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Provost (Interim)		
Chief Administrative Officer Office of the VP of Administration		
Dr. Phaedra Corso Vice President for Research/Professor of Health Policy for the Office of Research		
Stephen Ndiritu Director, Environmental Health & Safety		
Rodrick Esaw Sr. Research Safety and Biosafety Officer Environmental Health & Safety		

Dr. Ian Ferguson

Contact Information

Environmental Health and Safety (EHS) Department Laboratory spills or accidents involving chemicals and/or biological materials; Chemical Hygiene Plan; regulatory permits (e.g., USDA, APHIS, controlled substances, radioactive materials, etc.); biological agents; chemical fume hoods; biological safety cabinet certifications; inspections of academic and research laboratories; and chemical and biological materials	Phone: 470-578-3321 After Hours: 678-449-7693 Email: ehs@kennesaw.edu Web: ehs.kennesaw.edu

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Table of Contents

1. Purpose

The purpose of the Chemical Hygiene and Safety Program (CHSP) is to minimize the potential for KSU employees to be exposed to hazardous chemicals through the provision of basic health and safety information regarding the safe handling, use, and storage of hazardous chemicals in laboratories, in compliance with the requirements of OSHA's standard for Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450).

2. Scope

The program applies to all laboratories owned, leased, or operated by KSU. The Program covers all faculty, staff, students, contractors, and other personnel at KSU, or those under the management or control of KSU.

The workspaces covered under this CHSP include, but are not limited to, research labs, teaching labs, chemical stock rooms, chemical storage areas, art studios, engineering and wood working shops, and all other areas where chemicals are used on a non-production or non-manufacturing scale. In addition, these separate workspaces can encompass an entire room or portions of rooms that are shared with other groups.

3. Definitions

a. **Chematix** – The web-based chemical management and inventory system used by KSU and other University System of Georgia (USG) universities.
b. **Combustible liquid** – A liquid which can be ignited, but whose flashpoint is 100

- Conduct a job hazard a

- As liaison with safety committees, assist PIs, instructors, laboratory coordinators, and laboratory supervisors in performing and documenting hazard assessments for existing cooios b2w 4.73

- Wash hands thoroughly with soap and water after handling chemicals and removing gloves.
- Do not eat, drink, smoke, chew gum, insert or remove contact lenses, or apply cosmetics while in the laboratories or laboratory areas.
- Never taste or sniff chemicals; do not pipette or siphon chemicals by mouth.
- Confine long hair and loose clothing, jewelry, etc., to avoid contacting chemicals or being entangled in machines and equipment.

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A. Appropriate Laboratory Attire

7. Chemical Procurement, Transportation, and Inventory

A. Procurement

1. Purchasing Chemicals

All laboratory chemicals must be purchased through the University Procurement System. Chemicals may be purchased using a University issued P-Card, ePro, or OwlPay. However,

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for compliance with BOR (Board of Regents) reporting requirements. A well-maintained chemical inventory can also aid in management of business and research needs of the laboratory.

It is the responsibility of PIs, laboratory supervisors, laboratory coordinators, and laboratory managers to ensure that laboratories under their purview develop and maintain accurate and up-to-date chemical inventories. Chemical inventories must be reconciled at least semiannually (July and December).

8. Chemical Hazards and Hazard Assessments

A. Hazardous Chemicals

A hazardous chemical is any element, chemical compound, or mixture of elements and/or compounds which is a physical or a health hazard (OSHA, 29 CFR 1910.1200).

1. Physical Hazards

A chemical is a physical hazard if it possesses flammable, combustible, explosive, oxidizing, self-heating, corrosive to metal, pyrophoric, or self-reactive properties, if it is an organic peroxide or compressed gas, or if it emits flammable gas when in contact with water (OSHA, 29 CFR 1910.1200).

2. Health Hazards

A chemical is a health hazard if it produces acute toxicity (any route of exposure), skin

and beryllium compounds; chromium

PIs, instructors, laboratory supervisors, and laboratory coordinators must be aware of and approve the work performed under their purview and must ensure that appropriate hazard assessments are conducted in their work areas.

EHS may be consulted to provide assistance and guidance for performing the hazard assessments.

Once all the hazards have been identified, risk should be evaluated based on the perceived severity of the hazard and the likelihood of occurrence of adverse effects or events. Actions must be taken to eliminate hazard or control risk associated with hazards that cannot be controlled to mitigate potential injuries and illnesses, damage to University properties, or environmental impacts.

