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October 23, 2017

Dr. Richard Benson, President,
Ms. Lisa Choate, Chair of the Institutional Audit Committee:

We have completed an audit of Lab Safety as part of our fiscal year 2017 Audit Plan, and the report is attached for your review. The objective of our audit was to provide assurance that the Lab Safety Program is effective to ensure compliance with applicable federal, state and local regulations.

Overall, the Lab Safety Program is effective to ensure compliance with applicable federal, state, and local regulations. However, while many improvements have been made, there are opportunities to enhance existing controls within the program. The attached report details recommendations related to chemical and controlled substances, laboratory inspections, training, the occupational health and safety program, and disaster recovery processes in laboratories.

Management has reviewed the recommendations and has provided responses and anticipated implementation dates. Though management is responsible for implementing the course of action outlined in the response, we will follow up on the status of implementation subsequent to the anticipated implementation dates. We appreciate the courtesies and considerations extended to us during our engagement. Please let me know if you have any questions or comments regarding this audit.

Toni Stephens, CPA, CIA, CRMA
Chief Audit Executive

Executive Summary

Audit Objective and Scope

To provide assurance that the Lab Safety Program is effective to ensure compliance with applicable federal, state and local regulations. The audit scope covered fiscal year 2017 (FY17) operations to date.

Conclusion

Overall, the Lab Safety Program is effective to ensure compliance with applicable federal, state, and local regulations. However, while many improvements have been made, there are opportunities to enhance existing controls within the program.

Audit Recommendations by Risk Level

Recommendation	Risk Level	Estimated Implementation Date
(1) Improve Disaster Recovery Planning for Research	**High**	**January 2018**
(2) Enhance Chemical and Controlled Substance Controls	**Medium**	**March 2018**
(3) Enhance Inspection Controls	**Medium**	**January 2018**
(4) Implement a Comprehensive Occupational Health and Safety Program	**Medium**	**September 2018**
(5) Expand Training and Enhance Monitoring	**Medium**	**January 2018**
(6) Improve Communication	**Medium**	**Office or Research:** **December 2017** **Environmental Health & Safety:** **December 2018**
(7) Enhance Hazardous Waste Controls	**Medium**	**May 2018**
(8) Review Access Controls for ChemTracker and BioRAFT	**Medium**	**February 2018**
(9) Enhance Lab Establishment and Closeout Procedures	**Low**	**December 2017**
Prior Audit Recommendations: 1. Update Policies and Procedures 2. Enhance Safety Compliance with Labs	**Medium**	***Included in recommendations 2, 3, 5, and 6***

Responsible Vice Presidents

- Rafael Martin, Interim Vice President for Research
- Dr. Calvin Jamison, Vice President for Administration

Responsible Parties

Office of Research Compliance

- Sanaz Okhovat, Assistant Vice President for Research Compliance
- Shane Solis, Assistant Director, Lab Safety
- Dorian Evans, Manager – Environmental & Hazardous Waste Programs

Environmental Health & Safety

- David Liner, Director of Environmental Health & Safety
- Mariah Armitage, Director, Emergency Management and Continuity Planning

