Biology and Wildlife Chemical Hygiene Plan

Lab personnel receipt and acknowledgement (this record is kept by the Laboratory Supervisor and is available upon request).
I have read and understand this Chemical Hygiene Plan and agree to abide by the provisions outlined in it.

Name	UA ID	Date	Signature

Last updated: August 22, 2023

Abbreviations (Acronyms)

AKOSH - Alaska Occupational Safety and Health
B&W - Biology and Wildlife
CFR - Code of Federal Regulations
CGA - Compressed Gas Association
CHO - Chemical Hygiene Officer
CHP - Chemical Hygiene Plan
EHSRM - Environmental Health, Safety, and Risk Management
EPA - Environmental Protection Agency
IAB - Institute of Arctic Biology
JHA - Job Hazard Analysis
LD50 - Lethal Dose 50%
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limits
PPE - Personal Protective Equipment
SOP - Standard Operating Procedures

Biology and Wildlife Chemical Hygiene Plan

The University

The responsibility for maintaining a safe laboratory environment lies with the Principal Investigator (PI) for the lab. In Biology and Wildlife teaching laboratories, . Every individual in the lab is expected to conduct all operations and procedures in a safe and prudent manner.

Instructor (PI)
The instructor has responsibility for implementation of the CHP and the ensuring of safe conditions in their course. The instructor shall:

1. complete all required safety training, including those related to lab safety.
2. ensure that their TAs have completed all required training prior to the start of lab work, including training on the contents of this CHP document. Work with the B&W Laboratory Supervisor and Department Chair to address any deficiencies in a timely fashion.
3. ensure that students are always appropriately supervised while performing lab work, including work done outside of regular lab hours.
4. identify hazards and risks associated with each lab exercise. This includes performing the 29CFR1910.132(d) required hazard determination and maintaining required documentation as well as carrying out or arranging for Job Hazard Analysis (JHA) –assistance with this may be obtained from the Laboratory Supervisor.
5. obtain prior approval from appropriate parties for laboratory procedures that may require prior approval (see Circumstances Requiring Prior Approval)
6. maintain up-to-date written lab protocols, including measures that must be taken to ensure safety.
7. train TAs on the hazards of the procedures performed during the lab and how to carry out the procedures correctly to minimize risk.
8. identify additional training that needs to be provided to TAs for procedures to be carried out in the lab. Ensure that this training has been provided prior to the occurrence of the relevant laboratory exercise(s).

Teaching and Course Assistants
Teaching and Course assistants shall:

1. complete r

10. tructor immediately in the event of an accident, spill, injury, dar
    unctioning equipment, or other potential laboratory problem or
11. ny pre-existing health conditions that could be affected by work

Laborat

The Lab

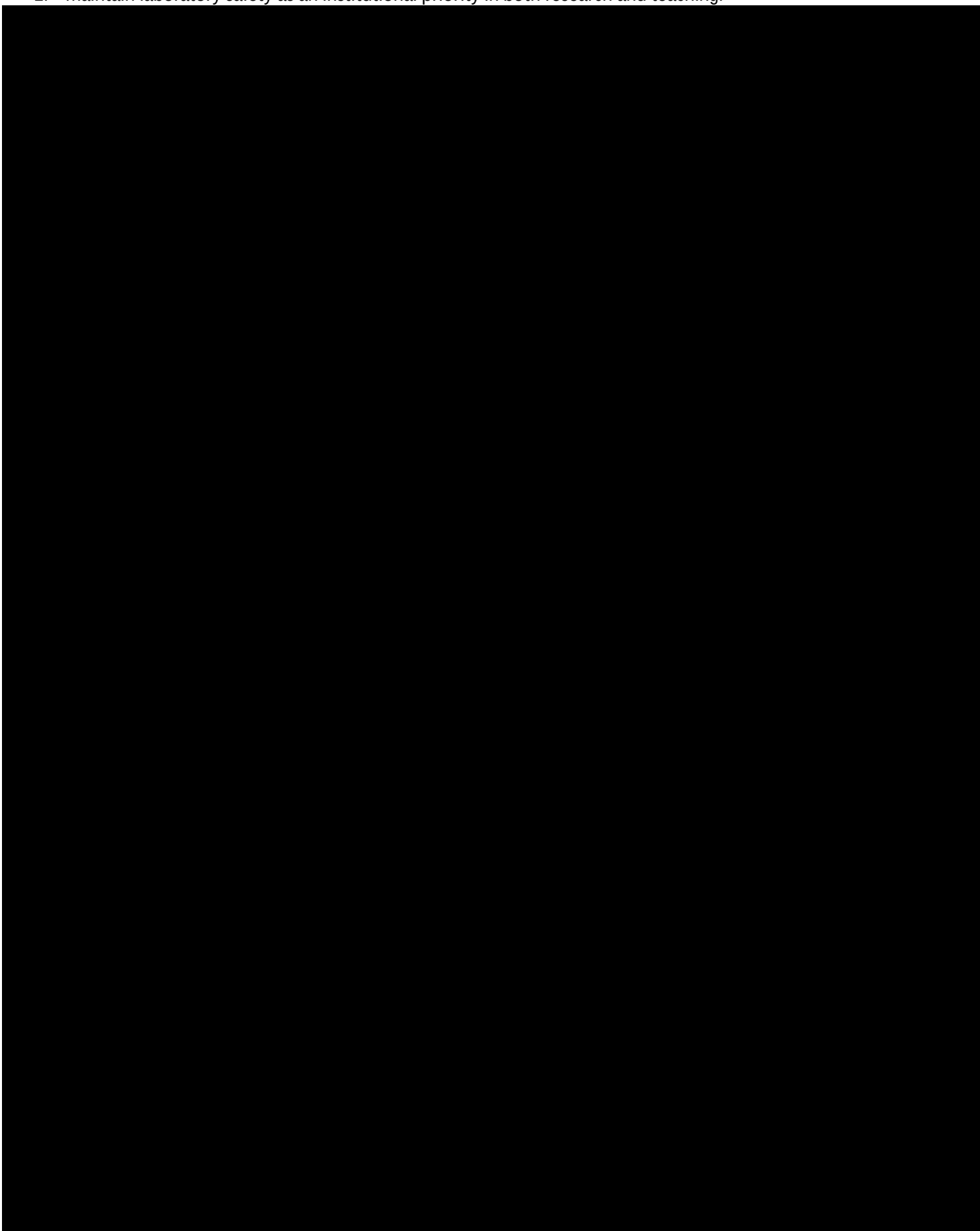
1. ety training, including those related to lab safety.
2. artment-specific training (B&W CHP Training, TA Orientation) at
3. chases to be made for courses.
4. rforming the 29CFR1910.132(d) required hazard determination
   cumentation as well as carrying out or arranging for Job Hazard A
5. with development and implementation of SOPs and laboratory
   to identification of appropriate PPE and waste management pla
6. dentify when additional training is necessary and help arrange f
7. rocedures with and answer questions from instructors and TAs,
8. uirements concerning regulated substances and communicate a
9. e overall CHP.
10. IAB/B&W web manager, maintain the B&W Laboratory Safety w
11. equipment manuals, instruction manuals, protocols, procedures
    e and provide access for individuals requiring it.
12. out a thorough internal audit of all laboratory spaces in collabo
    aboratory users shall also be given the opportunity to participat
    observe each lab to promote positive interaction with TAs and s
13. giene Officer (CHO) for the

4. provide additional PPE when it is identified as necessary and make sure that the users understand how to properly use it.
5. place orders for courses, with approval of all chemical purchases or purchases over a specified dollar amount requiring approval from the Laboratory Supervisor. Keep all necessary

Vice Chancellor for Research and Provost

The Vice Chancellor for Research and the Provost shall

1. maintain laboratory safety as an institutional priority in both research and teaching.



Training

Employees (Including TAs) shall complete all the general training required of all UAF personnel and renew them as required in accordance with UAF Policy 04.07.010. The Biology and Wildlife Department uses a Canvas Course to track trainings - See Appendix 2 for more information (* denotes training requires annual renewal):

Trainings accessed through MyUA:

1. Workplace Harassment Prevention
2. Behavior Based Safety (BBS)

Training currently accessed through Blackboard (see UAF's Equity and Compliance website for current instructions):

3. *Title IX

Trainings accessed through UAF EHSRM:

4. Employee Safety Orientation
5. Hazard Communication/GHS
6. Office Safety (general)
7. Slips, Trips and Falls

Trainings accessed elsewhere:

8. Protection of Minors ("Shine a Light" unless you work directly with minors)
9. *Departmental Emergency Action Plan (DEAP) training (all buildings you work in

In addition, Biology and Wildlife laboratory personnel (instructors and TAs) shall complete the following:

1. *FERPA training (required of all who work with student records)
2. *Biology and Wildlife Chemical Hygiene Plan (this document and Canvas quiz)
3. TAs must also complete TA orientation (in-person)

Trainings accessed through EHSRM Lab Workers Page:

4. UAF Laboratory Safety
5. UAF Hazardous Waste Management (Initial)
    a. *UAF Hazardous Waste Management (annual refresher)
6. UAF Chemical Hygiene
7. UAF Drivers Training

Researchers that work in laboratas

- Responsible Conduct in Research (requires renewal every three years)

Additional basic training modules developed as

It is th

7. Avoid walking close to a fume hood when someone else is using it.
8. Fume exhaust hoods do not provide adequate protection for all operations involving toxic materials. A higher level of containment should be used for procedures where exposure to even small [illegible] of [illegible] containmenn

Respirators

1. Because of the difficulty and e

If you double-swipe to unlock the room for the lab, you must repeat the double-swipe process to lock the doors when

Clothing

Clothing should provide protection against hazards.