Risk can be assessed using several tools, including the JHA

- Using volatile toxic substances
- Using PHSs
- Generating particulates, such as dust, or liquid aerosols of even moderately toxic chemicals
- Using odiferous compounds
- Creating chemical reactions or syntheses that produce harmful vapors
  ***Caution: Operations involving heating or evaporating perchloric acid is not allowed at KSU without special controls, such as the use of a perchloric acid CFH, which is not currently available on the Kennesaw or Marietta campuses.**
- Diluting concentrated acids and bases
- Discharging hazardous gases and vapors from vacuum pumps and distillation columns

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If local exhaust ventilation is not available or conducting such procedures under local exhaust ventilation is not feasible, a hazard assessment will be conducted to determine if point source ventilation (i.e. - snorkel exhaust) is needed. Generally, all substances with a permissible exposure limit (PEL)/threshold limit value (TLV) of 50 ppm or less and all particularly hazardous substances (carcinogens, highly toxic and reproductive and developmental toxins) must be handled under local exhaust ventilation (National Research Council, 2011).

Laboratory HVAC systems must provide 100% outside air as make-up air to laboratory spaces. In other words, no recirculation of air is allowed.

All laboratory spaces must maintain negative directional airflow relative to the adjacent offices, hallways, and service corridors

- Air or water reactive materials

2. Use of Respirators

Respirators must be used in accordance with KSU's *Respiratory Protection Program* (EOSMS-208). All employees required to use respirators must be deemed medically fit by a physician, trained in respiratory protection, and fit tested to wear respiratory protection equipment. Any questions regarding the need for or use of respirators should be directed to the EHS department.

Any employee who voluntarily wears a respirator must be provided equi dspeedi fors shoe (.)]TJr1.3 (e EH)

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E. Use of Glassware

Use adequate hand protection when inserting glass tubing into rubber stoppers or corks or when placing rubber tubing on glass hose connections. Tubing should be fire polished or

- All containers to which hazardous materials are transferred should be labeled with the identity of the substance (full chemical name; no abbreviations or chemical formulas) and the associated hazard(s) (e.g., corrosive, flammable, health hazard).
- Inspect containers of peroxide-forming chemicals periodically for crystal formation,

	• Dispose of (or recycle) prior to expiration date. • Call EHS for assistance in disposing of the material. • Store in trays large enough to hold the contents of the bottles. • Store peroxide-forming materials away from heat and light. • Store liquid organic peroxides at the lowest possible temperature consistent with the solubility or freezing point. Liquid peroxides are particularly sensitive during phase changes. • Inspect peroxide-forming chemicals periodically for crystal formation, deterioration, and container integrity. • Store water-reactive materials away from possible contact with water. • Store thermally unstable materials in approved refrigerator. • Store shock or pressure sensitive materials or larger amounts of explosive materials in explosion relief boxes. • Restrict access to the areas where highly reactive materials are stored.
Toxic Chemicals	• Store chemicals known to be highly toxic (including carcinogens) in ventilated storage in unbreakable, chemically resistant secondary containers. • Keep working chemical quantities at the lowest amount possible. • Label storage areas with app iTd(ti)-7 (ti)6.3 (e)-10.3 (s)-18nsss aoage t 2al g/Ce49s6(v)-7

Water-reactive	X	X	X

speed electrons, high-speed protons, and other particles capable of producing ions." It contains enough energy to displace (remove) electrons from atoms or molecules, which may lead to changes in living tissue. Due to these properties, ionizing radiation has benefits when used properly (e.g., radiation therapy, nuclear medicine) but can also be harmful if misused. Therefore, the possession, use, storage, and disposal of radioactive materials is strictly regulated by the NRC and the State of Georgia. Both entities require provisions to be made to ensure that all doses of ionizing radiation are maintained "as low as reasonably achievable (ALARA)," which means protective measures must be put in place to protect KSU employees and students from excess exposure to ionizing radiation. This will be accomplished by employing the ALARA principle through the implementation of administrative and engineering controls, the use of safe work practices, and the use of PPE. For additional guidance on the safe use of radioactive materials, refer to the *Radiation Safety Program* (EOSMS-206) document.

1. Radiation Safety Committee

The KSU Radiation Safety Committee (RSC) was established through the Office of Research to provide oversight for the use of ionizing radiation in accordance with Georgia Department of Natural Resources' *Rules and Regulations for Radioactive Materials, Chapter 391-3-17*. In addition to ionizing radiation, the RSC will also provide oversight for forms on non-ionizing radiation, including lasers, radiofrequency waves, and machine produced radiation.

C. Laser Devices and Systems

Laser devices and laser systems produce non-ionizing radiant energy by stimulated emission and are used for multiple applications in research. Lasers are separated into four main classes: Class 1, Class 2, Class 3, and Class 4. Lasers that fall into Class 1 and Class 2 are safe overall and do not require safety measures to prevent accidents or injury. However, lasers that are classified as Class 3(B) or Class 4 can cause a range of adverse outcomes, including, but not limited to, eye and skin injuries, damage to property, and fires. Therefore, control measures must be implemented to minimize the possibility of adverse outcomes related to the use of Class 3B and Class 4 lasers.