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Report Distribution

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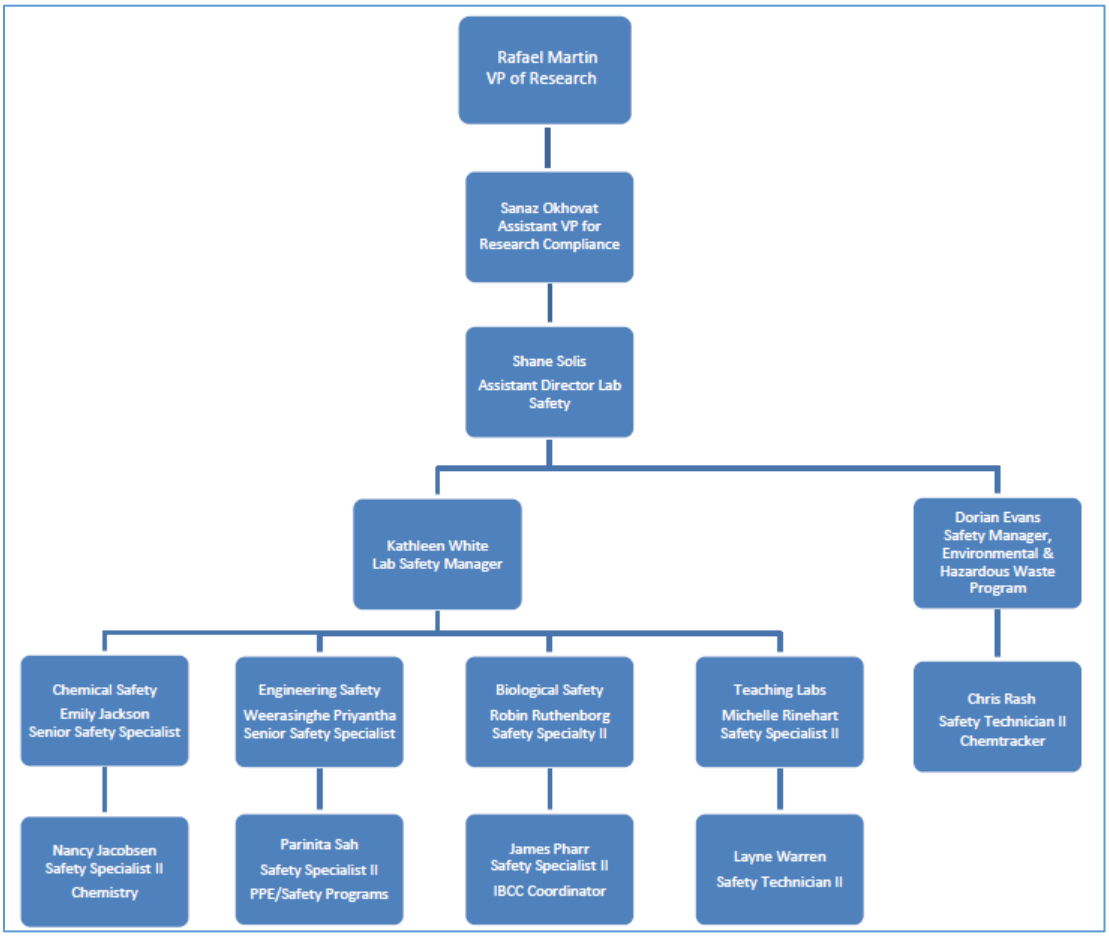
Background

In December 2015, UT Dallas transferred the Laboratory Safety and Hazardous Waste Management functions from Environmental Health and Safety (EHS) to the Office of Research Compliance, a department within the Office of Research. Occupational Health and Safety remained with EHS and reports to the Vice President for Administration. The Office of Research does not conduct research itself but fosters it through research compliance, training, assistance in obtaining and managing sponsored projects, proposal developments, and post-award management.[1]

The Lab Safety Team, reports to the Assistant Vice President for Research Compliance and is strategically located across UT Dallas research facilities according to their specialty (Chemical Safety, Biological Safety, Engineering Safety, Hazardous Waste, etc.). This team is responsible for the oversight of academically oriented workshops, research, and teaching labs.

Lab Safety Organization Structure



[1] https://research.utdallas.edu/

The institution currently has 137 active research and 35 teaching labs, based on information provided by Lab Safety personnel. For oversight of these labs BioRAFT, is utilized to register labs, assign staff member lab location, deliver safety training, and communicate results of inspections with Principal Investigators (PI). Additionally, Lab Safety implemented the use of ChemTracker as a system to maintain an active inventory of chemical substances across campus. In March 2017[2], BioRAFT announced its purchase of ChemTracker and its plans to integrate it with the current BioRAFT system. UT Dallas will be an early adopter of the newly integrated chemical inventory system with BioRAFT.

Numerous federal and state regulations exist governing lab safety. Noncompliance with these regulations could result not only in a loss of funding and substantial fines to the University, but also injuries, illness, or death to members of the campus community. Therefore, lab safety is considered a high risk area to the university.

