding in introductory chemistry laboratories, and a collaborative program of the Departments of Chemistry & Biochemistry and Theatre & Dance in which graduate teaching assistants learn how to communicate safety requirements in undergraduate chemistry laboratories (<http://today.ttu.edu/2012/09/art-of-science-chemistry-theatre-join-forces-to-keep-undergrad-labs-safe/>).