1. A full body-length rubber, plastic or neoprene apron should be worn if there is risk of splash or spill when handling of hazardous chemicals. Hazards of this type must be pre-approved.
2. Low-heeled shoes with fully covered uppers shall be worn at all times in laboratories. Shoes or sandals with open toes or shoes with mesh covered uppers must not be worn.
3. Long pants or long skirts must be worn at all times in laboratories.

General rules for laboratory work with chemicals

1. Regular work schedules should be followed unless a deviation is authorized by the laboratory supervisor, laboratory Technician or instructor. Employees shall not work alone after hour Tt

17. Maintain situational awareness – be aware and alert of things going ǒr

3. Non-preserved animal tissue (non-human, including non-human animal blood) must be collected in incineration bags or containers. It shall be labeled with

5. Equipment is tested weekly (by the Laboratory Technician in Biology and Wildlife) to ensure the delivery of clear, tepid, debris-free water. These weekly tests are documented in a written log. In Biology and Wildlife, these logs are kept on a clipboard with the SDS in each lab.
6. Visible signage is provided indicating the location of all emergency equipment.

The showers and eyewashes in the Murie Building

Emergency Fire Blankets

1. Each teaching lab (202, 203, 206, 211, 302, 303, 306 and 309 Murie) is equipped with a fire blanket th

5. Only containers with proper labels identifying the chemical and its hazard should be accepted. Beginning June 1, 2016, all container labels must be compliant with the Globally Harmonized System (GHS). UAF also uses the J.T. Baker color code storage system. See Appendix 6 and Appendix 7
6. Shipments with breakage or leakage should be refused or opened in a chemical fume hood using appropriate precautions and PPE.
7. When a shipment containing chemicals is received at the B&W Office, the box shall be placed unopened into the chemical resistant receiving bin. The Laboratory Technician shall be notified immediately. If not available, the Laboratory Supervisor shall be notified immediately.
8. Chemical shipments shall be dated upon receipt. TAs and instructors should use older materials before opening newer ones.
9. Upon receipt of a chemical, the following will be done by the Laboratory Technician or Laboratory Supervisor:
   A) The box shall be visually inspected and opened in an appropriate location
   B) the containers shall be inspected for damage
   C) the container shall be dated and labeled appropriately
   D) the chemical shall be entered into the in

Chemical Handling

1. A risk assessment should be co

Chemical Transfer

1. Use adequate ventilation (such as a fume hood) when transferring even a small amount of a particularly hazardous substance (see Appendix 10).
2. When transferring flammable chemicals from one container to another, make sure that there are no ignition sources in the area. If transferring from large containers (2 gallons or more), appropriate grounding and bonding should be used to disperse static charge. Consult the Laboratory Supervisor or Laboratory Technicians

Compressed gases present a number of chemical, physical and health hazards. Improper handling and use can cause structural damage, severe injury and possibly death. Compressed gas safety training, if available from EHSRM, is required for TAs and instructors who will work with compressed gases or who work in labs where compressed gas cylinders are housed.

Receiving and Storage

1. If compressed gases are needed for a lab, contact the Laboratory Technician and Laboratory Supervisor. They will arrange an

11. Do not use copper (>65%) connectors or tubing with acetylene. Acetylene can form explosive compounds with copper, silver and mercury.
12. Always leave at least 30 psi minimum in “empty” cylinders. Do not leave an empty cylinder

12. W

HEALTH HAZARDS

Criteria for determining whether a chemical is classified as a health hazard are detailed in Appendix A to 29 CFR 1910.1200. Always read the SDS for any chemical you use to familiarize yourself with its hazards and proper handling.

Refers to those adverse effects occurring following oral or dermal administration of a single dose or
Oɔ

Refers to any gas which may, usuall

Refers to a liquid which, generally by yielding oxygen, causes or contributes to the combustion of other materials.

Refers to a solid which, generally by yielding oxygen, causes or contributes to the combustion of other materials.

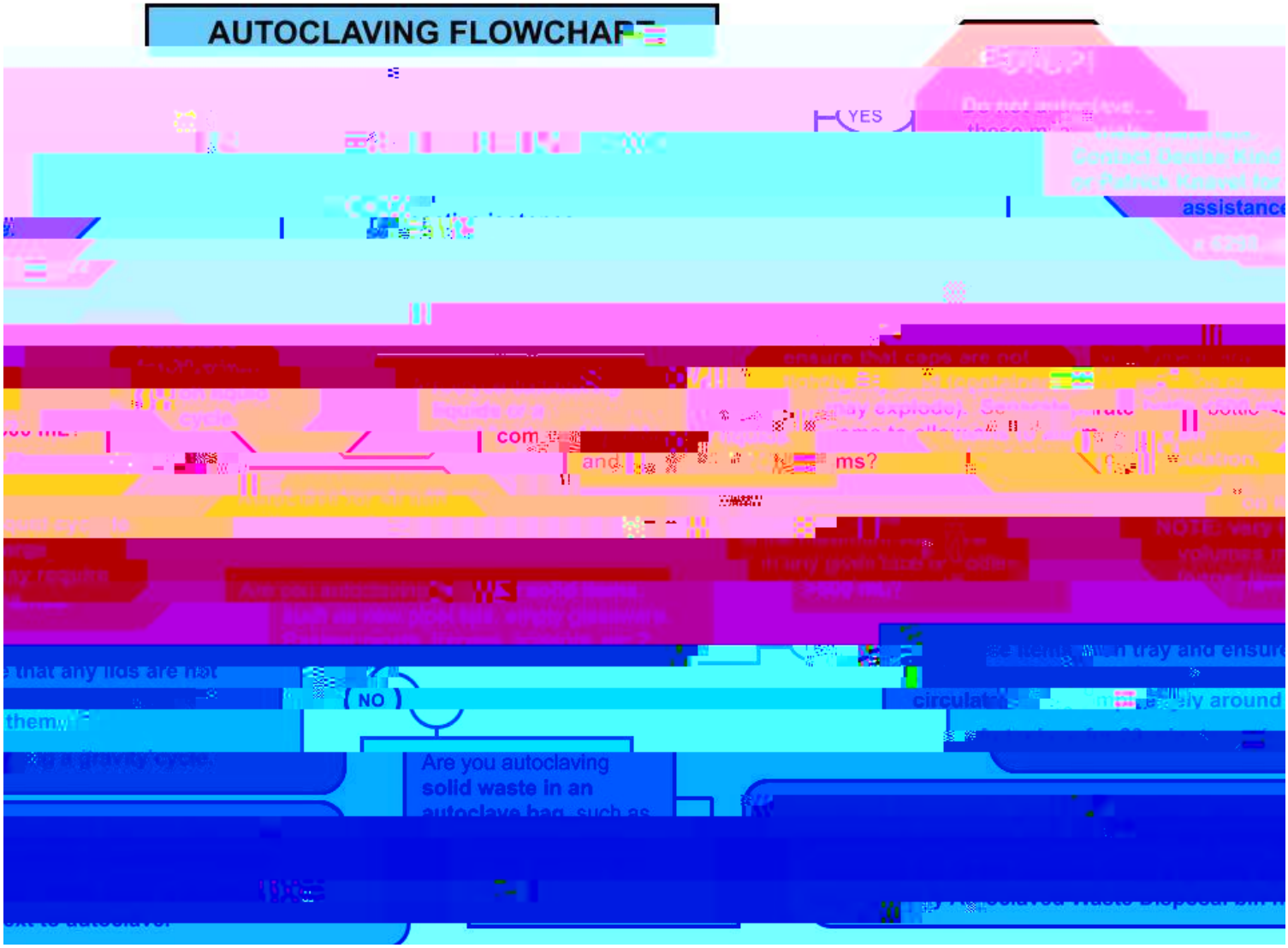
Refers to a liquid or solid that is derivative of hydrogen peroxide.

1. Organic peroxides are thermally unstable chemicals and may undergo exothermic self-accelerating decomposition.
2. They are liable to explosive decomposition, burn rapidly, be sensitive to impact or friction and react dangerously with other substances.

Refers to a chemical that can materially damage, or even destroy, metals.