Audit Objective

To provide assurance that the Lab Safety Program is effective to ensure compliance with applicable federal, state and local regulations.

Scope and Methodology

The scope of this audit was FY17 operations, and our fieldwork concluded on September 19, 2017. To satisfy our objectives, we performed the following:

- Determined if processes were in place to ensure lab safety by testing the following:
    - Training was conducted
    - Inspections were performed
    - Instances of noncompliance were monitored by Safety Specialists
    - Access controls were in place
    - Chemical Inventories and Controlled Substances were tracked and secured.
    - Personal Protective Equipment, Safety Equipment, and Housekeeping controls were in place.
    - Hazardous waste was properly disposed
    - Disaster Recovery plans existed
- Determined if processes were in place to ensure the safe purchase and storage of hazardous chemicals and controlled substances.
- Determined if labs were properly opened and closed in accordance with existing policies and procedures.
- Determined if the hazardous waste program had a complete Contingency Plan.
- Ensured the hazardous waste program included appropriate training, inspections, and the collection of waste and associated documentation.

[2] http://www.prnewswire.com/news-releases/bioraft-acquires-chemtracker-ip-to-enhance-its-laboratory-safety-applications-300430510.html

- Determined if the processes for handling safety incidents, including Occupational Health & Safety, were proper and in accordance with applicable policies and procedures.
- Ensured that employees having access to BioRAFT and ChemTracker are properly authorized and have an appropriate level of separation of duties.

We conducted our examination in conformance with the guidelines set forth in The Institute of Internal Auditor's *International Standards for the Professional Practice of Internal Auditing*. The *Standards* are statements of core requirements for the professional practice of internal auditing.

Additionally, we conducted the audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Audit Results and Management's Responses

Strengths and Controls Noted during the Audit
ChemTracker has been implemented to track chemical inventories of research and teaching labs.
Lab Safety follows up on instances of non-compliance identified during inspections or post-incident assessments.
Lab Safety has implemented a formal lab close-out process.
The MAF (Material Accumulation Facility) is inspected weekly.

Additionally, management has made significant improvements to the Lab Safety program since the previous audit performed in fiscal year 2015. Although the above strengths and controls were noted, other opportunities to enhance operations and compliance are recommended below. Risk Levels are defined in Appendix 1. In addition, two recommendations from the previous Lab Safety audit were in progress at the time of the audit. See Appendix 2.

