

**Annual Safety and Health Report  
University of Tennessee, Knoxville  
CY 2021**

**Prepared by:**

**Sandra Prior, UTK EHS Director  
Environmental Health and Safety**

**THE UNIVERSITY OF TENNESSEE SYSTEM  
OUTLINE FOR CY 2021 ANNUAL SAFETY AND HEALTH REPORT**

The University of Tennessee's Safety and Health Plan, approved by the Board of Trustees and registered with TOSHA, requires that each campus or unit submit an annual report on safety and health activities. The purpose of this annual report is to provide an overview of safety and health activities at each campus and unit of the University of Tennessee.

Each safety officer prepares their respective annual report that covers the previous fiscal year and submits their report to the university-wide director of safety and health by October 15 of each year. The safety director consolidates the reports into a system-wide report and forwards the report to the university president. Moving forward in 2020, annual reports will be provided based upon a calendar year in order to align the reporting cycle with other regulatory reports that include the OSHA 300 and the Clery Report. Annual reports submission deadline will shift to January 31<sup>st</sup> with the consolidated report due to the university president by March 31<sup>st</sup> of each year.

TOPICS FOR REPORT:

1. **Program Objectives for CY 2021**

The following are the program objectives for the calendar year 2021 and a report on the progress made toward these objectives.

**a. Continue on pace to add additional identified positions to your organizational chart for FY22 year. (carry over from 2020 goals).**

We posted 7 positions (4 from 2019 that had been placed on hold and were reopened). We did not fill any positions in 2021, however 2 persons accepted positions at the end of 2021 but start dates were not until 2022. By the end of the year, we had four vacant original positions filled (one accepted a position at the end of 2021 but would not start until 2022. We had seventeen remaining positions of which six were still on hold until 2022. When hiring is completed, there will be a total of 43 personnel in EHS.

**b. Obtain a safety statement from the Chancellor that aligns with UTK Code of Conduct and Strategic Plan 2019-2025.**

We received the Chancellor's safety video statement on promoting university safety culture on April 29, 2021. This video was posted to the UTK EHS home page and shared with campus leaders. Here is the link for where it now lives on YouTube: <https://www.youtube.com/watch?v=GMfusMYyb8M>

Here is the link to the statement on the EHS Home page: <https://ehs.utk.edu/>

**c. Design and implement a hybridized lab inspection model, including moving inspection forms/reports to iAuditor and adapting a data management tool. (target: +30% resolved findings/closed report).**

We adopted iAuditor to support the laboratory review process. We revised the associated laboratory review procedure and developed a comprehensive checklist. See: <https://ehs.utk.edu/index.php/table-of-policies-plans-procedures-guides/lab-safety-reviews/>

At this point, BioRAFT became officially retired. We exceeded our target goal of target +30% resolved findings/closed report 98% of the findings were closed and/or corrective actions plans were adopted with 98% of the findings closed and/or corrective actions plans adopted.

**d. Evaluate lab safety tracking system options that includes feasibility of continuing BioRAFT contract, Archibus capabilities, iAuditor and any other options that may be viable.**

Currently, there are multiple non-integrated, independent, stand-alone information management systems that contain EHS data. This includes the BioRAFT system which is limited only for management of lab environments. From an analysis performed by the Director of EHS and support staff, the management of EHS data is highly inefficient. Data management for UTK EHS is severely lacking and is conducted through multiple processes. This creates deficiencies that include: (1) data gaps; (2) data inconsistencies; (3) data duplication; (4) inefficiencies in managing multiple data sets; (5) a lack of visibility, at all levels, of compliance issues.; (6) significant inefficiencies in responding to customer inquiries or requests; (7) difficulty tracking a chemical constituency; (8) an inability to manage and control the use and distribution of restricted substances; and (9) an inability to foster the safety culture of EHS loss thinking in support of university strategy.