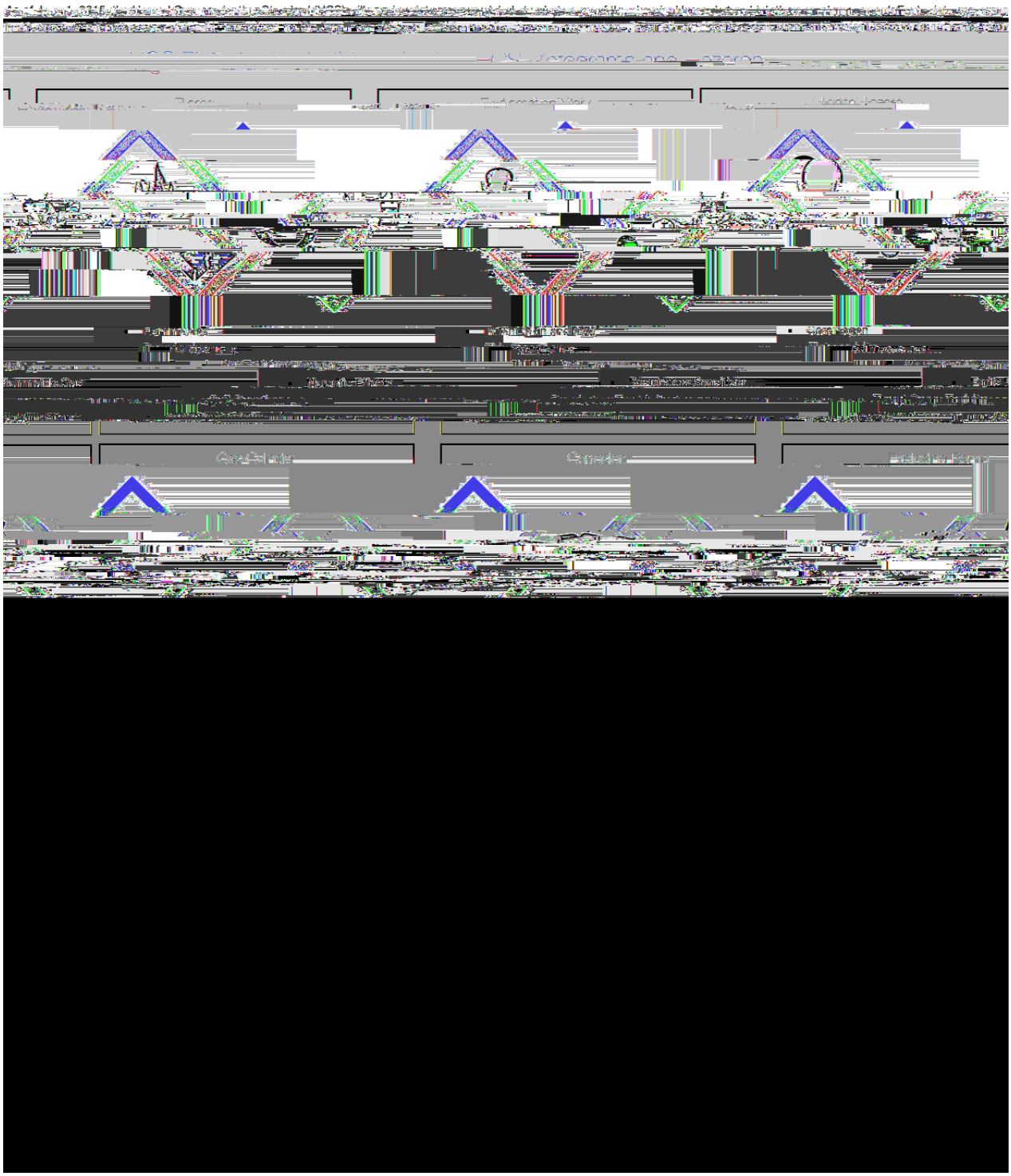
Requir qF خم
R


You must find
an appropriate
location for the
work. Co
Denise
ntact
Kind
x5622.
for
incineration
bags before
NO
Will the waste contain material of human or animal
Container labelled as
Clinical Waste Contains
Container in autoclave
bag and follow
Remove any Biohaz


AUTOCLAVING FLOWCHART
YES
assistance
NO
Are you autoclaving
solid waste in an

Haz

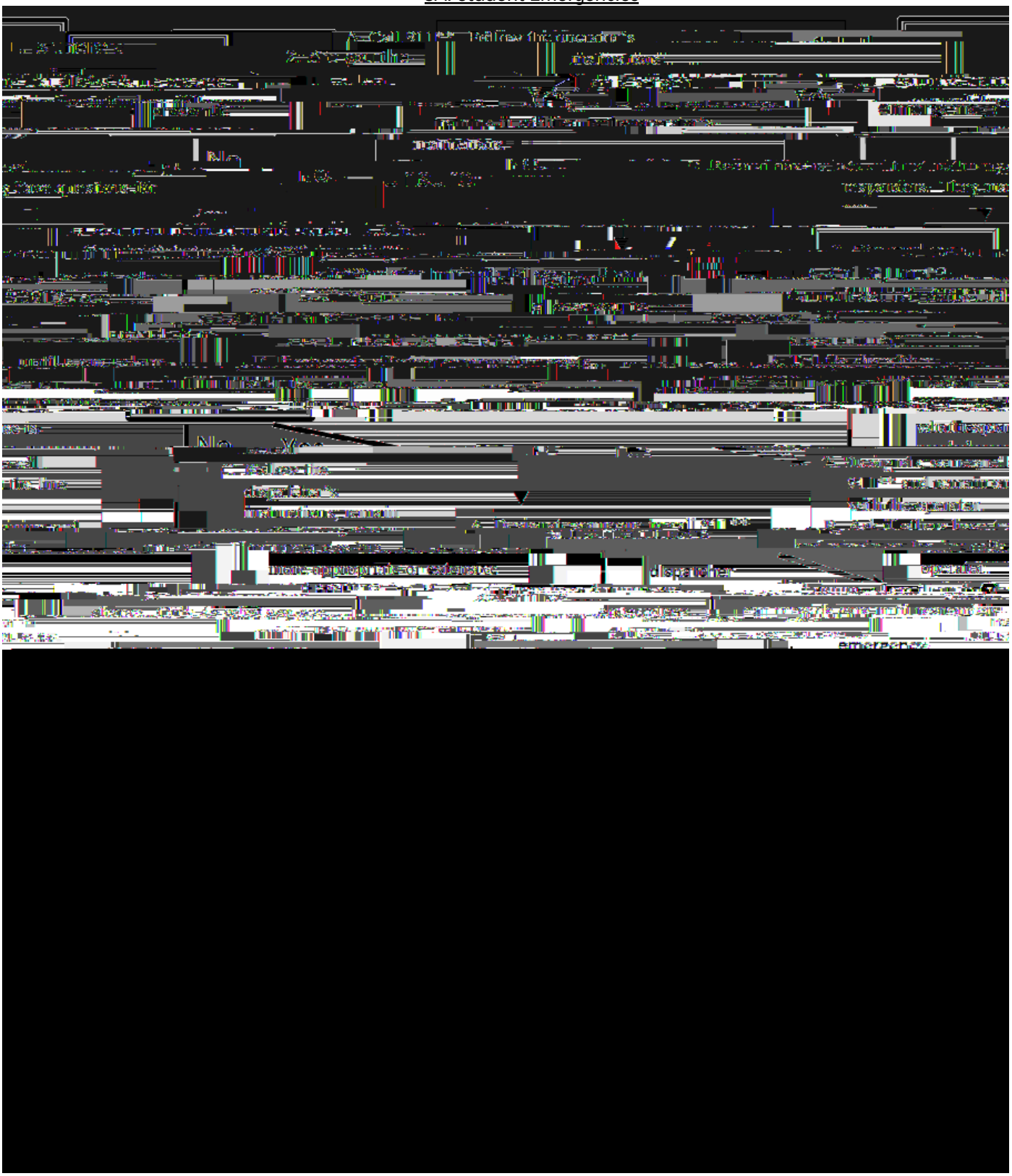
- All containers of liquids must be placed in compatible secondary containment that would be sufficient to hold the volume of liquid in the event that the primary container ruptured.
- When possible, use the original container for disposal of the used material. Be sure that the container is clearly labeled as waste so that it is not mixed up with unused material and re-used.
- Metal cans are only acceptable for accumulating waste oil; they may not be used for any other type of hazardous waste.
- Loose