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
1. Improve Disaster Recovery Planning for Research *(High)* The university does not have an overall universal disaster recovery plan related to the reinstatement of lab operations.	Disaster Recovery and Business Continuity plans help an organization minimize disruption and provide guidance to reestablish core operations in the aftermath of a disaster. Without an institutional- wide lab disaster recovery plan, labs may be unfit for research operations to restart.	While individual labs may benefit from having their own disaster recovery plans, the university as a whole should have a uniform recovery plan to ensure resulting hazards have been resolved and labs are fit for the reinstatement of operations.	**Management's Response and Action Plan:** ***Office of Research:*** • *University Business Continuity Plans support the ongoing research and business operations should a catastrophic incident occur. Research laboratories create a unique*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
Institutional labs do not complete individual disaster recovery plans. Additionally, current departmental Business Continuity Plans do not include laboratory operations.			*challenge and the ability to create redundancy is untenable. Office of Research will develop and provide standard guidelines for laboratories to specifically outline methods to manage potential disasters.* • *Office of Research Compliance (ORC) will partner with each laboratory on campus to develop descriptive and instructional guidelines to include required procedures to manage laboratory hazards and research assets should a catastrophic disaster occur.* • *Instructional guidelines will be available in all laboratories and the Office of Research Compliance website.* ***Environmental Health & Safety:*** *The Office of Emergency Management and Continuity Planning will continue to collaborate with the Office of Research Compliance to address laboratory continuity planning and disaster recovery operations. All of the following research continuity plans will continue to be reviewed and updated annually; new continuity plans will be developed through EH&S and Office of Research collaboration as needed:* *- VPR: Animal Care Facility*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			- *VPR: Office of Sponsored Projects* - *VPR: Venture Development Center* **Estimated Date of Implementation:** ***Office of Research:*** *January 2018* **Person Responsible for Implementation:** ***Office of Research:*** *Shane Solis – Director, Laboratory Safety* ***Environmental Health & Safety:*** *Mariah Armitage – Director, Emergency Management and Continuity Planning*
2. Enhance Chemical and Controlled Substance Controls *(Medium)* **A)** Lab Safety does not review all chemical or controlled substance requisitions prior to purchase. Central Receiving is not provided a listing of expected chemical, hazardous, or controlled substance purchases to set-aside for barcoding or special delivery. **B)** Monitoring of CleanRoom and DEA controlled substances is limited as these are not tracked within ChemTracker. Additionally, ChemTracker inventories are not periodically	**A)** Lab Safety may be unaware of the specific hazardous items or quantities ordered. Delivery of chemicals prior to barcoding could cause inventories to be inaccurate. Additionally, controlled substances may be delivered to vacant labs or to unauthorized individuals breaking the chain of custody. **B)** CFATS requires that UT Dallas, as a whole, stay below a set threshold to avoid additional security protocols. Without centralized monitoring, it cannot ensure that UT Dallas is below the thresholds. **C)** Repeated instances of noncompliance by DEA	**A)** Continue to work with Procurement Management to ensure all applicable chemical, hazardous and controlled substances purchase requisitions are routed to Lab Safety for approval. Lab Safety and Procurement Management should work with Central Receiving to develop a method to identify shipments that include items needing ChemTracker barcoding or special delivery. **B)** Lab Safety should add Cleanroom and DEA controlled substances to ChemTracker inventories and implement periodic monitoring procedures.	**Management's Response and Action Plan:** • *ORC currently reviews purchases via system notifications from SciQuest. These reviews and any deficiencies are based on data provided by UTD's purchasing systems and procedures; ORC will continue to address this for necessity to provide a robust hazardous materials review.* • *Lab Safety has partnered with Procurement Management to update the notification process to include a broader list of accounting codes associated with materials and equipment purchases. These updates have*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
reviewed to ensure accuracy. Cleanroom housing Chemical Facility Anti-Terrorism Standards (CFATS) applicable inventory has not been monitored since December 2015. **C)** Instances of noncompliance with DEA controlled substance requirements were noted. Limited guidance is available to researchers regarding chemical and controlled substance purchasing, inventory tracking and DEA requirements.	license holders could lead to fines or loss of license.	**C)** Additional guidance regarding chemical and controlled substance purchasing, inventory tracking, and DEA requirements should be prepared and made available to researchers.	*significantly increased the notification rate. Lab Safety will continue to monitor notification rates to further improve this process.* • *Currently, UTD's purchased chemicals are labeled by the manufacturer. Lab Safety, with the support of Receiving and Procurement, is determining effective methods to accurately process purchased chemicals for identification and inventory.