By mid-year, we made the decision not to renew BioRAFT. We found that Archibus had limited capabilities to support our systems management needs and was not a viable option. We decided to begin a software search that would support our system safety management needs. We formed a working group named Project Salus and began the process of identifying a system to replace BioRAFT. In the interim, we transitioned to iAuditor that we had used in the past to continue to capture data from our inspection process. We also retrieved all of our chemical inventory data from BioRAFT and maintained it in a spreadsheet while our search was underway.

**e. Construct a campus-wide fire drill program to deliver a minimum of 85% of all planned fire drills.**

Primary Objectives for Fire & Life Safety were suspended in 2021 due to manning and resources; all focus shifted to compliance tasks primarily fire extinguisher monthly inspections. This program objective will be pushed to CY2022.

## 2. Other Significant Accomplishments

Provide any other significant accomplishments by the safety program.

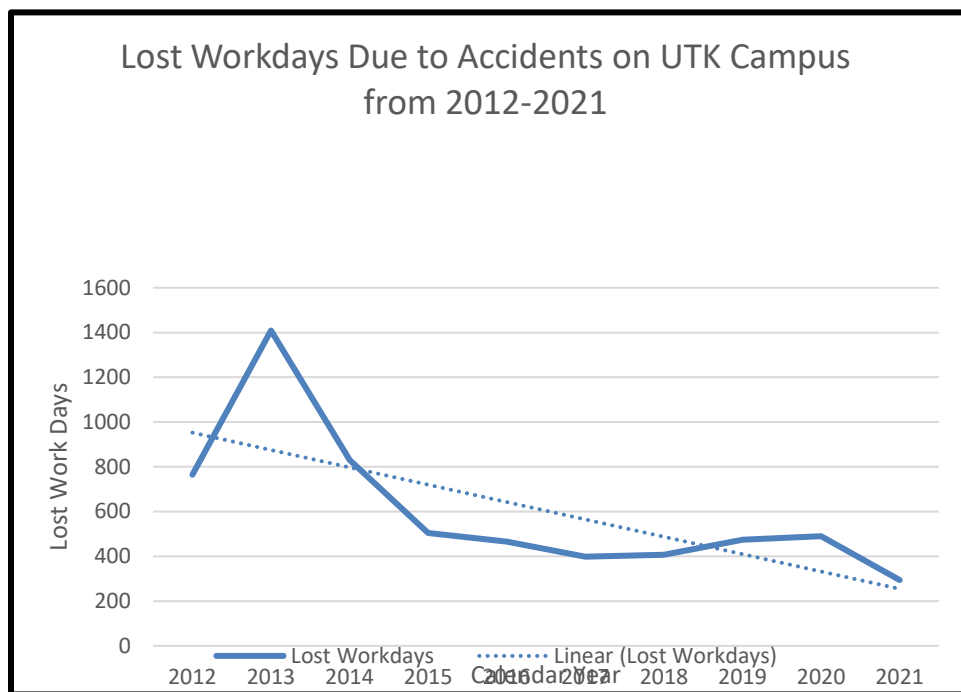
- a. Hazardous Waste Management: We had a cost savings of \$58,590.00 for processing unknowns, cylinders and disposal costs through actions that included in-house identification, consolidation, recycling/reuse, and vendor returns.
- b. Laboratory Safety Services:
  - i. Communicated the Chemical Hygiene Plan (CHP) update to researchers and provided 6 LS-CHP training sessions for the research community.
  - ii. Reviewed principal investigators' CHPs and approximately ~83% were acceptable per the requirements stated in LS-CHPs. This is a 177% increase based on an estimated 30% in 2020.
  - iii. The High Hazard Chemical Committee charter draft was completed and was placed under review.
  - iv. The Biosafety Officer reviewed and coordinated over 130 IBC registrations.
  - v. The Assistant Biosafety Officer revised the BSL-3 manual associated with the BSL-3 lab located at the College of Veterinary Medicine.
  - vi. Onboarded a new Biosafety Cabinet (BSC) contractor.
  - vii. Six document revisions (LS-001, LS-002, LS-020, EC-004, HM-010, BSL-3 manual) were completed.
  - viii. Developed four new program documents (LSA program, nanomaterials, ethidium bromide guidance, High Hazard Chemical Committee charter).
- b. Radiation Safety
  - i. The Radiation Safety Specialist position was reclassified as a Senior Radiation Safety Specialist. It is now an exempt position. We filled the open Sr. Radiation Safety Specialist Position on 11/29/2021.
  - ii. Provided technical support for Zeanah Engineering Complex- Physical source moves, updating RSC permitted activities, work with faculty on new TN permits, develop or update training programs, laboratory set-ups. Tasks included writing and submitting Certified Registration for Linatron Linear Accelerator.
- c. Administration
  - i. Created structured FLS and IWS 5-Year Maturity Models.
  - ii. Conducted system compliance audit of Occupational Health Management Program.
  - iii. Prepared Compliance Audit Risk Mitigation Plans for IWS, OHM, FLS.
- d. Provided below is a summary of UTK hazardous waste disposed in CY 2021:
  - i. The university is comprised of five hazardous waste locations, each with its own EPA identification number. These locations are:
    - Main Campus – designated as a Large Quantity Generator of hazardous waste and a Small Quantity Handler of Universal Waste.
    - Facilities Services – designated as a Very Small Quantity Generator and a Small Quantity Handler of Universal Waste.