KSU's *Laser Safety Program* (EOSMS-205) was developed in accordance with the ANSI Z136.1, *American National Standard for the Safe Use of Lasers* and aims to minimize all potential eye and skin injuries and other laser related incidents that could result from the use of Class 3B and Class 4 lasers. Meeting this Standard will be accomplished through conducting hazard assessments; ensuring all end users have been trained in laser safety; the use of administrative controls, engineering controls, and

- Follow all instructions for use outlined in the manufacturer's instruction manual.
- Ensure that the rotor is properly seated on the drive shaft inside the unit.
- Ensure that sample tubes or buckets are properly balanced in the rotor.
- Check O-rings on the rotor; anyone completing this task must be properly trained.
- Apply vacuum grease in accord with the manufacturer's guidelines.
- Do not exceed the rotor's maximum run speed.
- Store the rotor upside down in a dry place, with lids or plugs removed, to prevent condensation.
- Remove adapters after use and inspect for corrosion.
- Inspect the rotor regularly. Remove rotors from use that show any sign of defect and report it to a manufacturer's representative for inspection.
- Keep a logbook for high-speed and ultracentrifuge rotors, recording the length of time and speed for each use.
- Track and discard rotors according to the manufacturer's recommended schedule.

F. Rotary Evaporators

Rotary evaporators (rotovaps) are used in some laboratories (e.g., organic chemistry laboratories) as a means of removing solvents from reaction mixtures through evaporation. These devices consist of a condenser and a round collection flask (both made of glass), heated water bath, a motor that rotates the flask in the water bath, and a pump that serves as the vacuum system. Follow the appropriate SOPs for rotovap use. The following should be considered when using rotovaps:

- The rotovap has a rotating motor that can operate at up to 220 revolutions per minute (rpm).
  - Avoid moving parts when possible.
  - Avoid wearing long hair down and wearing loose clothing and jewelry such as necklaces. These can become entangled and cause the user to be pulled into the apparatus, which could result in the breakage of glassware, burns, and chemical exposure.
- Avoid using air and water sensitive materials,

- Fire or explosion – Caused when cryogenic materials such as oxygen and hydrogen combined in air with flammable gases. An ignition source such as a spark or flame could ignite the mixture.

When using cryogenic liquids, remember the following:

- Containers must be able to withstand extreme cold temperatures without becoming brittle or weakened.
- Cylinders containing cryogens must be equipped with pressure release valves or burst discs.
- Store cylinders and use liquids in a well-ventilated area.
- When handling, wear PPE that protects against splashing and extreme cold temperatures (e.g., thermal gloves, splash goggles, long sleeves, laboratory coats).
- When transferring from one container to another, always pour slowly to prevent splashing or boiling.
- Never overfill vessels or containers with cryogenic liquids to avoid rupturing (rapid expansion of gas).

H. Compressed Gases

Compressed gases have a wide range of hazard potential; the gases can be inert, oxidizing, corrosive, flammable, or toxic. The chemical hazards can result in several effects, including, but not limited to, fire, explosion, chemical burns, and asphyxiation. Regardless of what chemicals are contained, compressed gas cylinders are all under extreme pressure, which adds a physical hazard to all compressed gases. If not handled safely, compressed gas cylinders become potential gas propelled missiles that are capable of penetrating concrete s

- If a gas cylinder must be moved, always use an appropriate hand truck equipped with a chain or strap for securing the cylinder, even if moving only a short distance.
- Do not allow compressed gas cylinders to strike against each other or against other hard surfaces violently.
- Never use cylinders as rollers for moving other equipment.
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electrocution, and ultimately death. LOTO involves shutting down equipment and isolating their energy sources to prevent this unexpected exposure. Isolation of energy sources is done by locking it in place in the "off" position with a physical lock and attaching a visible tag that reads "Do Not Operate, Equipment Locked Out," "This Equipment Has Been Locked Out," or other similar verbiage. To prevent accidents involving hazardous energy, consider the following:

- Recognize when equipment has been locked and tagged out; adhere to all hazard warning signs.
- Do not attempt to operate equipment that has been locked and tagged out.
- Do not remove the visible tag from the energy source.
- Do not attempt to remove the lock from the energy source.