* • *Previous CFATS inventory was below reporting thresholds in 2015. The Cleanroom Staff reports all chemical purchases to Lab Safety on a regular basis via purchase requests but has not been included in the formal inventory process. The Cleanroom inventory will be incorporated into the BioRAFT-ChemTracker System which will require annual certification in BioRAFT.* • *Lab Safety will review current lab inventories and update ChemTracker/BioRAFT with listing of controlled substances. Controlled substance guidelines will be available for review. ORC website will include program tracking and*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			maintenance requirements. **Estimated Date of Implementation:** • ***Procurement Enhancements –*** *March 31, 2018* • ***Cleanroom and DEA inventories –*** *December 1, 2017* • ***Controlled Substance Web Pages –*** *November 1, 2017* **Person Responsible for Implementation:** *Shane Solis – Director, Laboratory Safety*
3. **Enhance Inspection Controls** *(Medium)* There are limitations to lab monitoring to ensure all labs are inspected in a timely manner. In addition, Lab Safety does not conduct DEA specific inspections on labs with controlled substances. Also, Lab Safety does not inspect the NSERL CleanRoom and does not monitor to ensure a knowledgeable 3rd party entity conducts inspections. Finally, UTD has some labs that are not inspected due to a designation of having a lack of hazards. However, no continues monitoring processes are in place to ensure these labs remain non-inspectable.	Lab Safety has the responsibility to ensure a safe research environment. Without regular inspections, noncompliant activities may go undiscovered and unsafe conditions may not be remediated.	Lab Safety should enhance monitoring of inspections to ensure all labs are inspected at least annually, conduct DEA specific inspections for applicable labs, and either inspect the Cleanroom or require Cleanroom inspectors to provide monitoring reports to them. Also, Lab Safety should document results of regular monitoring of non-inspectable labs to confirm the lack of hazards.	**Management's Response and Action Plan:** • *Currently, Lab Safety conducts inspections of laboratories with controlled substances as part of the general inspection process. A separate Controlled Substance inspection will be created in BioRAFT.* • *The UTD Cleanroom located in the RL building is currently inspected and managed by dedicated Cleanroom safety staff. ORC will schedule, conduct, and document formal safety inspections based on the risk factors associated with the space. UTD Cleanroom inspections will be documented and available for review in BioRAFT.*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			• *A complete list of laboratories is not available in BioRAFT due to the broad definition of "laboratory" in the eight Schools at UTD. Moreover, adding laboratories with "No Hazards" in BioRAFT creates data management challenges in the system. ORC supports the need for a full institutional laboratory review, therefore, we are in the process to develop an annual survey so each faculty can certify whether his or her laboratories includes physical, chemical, biological or radiological hazards with the results maintained in a data file.* **Estimated Date of Implementation:** • ***Controlled Substance Inspections*** *– November 1, 2017, quarterly ongoing* • ***Clean Room Inspections*** *– November 1, 2017, quarterly ongoing* • ***Faculty Lab Hazard Survey –*** *January 2018, Annually ongoing* **Person Responsible for Implementation:** • *Shane Solis – Director, Laboratory Safety – Implementation* • *Lab Safety Staff – Ongoing*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
4. Implement a Comprehensive Occupational Health and Safety Program *(Medium)* There is not a comprehensive Occupational Health and Safety program in place.	Lack of an Occupational Health and Safety Program could hamper efforts to decrease workplace injuries.	A formal Occupational Health and Safety Program should be implemented.	**Management's Response and Action Plan:** ***Office or Research:*** *The Office of Administration is responsible for the University Occupational Health and Safety Program (OHP). The Occupational Safety Program is a separate program under Environmental Health & Safety and typically includes support for facility workers (hearing & fall protection, worksite management, safety training), asbestos, industrial hygiene, indoor air quality, shop safety, ergonomics, respiratory protection.* *ORC will continue to actively participate in the development and implementation of the University OHP.* ***Environmental Health & Safety:*** *An occupational health program is in the final developmental stages. This program will offer a proactive approach to health and safety education, awareness and training to our campus community through services such as medical screenings, surveillance, immunizations, travel consults, and hearing tests. A partnership between The University of Texas at Dallas (UT Dallas) and UT Southwestern Medical Center (UTSW) will enrich our current health and wellness programs and*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			offer centralized occupational health care to our campus community. **Estimated Date of Implementation:** ***Office of Research:*** *Contract under review* ***Environmental Health & Safety:*** *September 1, 2018* **Person Responsible for Implementation:** ***Office of Research:*** • *Shane Solis – Director, Laboratory Safety* ***Environmental Health & Safety:*** • *David Liner – Director, Environmental Health & Safety* • *Rashni Kalyanasundaram – Manager, Environmental Health & Safety*