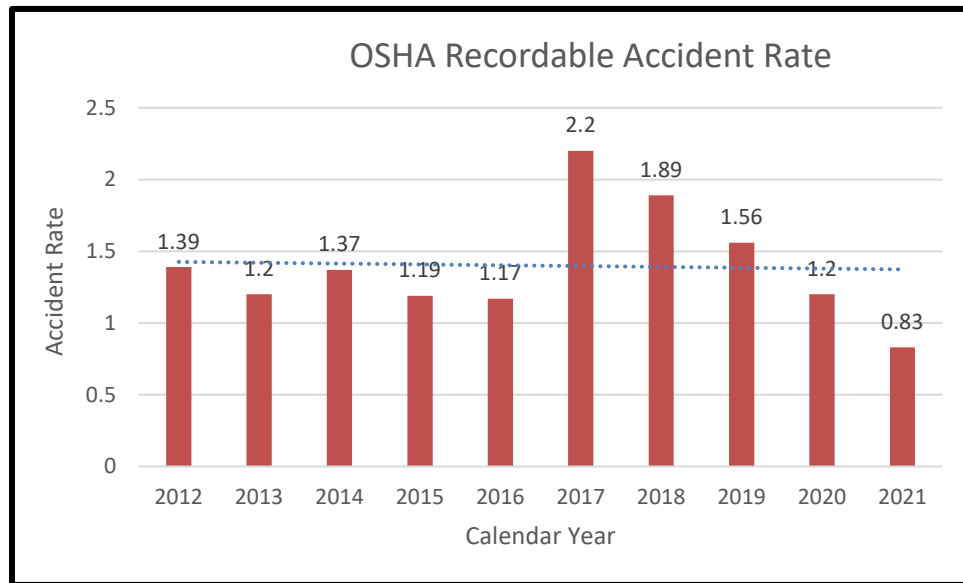
### 3. Accident/Incident Rate Analysis

Analyze accident/incident severity rates and/or numbers and compare with previous years.

The chart below illustrates the number of lost workdays due to on-the-job accidents over the past 10 years. Calendar year 2021 had a decrease in lost workdays since 2020, from 490 to 294, resulting in a 40% decrease. This may be attributable to effects of the COVID-19 post-pandemic recovery in which many employees continued to work remotely. The university also experienced a drop in restricted days from 2,082 restricted workdays in 2020 to 880 in 2021. Overall, the university is trending downward for lost workdays over the past 10 years.