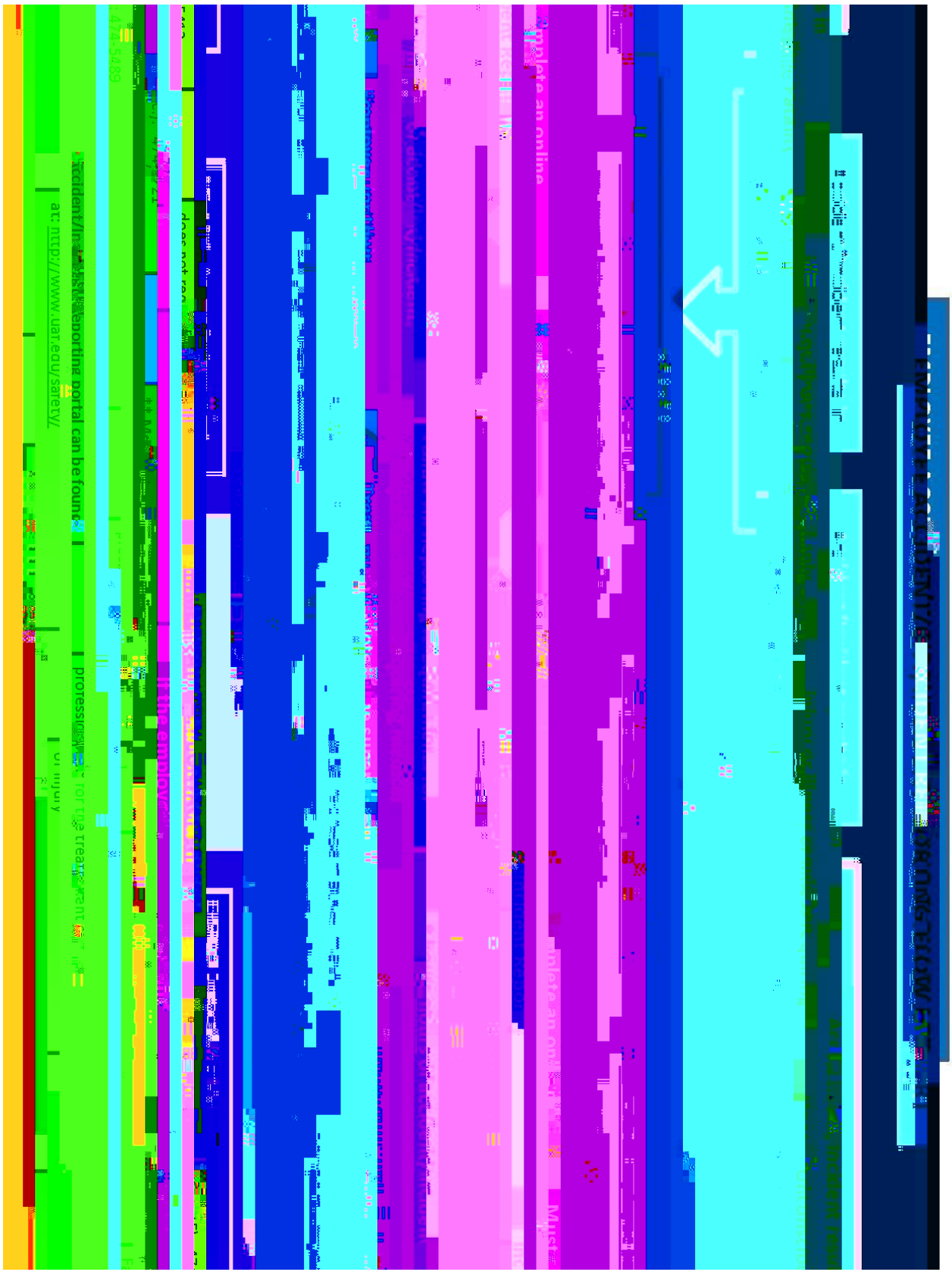
Taken from OSHA

Color Code	Hazard	S
		
		

8A: Student Emergencies



8B: Employee Emergencies



It is important to remember that some equipment cannot be turned off and certain other pieces of equipment do not shut themselves off when there is a power outage. Plan specific procedures for your laboratory while adhering to the following:

- Fully close chemical fume hood sashes. No work is allowed in fume hoods during a power outage.
- Ensure that all chemical containers are secured with caps, parafilm, etc. and returned to their proper storage location.
- All non-essential electrical devices should be turned off, especially computers, printers, and other devices with sensitive circuitry (including autoclaves and laminar flow hoods).
- Keep the doors of refrigerators and freezers closed.
- Ensure that no flammable chemicals are stored in domestic refrigerators and freezers. When power returns to these appliances, a reaction may be ignited by the refrigerator light or other electrical source.
- Check eck

SELECT CARCINOGENS (Tables 1 and 2)

The following standards apply to substances that are classified as carcinogens or potential carcinogens by the National Toxicity Program (NTP) and listed in OSHA's "13 Carcinogens" (29 CFR 1910.1003). The applicable OSHA standard for the substance is listed next to the substance name.

	(See 29 CFR 1910.1003)
2-Acetylaminofluorene	29 CFR 1910.1014
Acrylonitrile	29 CFR 1910.1045
4-Aminobiphenyl	29 CFR 1910.1011
Inorganic Arsenic	29 CFR 1910.1018
Asbestos	29 CFR 1910.1001
Benzene	29 CFR 1910.1028
Benzidine	29 CFR 1910.1010
bis-Chloromethyl ether	29 CFR 1910.1008
1,3-Butadiene	29 CFR 1910.1051
Cadmium	29 CFR 1910.1027
Chromium (IV)	29 CFR 1910.1026
Coke oven emissions	29 CFR 1910.1029
1,2-Dibromo-3-chloropropane	29 CFR 1910.1044
3,3'-Dichlorobenzidine (and its salts)	29 CFR 1910.1007
4-Dimethylaminoazobenzene	29 CFR 1910.1015
Ethylene oxide	29 CFR 1910.1047

IARC = International Agency for Research on Cancer

Group 1	The agent (mixture) is carcinogenic to humans. The exposure circumstances entail exposures that are carcinogenic to humans.
Group 2A	The agent (mixture) is probably carcinogenic to humans. The exposure circumstance entails exposures that are probably carcinogenic to humans.
Group 2B	The agent (mixture) is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.
Group 3	The agent (mixture or exposure circumstance) is unclassifiable as to carcinogenicity in humans.
Group 4	The agent (mixture, exposure circumstance) is probably not carcinogenic to humans.

NTP = National Toxicology Program

RAHC	Reasonably Anticipated to be Human Carcinogen
KHC	Known to be Human Carcinogen

OSHA = Occupational Safety and Health Administration

13	OSHA Regulated carcinogens

PARTICULARLY HAZARDOUS SUBSTANCES

Particularly Hazardous Substances (PHSs) include select carcinogens, reproductive toxins, substances with a high level of acute toxicity, and chemicals that can be absorbed through the skin.

A full list of Particularly Hazardous Substances is near impossible to maintain. To identify a PHS, use the GHS Lookup Tool. UAF's EHSRM also maintains a complete list of all hazardous chemicals used at UAF

4. Quantities exceeding the above must be stored in an approved flammable storage room meeting the
4. [illegible]

Title 29 of the Code of Federal Regulations 1910.1450 (29 CFR 1910.1450), Occupational Exposure to Hazardous Chemicals in Laboratories, covers all workers using hazardous chemicals in laboratories.

As part J 0n

__Yes __No __N/A Is the appropriate personal protective equipment required for the lab available?
___ Safety Glasses ___ Goggles ___ Face Shields ___ Gloves ___ Lab Coats/aprons
__Yes __No __N/A If the lab is considered a high-hazard fire area, is an appropriate extinguisher available?
__Yes __No __N/A In high-hazard fire areas, are lab personnel current on fire extinguisher training?

__Yes __No __N/A Is the eyewash free from any obstructions?
__Yes __No __N/A Is the eyewash operated weekly?
__Yes __No __N/A Is the emergency shower free from any obstructions?
__Yes __No __N/A Is the emergency shower operated weekly?
__Yes __No __N/A Has the fume hood been tested within the las

__Yes __No __N/A Are all chemical and waste containers properly labeled with the chemical name(s) and hazard of the material(s)?
__Yes __No __N/A Are the proper containers obtained and used for storing hazardous waste?
__Yes __No __N/A Are all chemicals color-coded to identify proper storage location?
__Yes __No __N/A Are all chemicals and wastes stored according to hazard classification and compatibility?
__Yes __No __N/A Are all containers of potential peroxide-forming chemicals dated upon receipt and utilized or disposed of within one year?
__Yes __No __N/A Are flammable liquids stored in flammable liquid storage cabinets or in closed metal safety cans whenever possible?
__Yes __No __N/A Are flammable cabinets free of corrosion, spills, and damage?
__Yes __No __N/A Are corrosive cabinets free of corrosion, spills, and damage?
__Yes __No __N/A Is storage of corrosive chemicals above eye level avoided?
__Yes __No __N/A Are all containers kept tightly closed except when adding or removing waste?
__Yes __No __N/A Are liquid waste containers kept in secondary containment tubs?
__Yes __No __N/A Are all "sharps" collected in puncture and leak resistant containers?
__Yes __No __N/A Is broken glass collected in puncture resistant containers, marked with the words "Broken Glass"

Additional comments:

_____

_____

_____

_____

_____

_____

Date: _____ Person(s) making observations: _____ Time: _____

Observed use of PPE

_____

_____

_____

Are employees wearing proper attire (closed-toed shoes, long pants, etc.)?