5. Expand Training and Enhance Monitoring *(Medium)* Overall, not all applicable individuals are completing assigned training. Lab Safety does not monitor in-person training conducted by course instructors in Teaching Labs. Additionally, there is no standardization of minimum lab safety practices that must be covered.	The risk of injury or illness to campus and/or damage to university property in labs would increase due to a lack of or inadequate safety training. The risk of noncompliance with DEA regulations increases if covered individuals are not trained properly on their responsibilities leading to potential fines or loss licenses.	Procedures should be implemented to ensure all applicable individuals are successfully completing required safety training. Minimum training standards should be formalized and monitored to ensure students within teaching labs receive adequate and contestant safety training. Controlled Substances related training should be developed and provided to applicable individuals.	**Management's Response and Action Plan:** • *The completion rate for safety training courses for registered lab personnel is 95.01%. Completion of training modules by laboratory personnel is the responsibility of the faculty. Lab Safety will continue to monitor training and communicate deficiencies directly with faculty members and lab personnel. Each faculty member will receive a*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
BioRAFT does not have a training course specific to DEA controlled substance regulations. Additionally, in-person DEA training only educated a portion of authorized users.			*training scorecard which will include the training completion rate for his or her lab. The scorecard can be provided to department heads and/or deans for transparency and reinforcement.* • *Safety training is currently conducted by the Senior Lecturers for the laboratory sessions of Biology and Chemistry courses. Lab Safety will implement a baseline safety course the following courses: CHEM and BIOL; ARTS 2381; 3378; 4386; and PHYS 4373. Courses will be available on BioRAFT or eLearning and will include core safety topics. Records of completion will be maintained in BioRAFT or eLearning.* • *An updated online Controlled Substance training was under development at the time of this audit. The training course will be available in BioRAFT to authorized and non-authorized users of laboratories with access to controlled substances.* **Estimated Date of Implementation:** • ***Training Scorecard*** *- Q218* • ***Teaching lab Safety Training*** *- January 15, 2018*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			• ***Controlled Substance Training*** *– October 15, 2017* **Person Responsible for Implementation:** *Shane Solis – Director, Laboratory Safety*
6. Improve Communication *(Medium)* Per Executive Order, lab safety duties were transitioned from EHS to the Office of Research Compliance. However, elements related to lab safety and hazardous waste (e.g. training and manuals) can be found on both departmental websites. There is limited communication between Lab Safety and EHS personnel regarding incidents on campus that may not have resulted in bodily harm to an individual. No structured training or formal policy is in place for faculty and staff regarding the handling of safety incidents.	Overlapping information on departmental websites could confuse the campus community. Without adequate communication of all lab incidents, the two departments may not work as effectively to prevent larger incidents or systematic issues from occurring. Lack of guidance may lead to confusion or delays among faculty and staff during lab incidents.	Departmental websites should be revised to fully reflect the division of responsibility documented within the Executive Order. Lab Safety and EHS should enhance communication regarding safety incidents occurring on campus (even if the incident may not have led to injury). Training materials and resources related to the proper handling of lab safety incidents should be enhanced.	**Management's Response and Action Plan:** ***Office of Research:*** • *ORC Lab Safety web pages are currently being updated to reflect the programs supported by the department. EH&S should be directed to update their pages accordingly.* • *ORC is in communication with EH&S regarding incident management and incidents are currently reported to EH&S. Process flows for reporting will likely be updated once the Occupational Health Program is implemented.* • *ORC will continue to work with EH&S on laboratory and training materials to adequately address incident procedures at UTD.* ***Environmental Health & Safety:*** *Environmental Health and Safety and the Office of Research Compliance meets quarterly to enhance communication. Additionall y, both areas are collaborating on projects to*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			ensure seamless coordination on safety and response efforts. Ongoing efforts will continued to improve and clarify information of each department's website. Duplicate information on websites can be helpful to campus stakeholders who might not be familiar with each department's website. Thus overlap in some areas is beneficial. *Workers' compensation flow charts and other procedures have been implemented and campus outreach for the program began this summer with several presentations. This is an ongoing effort. EHS continues to enhance efforts in collaboration with ORC to encourage timely reporting for all safety related incidents on campus.* **Estimated Date of Implementation:** ***Office of Research:*** • ***Webpage Updates –*** *December 1, 2017* • ***Incident Reporting Updates*** *– Occupational Health Program TBD* • ***Updated Incident Training with EH&S materials –*** *December 1, 2017* ***Environmental Health & Safety:*** *December 2018* **Person Responsible for Implementation:**