The chart below illustrates the trend in OSHA recordable accidents per 100 employees for the Knoxville campus. The University of Tennessee Knoxville had an incident rate of 0.83 for calendar year 2021, which is a drop from the 2020 incident rate of 1.2. We calculate the rate by multiplying the 64 OSHA recordable accidents by 200,000 and dividing by the 15,661,382 hours worked in 2021. The Bureau of Labor Statistics reports that the average incident rate for educational facilities is 1.9. Overall, the university is trending slightly downward for lost workdays over the past 10 years despite a spike in the rate in 2017.



4. **Significant Accidents and Incidents**

*TOSHA inspections, complaints and results of investigations.*

There were no complaints made to TOSHA or inspections made by TOSHA.

5. **Problems Relating to Safety and Health**

None other than those noted during the annual inspection.

6. **Annual Safety and Health Review Findings**

a. Annual Laboratory Inspections.

- i. There were 315 inspections, comprised of 1,100 spaces, completed. Of these, 98% of the findings were closed and/or corrective actions plans were adopted. This is 158% increase over 2020.
- ii. We adopted iAuditor to support the laboratory review process. We revised the associated laboratory review procedure and developed a comprehensive checklist. At this point, BioRAFT became officially retired.

b. CY2021 Peer Review. There was no peer review conducted in CY 2021 due to recovery activities underway post pandemic precautions. As part of our Safety Officers retreat in Nashville on June 16, 2021, we discussed the safety culture at each of our campuses which was assessed during the 2019 Peer. We were asked to follow up on the progress made at our campus with regard to the recommendations made in our peer review report and provide a report at the retreat. We took a survey to assess our progress on building a

safety culture at UTK. We scored a 49 on the survey which indicated that we were well on our way to creating a safety culture in your organization.

50 to 60	You have a solid understanding of the importance of safety in your organization
40 to 50	You are well on your way to creating a safety culture in your organization.
30 to 40	Your employees and your organization are at somewhat of a risk.
0 to 30	Your organization is at risk.

## 7. Additional Safety Program Information

**Hazardous Waste Management Inspection:** On June 8, 2021, Tennessee Department of Environment and Conservation (TDEC) conducted an unannounced hazardous waste management inspection. The inspection noted 8 violations with multiple instances. There were 9 university departments where violations were found. TDEC returned for a follow-up inspection on August 24, 2021, and noted additional and/or uncorrected instances for 6 of the 8 previously noted violations. TDEC returned again on December 9, 2021, and noted 2 of the 8 violations remained open due to corrective actions not being taken in three instances. At year's end, we were awaiting a determination from TDEC on fines for the violations.

<b>Violation</b>	<b>June 8, 2021 # Incidences</b>	<b>August 24, 2021 # Incidences</b>	<b>December 9, 2021 # Incidences</b>
Aisle Space in CAA <sup>1</sup>	1	-	-
Open containers in SAA <sup>2</sup>	12	7	2
Unmarked HW <sup>3</sup> containers	3	2	-
Hazard(s) not marked on waste labels	11	3	1
UW <sup>4</sup> – Batteries container unmarked	1	-	-
UW in open, unmarked containers	3	1	-
UW in unmarked containers	3	1	-
UW w/o accumulation start date	3	1	-

1. CAA – Central Accumulation Area
2. SAA – Satellite Accumulation Area
3. HW – Hazardous Waste
4. UW – Universal Waste



## 8. **Program Objectives for CY 2022**

- a. Continue on pace to add additional identified positions to your organizational chart for FY23 year. (carry over from 2021 goals).
- b. Construct a campus-wide fire drill program to deliver a minimum of 85% of all planned fire drills.
- c. Implement strategic risk reduction principles to reduce safety risks and environmental vulnerabilities.
- d. Sustain/improve lab safety review and findings mitigation process, with emphasis on LS-CHP completion, chemical inventory management, and hazardous waste management.
- e. Provide technical support to the Zeanah Engineering Complex: Developing safety programs and acquiring state permits for two neutron generators and linear accelerator in Zeanah Engineering Building. Two of the devices will be installed and desired operational in Spring 2022. The second neutron generator will be acquired and installed in fall 2022.