_____

_____

Date: _____ Person(s) making observations: _____ Time: _____

Observed use of PPE

_____

_____

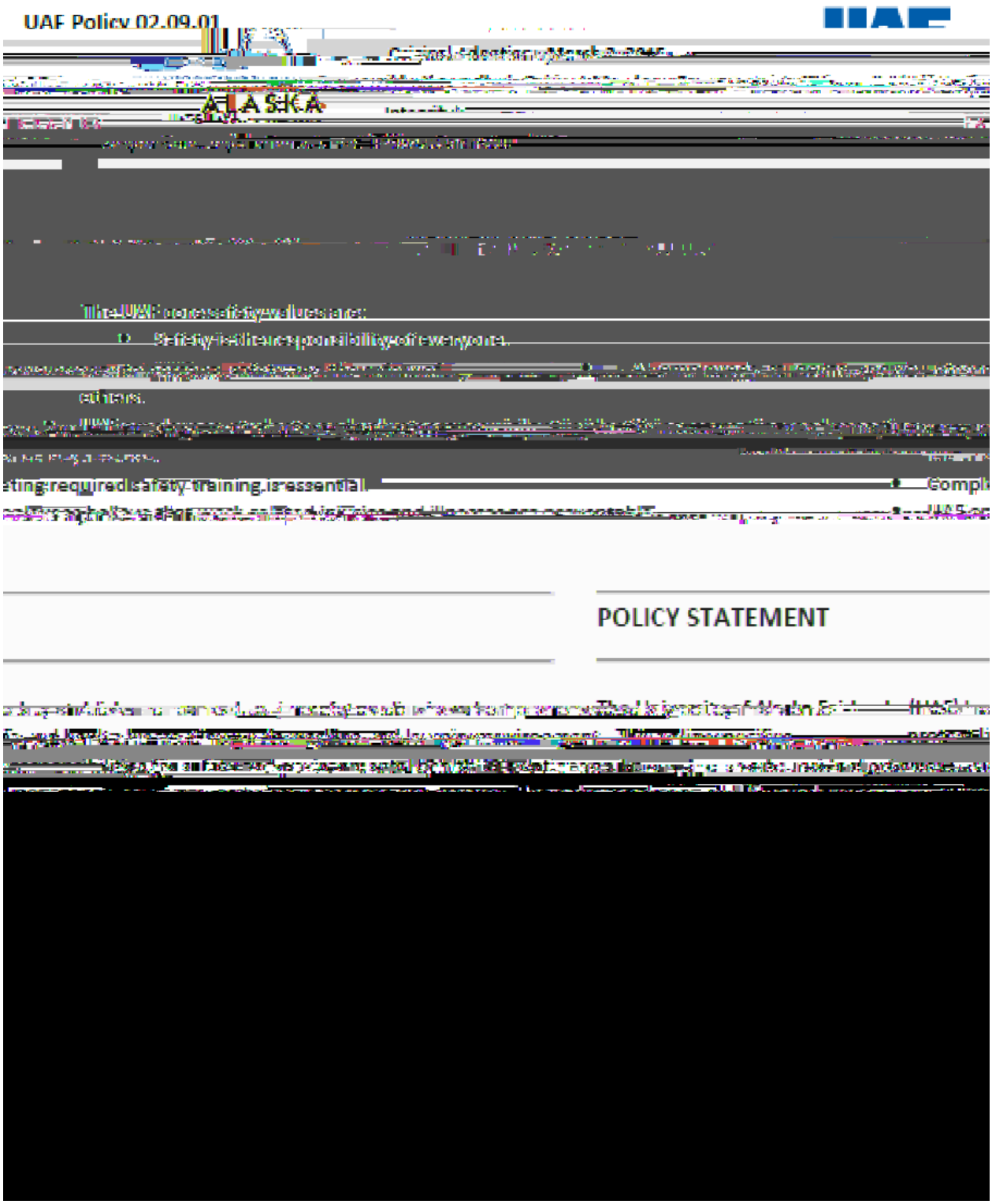
_____

Are employees wearing proper attire (closed-toed shoes, long pants, etc.)?

_____

_____

é !©dm¨ ¨z af bY¥¥mfd z©¨ f®f¥± ¦fwf¦¨f¥ a± =Yaz¥Y¨z¥± L©¢f¥®m¦z¥ Yxd =Yaz¥Y¨z¥± Mf£ℓ

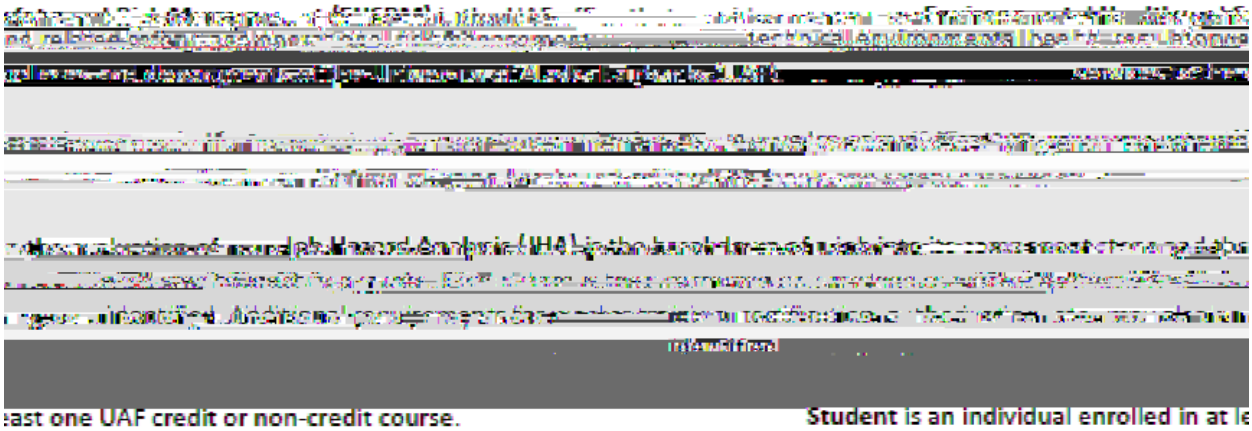

UAF Policy 02.09.01
ALASKA
POLICY STATEMENT

DEFINITIONS

property.

Employee is anyone who is employed by t

he University of Alaska.



Student is an individual enrolled in at le

ast one UAF credit or non-credit course.

employee, contractor

or contractor employee, or volunteer.

RESPONSIBILITIES & PROCEDURES

1.1 UAF activities shall be conducted

regulations, and codes, such as th

in accordance with applicable health and safety laws,

hose established by the State of Alaska, National Fire

Health and Safety Administration (OSHA), Environmental Protection Agency (EPA), US

arces.

circumsta

and comply with

3.3 Complete

as determined by EHSRM http://www.uaf.edu/safety/ Public Safety Training requirements

Department Emergency Action Plan (DEAP)

upervisor Safety Training, if the individual is a supervisor

•

ed/rental cars on University business)