L. Slips, Trips, and Falls

Slip, trip, and fall injuries usually occur due to a person walking across a surface that is wet or slippery, or from tripping over an uneven surface or something in the floor. To prevent slips, trips, and falls in the laboratory environment, the following measures must be taken:

- Clean up all spills immediately; if possible, position a "Wet Floor" sign over wet areas after cleaning.
- Do not leave boxes and other obstructions in walking areas.
- Do not stretch wires, extension cords, ethernet cords, etc. across walking areas; if this cannot be avoided, use duct tape to secure them to the floor.
- Be aware of uneven walking surfaces and eliminate them when possible.
- If using stairs, hold on to handrails. Ideally, a person should always have a free hand

remove combustible materials from the area. For larger fires, call the KSU emergency number or 911 immediately.
- Provide emergency personnel with as much information as possible about the nature of the hazard.

In case of medical emergency, remain calm and do only what is necessary to protect life.

- Summon medical help immediately by calling KSU Police by dialing 470-578-6666 (or extension 6666 from a KSU phone).
- Do not move an injured person unless the individual is in danger of further harm.
- If clothing is on fire and a safety shower is immediately available, douse the person with water. If a safety shower is not immediately available, move the person to the floor and roll them around or use a fire blanket to smother the flames. Once the flames are extinguished, escort the victim to the nearest emergency shower, activate, and drench with water.
- If harmful chemicals have been spilled on the body, flood the exposed area with sufficient running water from the safety shower and immediately remove any contaminated clothing.
- If a chemical has splashed into the eye, immediately wash the eyeball and the inner surface of the eyelid with plenty of water for 15 minutes. All eye exposures require a medical evaluation.
- If possible, determine the identity of the chemical involved and inform the emergency response team/medical personnel attending the injured person. It may be helpful to provide the SDS, if it is accessible.
- Remain in the area in a safe place until help arrives. You may need to answer additional questions about the incident.

M. Spill Response Procedures

Laboratory personnel may clean up small spills (1 liter or less) of hazardous materials if all the following conditions are met:

- The hazards of the material(s) are known, and appropriate precautions can be taken to prevent personal exposure or exposure to others.
- The spill does not involve highly toxic, highly reactive chemicals, or elemental mercury. Special cleanup is required for such substances; contact EHS for assistance.
- There is no potential of release to the environment.
- There are no personal injuries because of the spill.
- The clean-up procedures are known and the proper equipment (e.g., PPE and spill clean-up materials) is available.
- The spill can be cleaned up safely.

If all these conditions are not met, EHS must be contacted by calling 470-578-3321 or by dialing the University emergency number at 470-578-6666 (or extension 6666 from a KSU phone) for spill response. Inform your supervisor of all spills and clean-ups and enter the incident into the KSU incident reporting system (Reliance).

1. Spill Kit

Laboratories and areas where hazardous materials are handled must have an adequate number of spill kits for the hazardous materials handled. The spill kits should meet the following requirements:

- The absorbents and other materials used for spill cleanup must be adequate and compatible with the spilled material.
- Special chemical hazards (e.g., for hydrofluoric acid) must have a separate spill kit with compatible spill absorbent materials.
- There should be an inventory list of the materials inside the spill kit.
- Spill absorbents should be labeled with the volume they can absorb.
- Combustible materials are generally inappropriate substitutes for the materials contained in spill kits.

2. Personal Protective Equipment

Chemical splash goggles, gloves, laboratory coats (or appropriate coveralls), and closed toed shoes must be worn during spill clean ups.

N. Emergency Equipment

1. Emergency Eyewash Stations and Emergency Showers

Emergency eyewash stations and emergency showers must be provided in areas where splash hazards to corrosives, eye irritants, or chemicals that are toxic via skin and/or eye contact exist. Plumbed eyewash stations and emergency showers should be provided.

The location of each emergency eyewash station and emergency shower should be posted with a highly visible sign.

The selection, installation, and use of eyewash stations and safety showers must comply with ANSI Z358.1.

Access to these facilities must remain open and reachable within 10 seconds from the source of the hazard. Paths to these units must be maintained free of obstructions.

Showers must be located at least 25 inches from any wall and must not be located next to unprotected electrical panels, switches, outlets, or equipment.

Emergency eyewash stations located at the sink must be flushed every week by the laboratory personnel. Inspection tags must be filled out to document this activity.

Combination emergency shower/eyewash station units must be flushed monthly by EHS personnel.

Self-contained pressurized portable eye wash/safety shower units may be permissible for remote locations where the installation of a plumbed unit is not feasible; consult EHS before

installing a portable eyewash station. These must be maintained in accordance with manufacturers' requirements and are the responsibility of the line manager of the owning department.

If plumbed or self-contained pressurized portable eyewash stations are not feasible, supplemental eyewash bottles must be provided. Supplemental eyewash bottles contain buffered saline solution but are not considered replacements for plumbed eyewash stations. They are merely a temporary measure to be employed until a plumbed eyewash station can be accessed. Each bottle of buffered saline solution should be checked at least monthly to ensure it is within the expiration date.