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			Office of Research: *Shane Solis – Director, Laboratory Safety* ***Environmental Health & Safety:*** *EHS and ORC Staff.*
7. **Enhance Hazardous Waste Controls** *(Medium)* The Hazardous Waste Contingency Plan was last updated in March 2016, has not been tested with emergency responders, and does not include all elements required.	Noncompliance with standards applicable to Environmental Protection Agency (EPA) Generators of Hazardous Waste (40 CFR 262[3]) could result in fines.	The Hazardous Waste Contingency Plan should be periodically updated and tested to ensure all required elements are included and accurate.	**Management's Response and Action Plan:** • *A Contingency Plan requires off-site emergency responders to gain knowledge of a facility's floor plan, and the types of hazardous waste stored within the laboratory. Lab Safety met with TCEQ Emergency Response and the Richardson Fire Department in August 2017 to survey the campus. We focused on waste location facility and building with highest concentrations of laboratories.* • *This meeting also included a review of emergency and Lab Safety operations. Lab Safety will continue its partnership with EH&S Emergency Management and participate in tabletop and onsite scenarios to continually improve emergency response.* • *Lab Safety is negotiating contracts with local response companies, including SWS Environmental Services*

[3] https://www.epa.gov/sites/production/files/2014-12/documents/gen05.pdf

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			and SET Environmental, Inc., for spill and emergency response. MOUs are in place with the City of Richardson and City of Dallas stating that the City of Richardson will be the primary responding authority. • *As noted in this audit, locations and capabilities of spill control and decontamination equipment were not listed in the plan. However, the plan did include the list of emergency equipment, including but not limited to: fire extinguishing systems; spill control equipment; communications; and alarm systems. Each building floor plan displays locations of fire extinguishers and pull stations. Lab Safety will update each floor plan to include the list emergency response equipment, location, physical description and a brief description of its capability.* • *In May 2017, the EPA implemented the Hazardous Waste Generator Improvement Rules, these federal guidelines have not been adopted by Texas. Lab Safety is revising UTD's Contingency Plan, the implementation of the plan will depend on State*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			of Texas decision on adopting the federal requirements. Annual reviews for the plan were completed in Q3 and updates are made when necessary. An amendment in March 2016 included an update to emergency contacts. **Estimated Date of Implementation:** • *In response to this audit, Lab Safety revised the Contingency Plan to bring institution in full compliance with the State regulations.* • *Re-implementation is projected for May 2018 and/or after the State has finalized its decision on adopting the federal regulations.* **Person Responsible for Implementation:** *Dorian Evans, Manager – Environmental & Hazardous Waste Programs*
8. Review Access Controls for ChemTracker and BioRAFT *(Medium)* Individuals no longer associated with the university or a specific lab still have active lab accounts within ChemTracker and BioRAFT.	ChemTracker users with modify access can delete or add items within a lab's inventory and change item locations. Intentional or unintentional changes to inventories could impact the accuracy of the University's overall chemical inventory. Shared accounts decrease the ability to determine which specific individual	The current lab roster confirmation process for ChemTracker and BioRAFT should be reevaluated. Consider the elimination of shared accounts. *[Note: As BioRAFT has recently purchased ChemTracker, many of the issues with shared accounts may be resolved with proposed system integration.]*	**Management's Response and Action Plan:** • *ChemTracker and BioRAFT have recently merged. The integration and implementation of this merger is in progress. As a result, roster redundancy across two systems will be soon be void.*