business, or lea

• Title IX Training

• Substance Abuse Policy

• Protection of Minors Policy

• All state and federal required safety training

ealth hazards in the workplace, University

3.4 Inform a supervisor or instructor of any safety or h

uses such as research facilities, field sites,

campuses, or University locations away from camp

incident resulting in an in-patient hospitalization, fatality, or

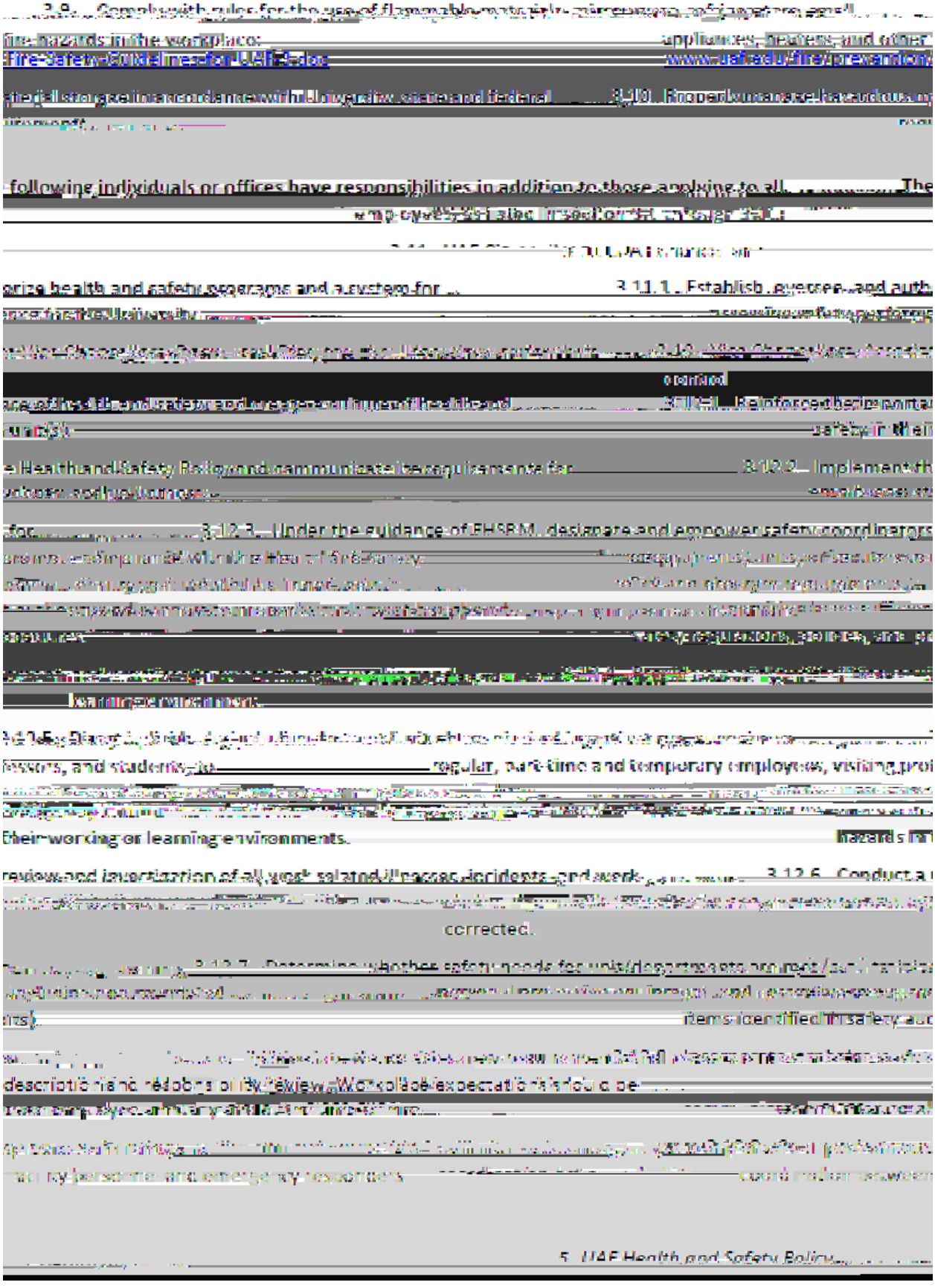
3.5 Report to EHSRM any

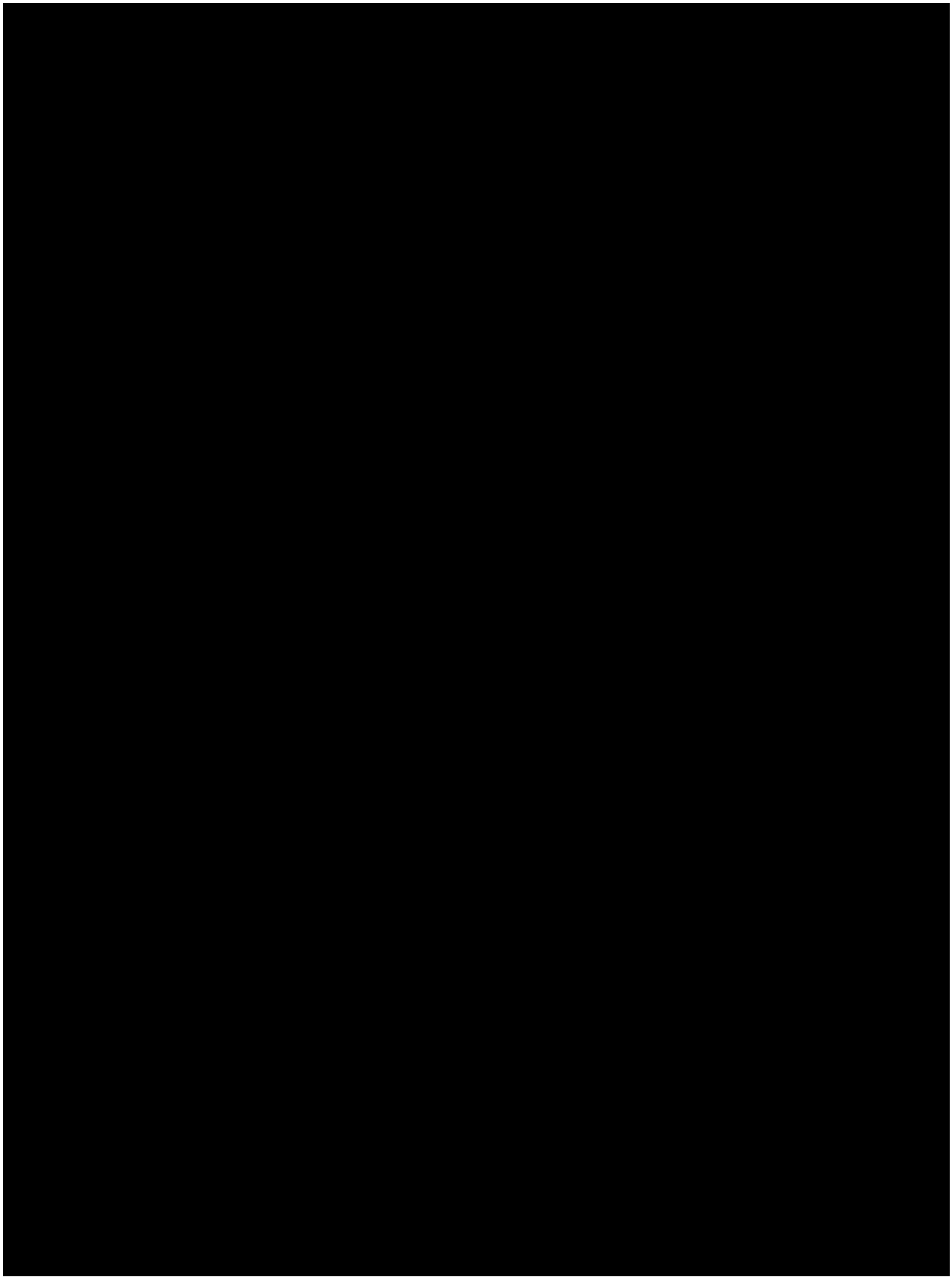
treatment.

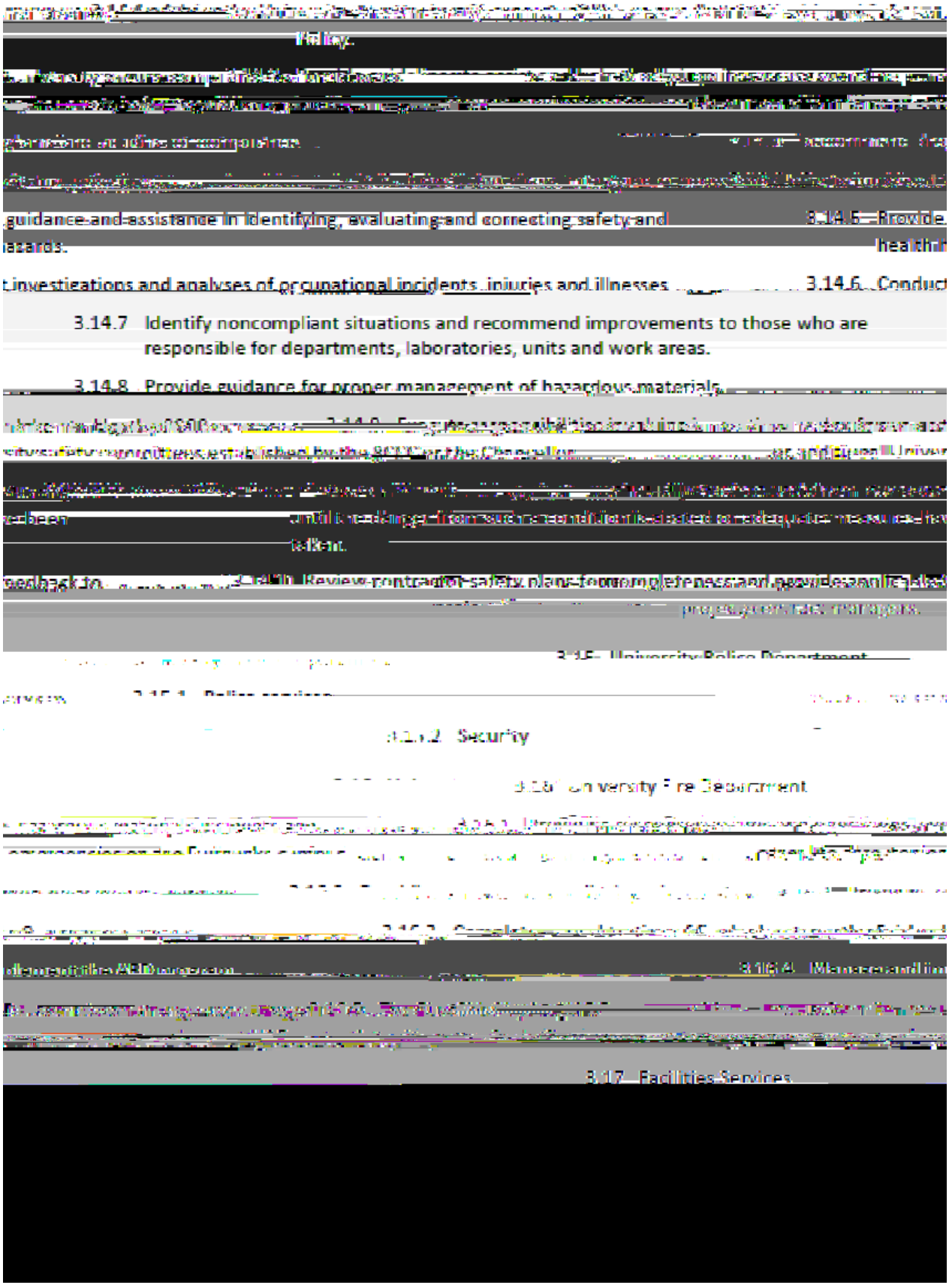
University. http://www.uaf.edu/safety/

Comply with all vehicle rules and regulations. Report all vehicle accidents immediately. The driver is responsible for completing the appropriate vehicle incident report. http://www.uaf.edu/safety/