2. Fire Extinguishers

Laboratories and areas using hazardous chemicals must have an ABC-rated, dry-chemical fire extinguisher within 50 feet of any exit for use on ordinary combustibles, flammable liquids, and electrical fires.

Special purpose portable fire extinguishers may be required in certain laboratories depending on the nature of materials being used. Class D extinguishers will be required in laboratories using combustible metals such as magnesium, titanium, and sodium.

If additional extinguishers are needed for an area or if special extinguishers and extinguishing media are needed for materials such as alkali metals, contact EHS for information concerning recommendations and requirements.

- Incidents resulting in environmental damage (e.g., chemical released into storm drain, contamination of soil)
- Incidents resulting in property damage.
- Each situation or condition observed on the job which has the potential for injuring or endangering the health of people or causing damage to property or the environment.

Serious incidents or incidents requiring immediate medical attention should be reported immediately by calling the campus emergency number: 470-578-6666 (extension 6666 from a KSU phone). Serious incidents are those which result in:

- A fatality
- The hospitalization or medical treatment (beyond first aid) to KSU or non-KSU personnel
- Fires
- Property damage exceeding $1,000.00

All other incidents must be reported in writing to the laboratory safety manager and EHS Biosafety Officer within 24 hours of becoming aware of the incident, injury, or illness.

15. Exposure Monitoring and Medical Consultation

A. Exposure Assessment

Exposure assessments will be conducted by the EHS Department to identify the potential for employees' exposure to hazardous materials and to ensure proper control measures are in place. Priority will be given to operations involving the use of particularly hazardous substances, chemicals regulated by OSHA's substance specific standards and other chemicals, and operations deemed appropriate by EHS. Operations and materials may also be assessed in response to concerns expressed by an employee or supervisor. Monitoring may involve, but is not limited to, the following sampling methods:

- Air sampling – Air is sampled and analyzed to determine the presence and concentration of airborne contaminants.
- Wipe sampling – Surfaces, such as bench tops, are tested to determine the presence and amounts of residual contaminants.
- Bulk sampling – Materials are collected and analyzed to determine the presence and amounts of contaminants such as lead and asbestos.
- Biological monitoring (where deemed necessary).

Air sampling results will be compared ti3 (co)3O (co)3ccupational exposure limits ti3 (co)3Odetermine if the poti3ential for hazardous exposure exists. The following occupational exposure limits will be used:

- OSHA's PELs
- American Conference of Governmental Hygienists TLVs
- National Institute for Occupational Safety and HealthNIOSH) Recommended Exposure Limits (RELs)

B.

5. Documentation of Training

EHS will maintain records of general laboratory safety training while the PI, instructors, and supervisors are responsible for maintaining records for operation and procedure-specific training and continuing education training for employees under their supervision.

B. Hazard Communication

Information regarding the hazards of chemicals is conveyed in three primary ways: SDSs, signs, and labels.

1. Safety Data Sheets

An SDS provides safety and health related information such as known hazards of the material, its physical and chemical properties, exposure limits, precautionary measures, and emergency and first aid procedures.

SDSs must be readily available for all chemicals used in laboratories. SDSs of chemicals purchased from the manufacturers and distributors can be accessed from the University's SDS online portal, VelocityEHS Chemical Management. A master file of all SDSs onsite is available in the library.

When a chemical substance is synthesized at a KSU lab and is to be used in the laboratory, the PI is responsible for ensuring that a hazard assessment is conducted to identify the hazards and necessary controls. EHS should be notified of internally synthesized chemicals. If synthesized chemicals are to be shipped offsite, SDS and warning labels must be generated. Please consult EHS before shipping such material offsite.

2. Signs

Signs of the following types are to be displayed:

- Location signs for safety showers, eyewash stations, other safety and first aid equipment, and emergency exits.
- Warning signs in areas or on equipment where special or unusual hazards exist indicating the hazard types in the work area, such as corrosives and carcinogens, and emergency contact information.
- Cabinets where flammable liquids are stored must be labeled "Flammable Liquid Storage".
- A "Hazardous Waste Satellite Accumulation Area" label or sign posted where hazardous waste is stored within the laboratory.
- Laboratories using radiological isotopes will have the appropriate signage, as required by EHS.
- Refrigerators in the laboratory must be labeled "No Food or Drinks."

PIs, instructors, and supervisors are responsible for ensuring that chemical substances, work areas, and entrances are appropriately labeled and posted.

3. Labels

Labels showing the content of the container and the associated hazards are required for all primary and secondary containers of hazardous materials. Primary containers are the

original containers received from the manufacturer, while secondary containers are cans, squeeze bottles, and other vessels to which hazardous materials are transferred by an employee or student.