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
ChemTracker has multiple shared user accounts[4] that may be distributed at the Principal Investigator's (PI) discretion. Principal Investigators are not required to certify their lab user access listing for ChemTracker. Additionally, a comprehensive comparison of users between BioRAFT and ChemTracker has not occurred.	made changes to an inventory. Additionally, these accounts make it difficult to track who and how many individuals have access to a lab's inventory. If BioRAFT lab rosters are inaccurate, then the accurate assignment of safety training could be impacted.	Consider having PI's certify user access listings on a periodic basis.	• *Currently, the BioRAFT system is integrated with the UTD LDAP system, which allows for seamless log-in with user identifiers based on his or her NetID. Since personnel are not automatically expunged from the LDAP in real-time, there is a delay with user updates in BioRAFT. Lab Safety is working with OIT to resolve this issue.* • *Currently, BioRAFT notifies PI's to certify memberships every 90 days; frequent notifications are unnecessary and ineffective. Lab Safety will continue outreach programs to educate faculty and emphasis the importance of current membership rosters. Additionally, Lab Safety will also send notifications at start and end of each semester to strengthen the message.* **Estimated Date of Implementation:** ***OIT solution –*** *January 31, 2018* ***Faculty prompts –*** *December 2017 – End of Semester* **Person Responsible for Implementation:**

[4] https://www.utdallas.edu/infosecurity/files/Account-Management-Standard.pdf

Observation and Risk Level	Risk/Effect	Recommendation	Management's Action Plan
			Shane Solis – Director, Laboratory Safety
9. **Enhance Lab Establishment and Closeout Procedures** *(Low)* No formal lab establishment procedures are in place. Dean signature approval was missing from reviewed lab closeout checklists.	With limited guidance, researchers may not fully understand Lab Safety's expectations for lab establishment. Outstanding approvals can result in the untimely closing of labs within the University's system of record (BioRAFT).	A formal lab establishment process should be implemented. The current closeout checklist process requiring the Dean's signature should be reevaluated. If Dean approval is deemed required, then Lab Safety should enhance the current approval process to ensure timely closure of labs.	**Management's Response and Action Plan:** *Laboratory setup and closeout procedures will be available on ORC's Lab Safety website. The closeout procedures will be revised to include a Dean's Signature when a Department Head is in the process of a laboratory closeout.* **Estimated Date of Implementation:** *December 1, 2017* **Person Responsible for Implementation:** *Shane Solis – Director, Laboratory Safety*

Conclusion

Overall, the Lab Safety Program is effective to ensure compliance with applicable federal, state, and local regulations. However, while many improvements have been made, there are opportunities to enhance existing controls within the program.

We appreciate the courtesy and cooperation received from the management and staff in the Office of Research Compliance as well as Environmental Health and Safety as part of this audit.

Appendix 1: Priority Findings and Risk Matrix

Definition of Risks

Risk Level	Definition
Priority	High probability of occurrence that would significantly impact UT System and/or UT Dallas. Reported to UT System Audit, Compliance, and Management Review Committee (ACMRC). Priority findings reported to the ACMRC are defined as "*an issue identified by an internal audit that, if not addressed timely, could directly impact achievement of a strategic or important operational objective of a UT institution or the UT System as a whole.*"
High	Risks are considered to be substantially undesirable and pose a moderate to significant level of exposure to UT Dallas operations. Without appropriate controls, the risk will happen on a consistent basis.
Medium	The risks are considered to be undesirable and could moderately expose UT Dallas. Without appropriate controls, the risk will occur some of the time.
Low	Low probability of various risk factors occurring. Even with no controls, the exposure to UT Dallas will be minimal.

Appendix 2: Status of Prior Audit Recommendations

The following is the status of implementation of the recommendations that have yet to be implemented, resulting from Internal Audit Report No. R1516, *Lab Safety*, dated May 28, 2015.

Recommendation	Management's Response of Current Status	Revised Implementation Date
Update Policies & Procedures EHS (Now Lab Safety) should update their procedures and ensure that periodic updates are scheduled in the future.	**In Progress**	Lab Safety procedures will be updated and posted on the Office of Research Compliance Lab Safety web pages listed in the current audit findings (December 1, 2017). Procedures will be reviewed annually and updated as needed.
Enhance Safety Compliance within Labs The hazardous inventory management process should be improved by ensuring inventories are continuously updated in a timely manner. The safety compliance process for labs should be improved to ensure adequate training and communication.	**In Progress**	ChemTracker (now BioRAFT) chemical inventory management system is implemented. Inventories are updated upon receipt of materials and when the materials are used/disposed. Additional updates to certification of inventories, training and communication are documented in the current audit findings.