3.8







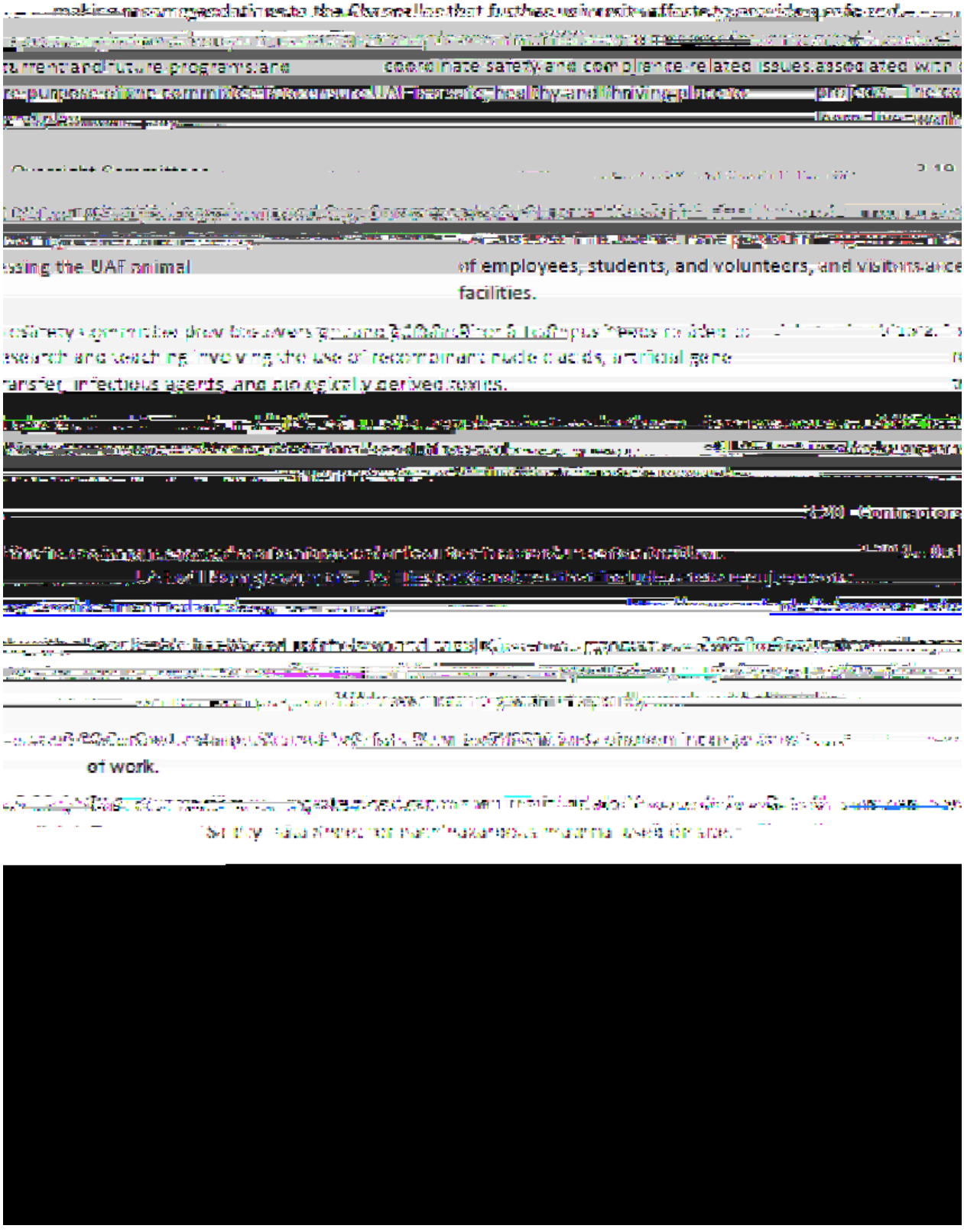
3.14.7 Identify noncompliant situations and recommend improvements to those who are responsible for departments, laboratories, units and work areas.

3.14.8 Provide guidance for proper management of hazardous materials.

3.17 Facilities Services

3.18 SCCC (Safety and Compliance Coordinating Committee)

The SCCC oversees University compliance with the Health and Safety Program and is responsible for



SOPs for procedures carried out in B&W labs will be inserted after this page.

In the e

4. Determine the cycle required. Consult the manual for the autoclave you are using. Remember that when autoclaving liquids, the exhaust rate must be carefully controlled in order to

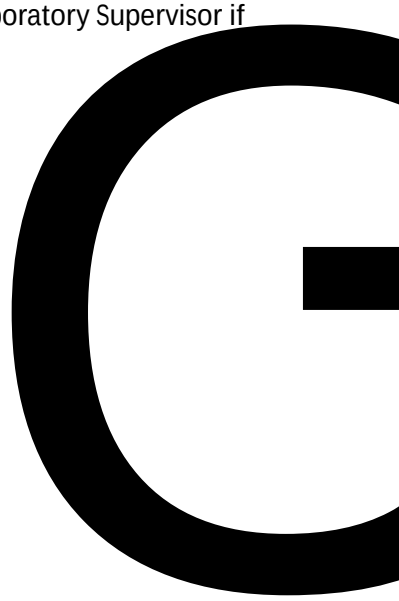
Consult a physician. Move out of the dangerous area.

Flush eyes with water. Consult a physician.

Skin contact with

Users must also follow the specified procedures for the materials they are autoclaving.
NEVER autoclave corrosive chemicals (e.g. strong acids or bases), solvents, volatile compounds, chlorinated compounds (e.g. bleach), flammable substances, or highly reactive compounds.
Follow the Waste Handling Flowchart (Appendix 3) and Autoclave Flowchart (Appendix 4) in the Biology and Wildlife CHP.

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Supervisor and the Biology and Wildlife Laboratory Supervisor if I want to modify this procedure and obtain



Biology and Wildlife

- Gloves may be required based on what is being heated, but are not necessary for the use of a Bunsen burner in and of itself. Consult the Safety Data Sheets for any chemicals being used to determine the need for gloves.

- notify the Laboratory Supervisor and Laboratory Technician immediately. If you cannot contact them, call Facilities Services at 474-7000 to report the problem.

- do NOT turn on anything, including the lights.
- if it is safe to do so, turn off the propane to the room using the emergency shut-off valve.
- notify others as appropriate:
  - If the odor is minor and there is no indication of an immediate threat to life and safety, notify those working nearby of the possible hazard. Notify the Laboratory Supervisor and Laboratory Technician immediately. If you cannot contact them, call Facilities Services at 474-7000 for assistance. If you cannot reach anyone at 474-7000, call University Dispatch at 474-7721 to report a possible propane leak. Any potential leak should be taken seriously and reported.
  - If the odor is strong and you have any concerns that an explosion or fire is imminent, evacuate to a safe location and call 911 to request emergency assistance.

- Do NOT attempt to remove burned clothing from the victim or treat the ɓɯbɟ

Biology and Wildlife Laboratory Supervisor	474-5622
Biology and Wildlife Laboratory Technician	474-7205
EHSRM Hazardous Materials (if B&W Lab Supervisor not available, assistance with a spill)	474-5617
EHSRM Industrial Hygiene (if Hazardous Materials not available; assistance with exposures)	474-6771
EHSRM office (if Hazardous Materials or Industrial Hygiene not available)	474-5413
University of Alaska Fairbanks Emergency Response (serious accidents, fire)	911

None

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and

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- All authorized personnel must have completed all required employee and laboratory safety training.
- The Instructor is authorized to train their TAs on the proper preparation, handling, storage and disposal of this material. The instructor may delegate training to the B&W Laboratory Supervisor by making arrangements at least two (2) weeks in advance.
- TAs, once trained, are authorized to prepare solutions and to train and supervise their students.
- Students must be trained in the use of this material in accordance with this SOP before conducting a lab. Students are only permitted to use dilute solutions of this compound; they should not handle concentrated or solid catechol.

The user must demonstrate competency and familiarity regarding the safe handling and use of these materials prior to using them. Training shall include the following:

- Review of this SOP and chemical Safety Data Sheet

- Murie B&W teaching labs, rooms 209 and 211
- On tables or lab benches isolated from sinks.
- This material shall NOT be used near a sink. In the event of a leak or spill, this material must be contained and may not enter the drain.

- All personnel are required to wear the following personal protective equipment (PPE) whenever
- Nitrile gloves, thickness of 0.11mm has an
  - Safety go
  - Lab coat,
- PPE must be inspecte or to use and replaced if damaged.
- In addition to wearin ropriate PPE, catechol solutions prepared from solid catechol must be prepared in the fume to provide adequate respiratory protection.
- PPE must be rem nating surfaces and items in the lab or outside of the lab that shou

N d

[redacted]

[redacted]d we[redacted] boats a[redacted] gloves [redacted]olid waste.
[redacted]ut ma[redacted]ials aw[redacted] Clean glassware and scoop by washing with warm, soapy water
[redacted]ee time[redacted]ater. Allow to air dry before putting it away.