Labels on primary containers must convey the following:

- The name /TT0 1 Td(:)Tj64 (g)-7.3 (e)]TJ2j/TT0 1 Tf1.174 0 Td8Tj/Molmial(ed)1.7 (b)4.5 9 -0 0 9

Findings of all audits and inspections must be entered in Reliance.

18. Recordkeeping

PIs, supervisors, and coordinators must maintain records of job-specific training, self-inspection reports, observations, and action items.

EHS will maintain records of compliance training and inspections and audits conducted by EHS or by a third party. EHS must also maintain a record for each employee of any exposure monitoring, medical consultation, and examination, including tests and written opinions. Such records will be kept, transferred, and made available in accordance with BOR records management policies.

19. Laboratory Facilities Design and Decommissioning

A. Design

All new laboratories must be designed and constructed in accordance with the USG Design Criteria for Laboratories. No room shall be converted into a laboratory for use of chemical materials until it has been reviewed and approved by the EHS Department.

B. Decommissioning

Laboratory decommissioning involves the formal deactivation of a laboratory while ensuring the safety of the space to safeguard the health and safety of facilities, transportation, and contract personnel who may be involved in cleaning, demolition, renovation, and construction activities. It is the responsibility of PIs, instructors, and supervisors of laboratory spaces to ensure chemical, physical, and radiological hazards have been removed prior to releasing the space to facility department or to new occupants.

When a laboratory is vacated:

- All chemical and radioactive materials (if applicable) must be removed and disposed of properly.
- All non-fixed laboratory equipment and supplies must be cleaned and put into safe condition. This includes removing visible residues, standing liquids, loose particulate materials, hazards on floors, bench tops, shelves, inside drawers, cabinets, refrigerators, surfaces of local exhaust enclosures, and any other potentially contaminated surfaces.
- Equipment, supplies, products, and materials such as apparatuses, thermometers, gas cylinders, sharps containers, trash, absorbent material, and other miscellaneous lab materials must be removed prior to vacating the space.
- Chemicals and products, including cleaning compounds, surplus chemicals, stock solutions, experimental products, and hazardous waste, must be removed.