- Catechol containing solutions must be collected and disposed of as hazardous waste.
- Waste contain[redacted]must be clearly labeled with “Catechol Waste,” the approximate concentration of catechol in the [redacted]te, the class, the instructor’s name, and the date waste collection began.
- When the was[redacted]ready for disposal, label the container “for disposal” and contact the Laboratory Supervisor.

[redacted]

the paper towel. Allow to stand wet for 15 minutes, then wipe up the area with an additional paper towel and place paper towels w

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Supervisor and the Biology and Wildlife Laboratory Supervisor if

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This procedure will be done in Murie 203.

All personnel are required to wear the following personal protective equipment (PPE) whenever conducting this procedure. All PPE must be obtained ahead of time from the Lab Technician:

- Flame-resistant lab coat
- Safety goggles
- Waterproof, thermally protective

- Samples should be placed in plastic centrifuge tubes and

- This is now an Excel compatible file in the data file. Open up my computer to find the files.

First aid:
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice / attention.
If the liquid was chilo

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Supervisor and ^ndnev piγedure al Ť e

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- TAs and instructors must have completed all required employee and laboratory safety training.
- Instructors are authorized to train their TAs, but may request that the Laboratory Supervisor provide training. Training should be requested at least two weeks in advance.
- Once trained, TAs are authorized to train students on dissection procedures.

3. Plac[illegible] paper c[illegible]s under the [illegible] must be absorbe[illegible]
4. Place diss[illegible]ols at [illegible].
5. Ensure th[illegible]te co[illegible] used specimen[illegible] additi[illegible]ags are on hand.
6. Ensure th[illegible] container is a[illegible]le to collect lic[illegible]n secondary co[illegible]ment.
7. Turn on snorkel hood ventilation. In 203 and 211, there are silver toggle switches on the back pillar that turn on the snorkel hoods.
8. Don PPE.
9. Get out specimens.
10. Monitor students throughout the lab to ensure compliance with SOP and well-being.

4. Place dis[illegible]ction[illegible]s at each station.
5. Ensure that spec[illegible] bags are on ha[illegible]
6. Ensure that a was[illegible]ntainer is av[illegible]e to collect liquid from [illegible]pecimens[illegible] must be properly labeled.
7. Turn on snorkel hood[illegible]ilatio[illegible]203 and 211, there are silver to[illegible]sw[illegible]s on the back pillar that turn on [illegible] hoods.
8. Don PPE.
9. Get out specimens.
10. Monitor students throughout the lab to ensure com[illegible]

- Collect gloves and any bloody paper towels in a biohazard bag. Paper towels used to wipe up bleach should be placed in regular trash.
- Inform the Laboratory Supervisor that specimens are ready for disposal, where they

Biology and Wildlife Laboratory Supervisor	474-5622
Biology and Wildlife Laboratory Technician	474-7205
EHSRM Hazardous Materials (if B&W Lab Supervisor not available, assistance with a spill)	474-5617
EHSRM Indust	474-6777

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8. Connect lead

Biology and Wildlife Laboratory Supervisor	474-5622
EHSRM Hazardous Materials (if B&W Lab Supervisor not available, assistance with a spill)	474-5617
EHSRM Industrial Hygiene (if Hazardous Materials not available; assistance with exposures)	474-6771
EHSRM office (if Hazardous Materials or Industrial Hygiene not available)	474-5413
University of Alaska Fairbanks Emergency Response (serious accidents, fire)	911

N/A

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Su}

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- All authorized personnel must have completed all required employee and laboratory safety training.
- The Instructor is authorized to train their TAs on the proper preparation, handling, storage and disposal of this material. The instructor may delegate training to the B&W Laboratory Supervisor by making arrangements at least two (2) weeks in advance.
- TAs, once trained, are authorized to train and supervise their students.
- Students must be trained in the use of this material in accordance with this SOP before they run gels.

The user must demonstrate competency and familiarity regarding the safe handling and use of these materials prior to using them. Training shall include the following:

- Review of this SOP
- In-person review of procedures.

- Murie B&W teaching labs, rooms 204, 206, 306
- On tables or lab benches isolated from sinks.
- This material shall NOT be used near a sink. In the event of a leak or spill, this material must be contained and may not enter the drain.

- All personnel are required to wear the following personal protective equipment (PPE) whenever conducting this procedure:
  - Nitrile gloves, thickness of 0.11mm
  - Safety goggles
  - Lab coat, long sleeve

low

- ethidium bromide
- agarose and gel casting trays or precast agarose gels
- pipet and pipet tip (use an ethidium bromide designated pipet as it is difficult to fully decontaminate pipets)
- absorbent bench paper
- masking tape
- waste container for collecting liquid waste
- waste container for collecting solid waste (including gels)

PPE must be used appropriately throughout the procedures.

1. Don appropriate PPE. Mark off and set up a work area.
2. The TA will add ethidium bromide to the gel and/or buffer following the laboratory protocol provided by the instructor. Ethidium bromide should be handled in the fume hood; B&W uses concentrated solutions to prepare gels and running buffers, which can be used on an appropriately protected laboratory bench. Absorbent bench paper should be placed in the fume hood to absorb any spills.
3. During the lab, work will be done in a designated ethidium bromide workspace on a benchtop or counter in the lab that is protected with absorbent bench paper. This workspace shall be clearly labeled "Danger: Ethidium Bromide Area. Appropriate PPE and training required." All contaminated equipment shall remain in this area and on the absorbent bench paper. All wastes produced shall be collected appropriately for disposal as hazardous waste (see below).
4. Ethidium bromide containing gels shall be stored prior to use in a sealed, leak proof container. This container shall be clearly labeled with the contents, hazard, course, instructor, and date of preparation. Secondary containment shall be used to prevent contamination of surfaces.
5. The TA or instructor shall set up the electrophoresis chamber by placing the gel in the rig and adding a buffer. This should not be delegated to students.
6. When loading samples containing ethidium bromide, students shall take turns using a pipet designated for use with ethidium bromide. They should NOT use multiple pipets as this contaminates many pipets and thorough decontamination of pipets is difficult. Pipet tips must be collected in a designated, labeled waste container at the ethidium bromide work space.
7. Follow the SOP for electrophoresis and any other relevant SOPs for any other hazardous materials used.
8. After electrophoresis is complete and the power turned off and units unplugged, gels will need to be visualized. PPE must be worn when transferring gels out of the buffer. Gels should be contained in trays or dishes that prevent ethidium bromide contamination of surrounding surfaces.
9. Used buffers contaminated with ethidium bromide shall be transferred to a leak proof waste container that can be tightly sealed. The waste container shall be in secondary containment that is large enough to hold the entire volume of buffer collected. Transfer from the chamber to the waste container should be done over a bin or

- All conta

- If a spill occurs, personal safety should come first.
- Alert everyone in the area where the spill occurred. Students should be dir

I, the undersigned, have read and understand the above SOP. I have be

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Biology and Wildlife

Phenylthiourea, N-Phenylthiourea

JT Baker storage code is blue; stored in a locked cabinet in 209 in a secondary container designated

Instructors shall provide TAs and students with detailed, written lab procedures to follow. Instructors shall train TAs

The authorized person(s) using this material is (are) responsible for the s"

Biology and Wildlife Laboratory Supervisor	474-5622
Biology and Wildlife Laboratory Technician	474-7205
EHSRM Hazardous Materials (if B&W Lab Supervisor not available, assistance with a spill)	474-5617
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University of Alaska Fairbanks Emergency Response (serious accidents, fire)	911

This material must not enter the standard solid or liquid waste streams (i.e. regular trash or sink drains). All contaminated materials must be collected and disposed of as hazardous waste.

This material is most often used as an inhibitor of polyphenol oxidase (aka catechol oxidase). Catechol is also a hazardous material, and the SOP for its use must also be followed. Phenylthiourea is a more hazardous substance than catechol. When working with both substances at once, the more restrictive specifications for phenylthiourea take precedence over the specifications for catechol.

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Biology

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Biology and Wildlife

- Murie B&W teaching labs, rooms 204, 206, 209, 211, 304, 306
- On tables or lab benches.

When working with the Bio-Rad gel imaging system or a light box that has a UV shield attached, the shield provides protection from UV light. The light should only be turned on once the shield is in place, and should be turned off before the shield is removed. In this case, the following PPE is recommended as a precaution for accidental exposure should the shield be lifted:

1. If u ethidium bromide ted in
2. Don propriate PPE.
3. Set UV light box
4. r gel to a light bo sh
5. UV light and obs no time than ne
   with the shield and PPE m ining the ge
   that the photograph ca
6. When photographing th pr ove gloves to
   camera does not becom back on after
   handling the gel or light
   the UV shield must be el while the bands
   ed

If it is determined that UV light is not being properly shielded, work should be discontinued until proper shielding can be put in place.

Biology and Wildlifelif

I, the undersigned, have read and understand the above SOP. I have been trained to carry out this procedure and will follow the above SOP. I agree to contact my Supervisor and the Biology and Wildlife Laboratory Supervisor if I want to modify it.

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