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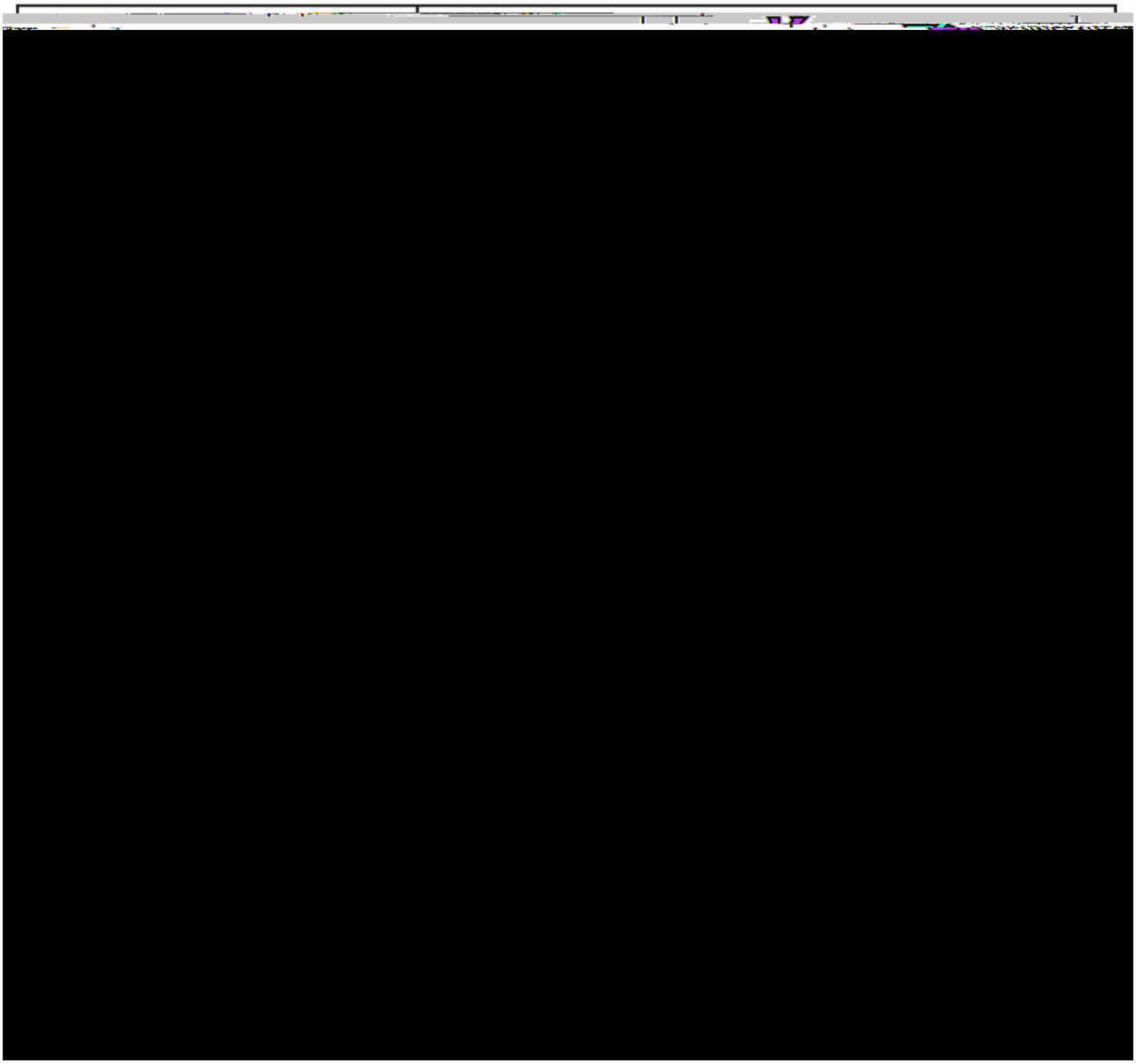
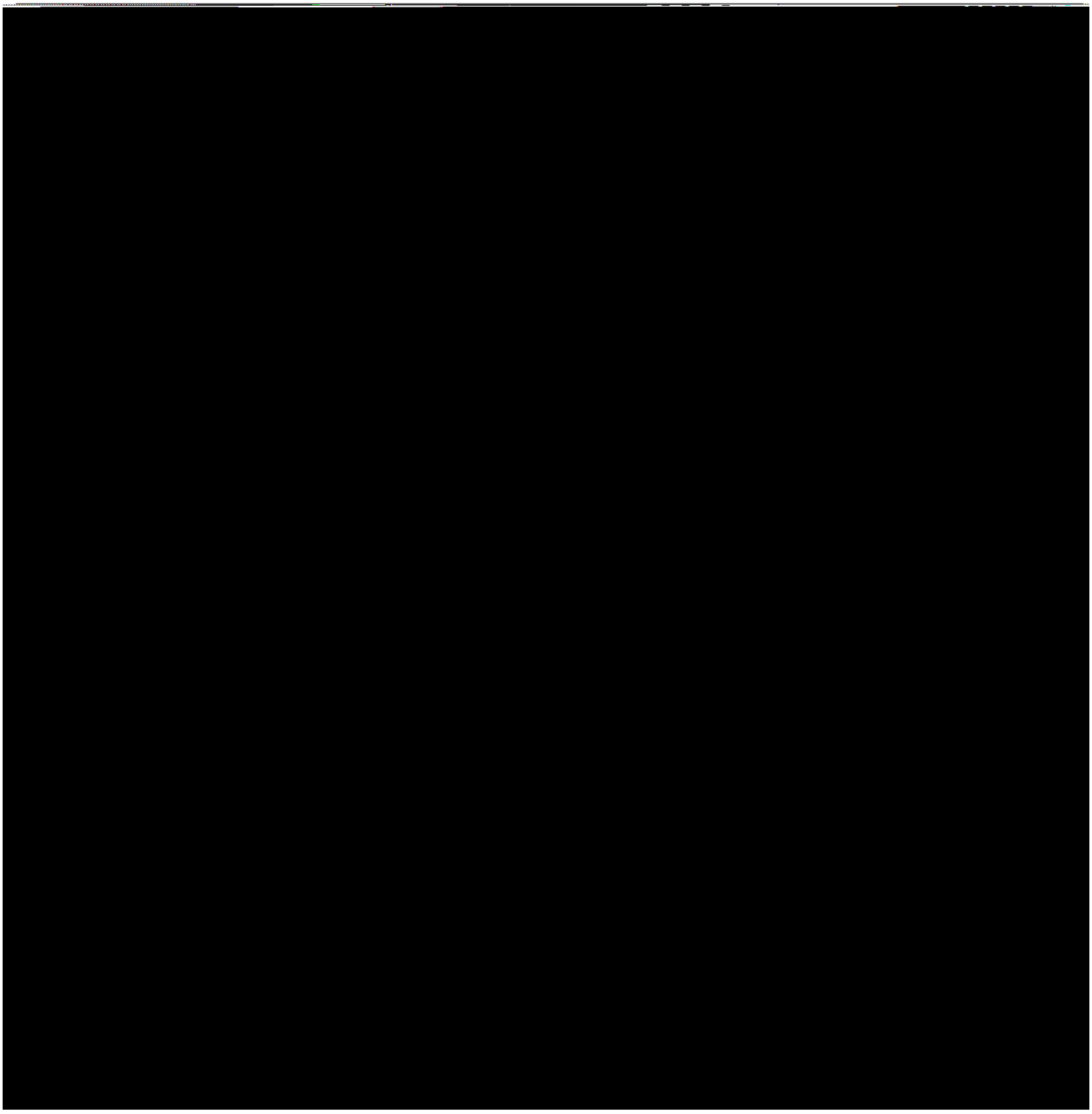
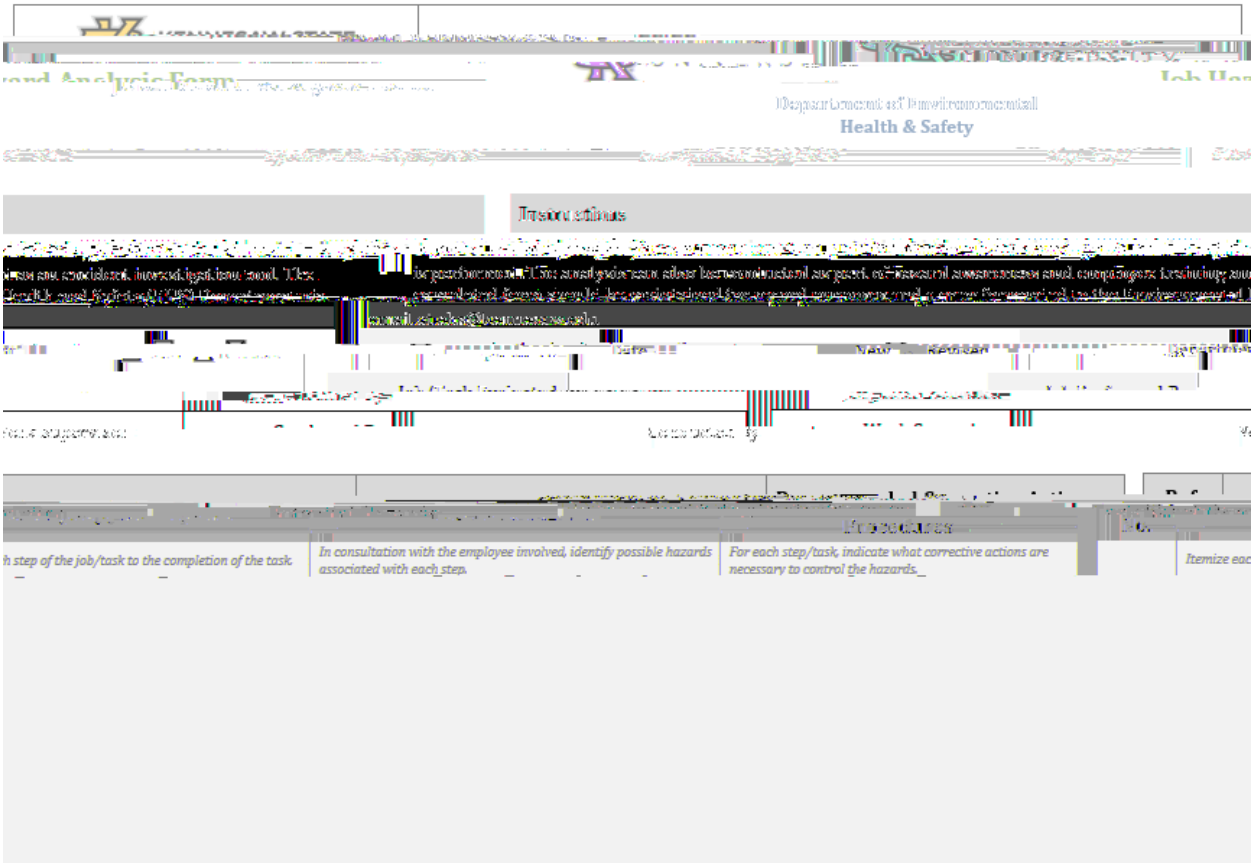
Appendix A – Forms

Laboratory Risk Assessment Tool (LabRAT)





Job Hazard Analysis



Appendix B – Revision History

Version #	Implemented By	Revision Date	Approved By	Approval Date	Revision Summary
2.0	Rodrick Esaw	06/15/2016	EHS		NA
2.1	Rodrick Esaw	07/07/2017	EHS		N/A
2.2	Rodrick Esaw	05/23/2018	EHS		N/A
2.3	Rodrick Esaw	06/03/2019	EHS		Minor verbiage changes, Working Alone Procedure and Guidelines, Minor Changes to Chemical Prior Approval Process.
2.4	Rodrick Esaw, Matthew Rosenberg	04/17/2020	EHS		Minor verbiage and formatting changes, checked hyperlinks, changes to Incident Reporting procedure, minor changes to Chemical Prior Approval process.