

ENVIRONMENTAL HEALTH & SAFETY

**SAFETY COORDINATOR SEMINAR
APRIL 3, 2012**



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Agenda

8:00 - 8:15 a.m.	Registration and Breakfast
8:15 - 8:30 a.m.	Introduction
8:30 - 9:00 a.m.	Building Emergency Action Plan (BEAP)
9:00 - 10:00 a.m.	Hazard Assessments
10:00 - 10:15 a.m.	Break
10:15 - 11:15 a.m.	Break-Out Sessions (Hazard Assessment)
11:15 - 11:45 a.m.	Session Reports
11:45 - 12:00 noon	Raffle Drawing and Evaluations



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Introduction

EHS Mission

"Promoting health, safety and environmental protection by providing exemplary programs in support of the University mission"

EHS Vision

"A University culture where safety and health are core values, embraced and acted upon at all levels"



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EHS Initiatives

Building Emergency Action Plan Program (BEAP)

Hazard Assessment Plans

Online Training/Tracking (HRMS)

Lab Coat Program

Online Chemical Inventory and MSDSs

Shop Safety/Hot Work Program



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Building Emergency Action Plans

Nancy Fox, Director, EHS



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Hazard Assessments

***Carol Petty, Occupational
Health and Safety Specialist***



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What is a Hazard?

Potential to cause harm.
Can cause injury or illness



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What is a Hazard Assessment?

- Documented process to identify hazards
- Prescribed control measures and personal protective equipment



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Why are assessments important?

Provides a way to:

- Identify hazards before accidents happen
- Meet regulations (OSHA)
- Protect people, the most valuable UW asset
- Reduce costs associated with accidents



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What is my role as a Safety Coordinator?



- Teacher
- Coach
- Resource
- Coordinator



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Laboratory: Hazard Assessment

1. Work Environment



3. Controls and PPE



2. Hazards



General Workplace: Hazard Assessment

1. Work Environments



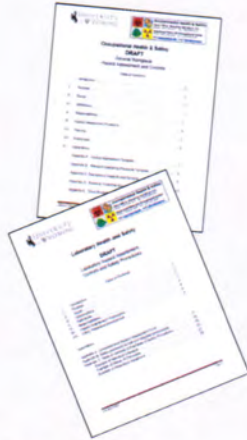
3. Controls and PPE



2. Hazards



Step 1: Review the Plans



General Workplace Assessment

- Offices
- Shops
- Non-laboratory settings

Laboratory Hazard Assessment


- Projects
- Experiments
- New Research



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Step 2: Review the Plan Tools

General Workplace Hazard Assessment

General Workplace Hazard Assessment 

Appendix A: Hazard Assessment Template
(refer to Appendix C for examples of hazards and controls)

Job Title _____	Department _____	
Date _____	Location _____	
Description of job or task _____		
Hazard	Controls	Comments
Additional Comments _____		
<small>Certification: certify that hazard assessment was conducted according to University Policy and the signature below indicates acknowledgment.</small> Evaluator (print) _____ Evaluator (signature) _____ Date _____ Supervisor (print) _____ Supervisor (signature) _____ Date _____		

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Step 2: Review the Plan Tools

General Workplace: Standard Operating Procedure

General Workplace Hazard Assessment



Appendix B: Standard Operating Procedure Template

Standard operating procedure for _____

1. Process (if applicable)	
2. Hazardous Materials and Chemicals Label	
3. Environmental/ventilation Controls	
4. Personal Protective Equipment (PPE)	
5. Spill/Leak Handling Procedures & Storage Requirements	
6. Start and Restart Procedures	
7. Waste Disposal	
8. Other Hazards	

Additional Comments _____

Condition: I affirm this standard operating procedure was written using the hazard assessment done on this operation and the signatures below indicate acknowledgement.

Operator (print) _____ Date _____
 Supervisor (print) _____ Supervisor (signature) _____ Date _____

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General Workplace: Hazards and Controls

General Workplace Hazard Assessment



APPENDIX C: Examples of Hazards and Controls

Hazard	Engineering	Substitution	Administrative	PPE	What to Look For
Physical: Impact struck engaged equipment noise pinch points manipulation of large objects vibration working at heights hot work /UV light housekeeping (Trenching/Excavation) ionizing Radiation Non-ionizing Radiation (i.e., ultraviolet) Heat/Steam/Cold Stress Water Lighting/Illumination Ergonomics Fire Patient transfer Broken glass Compressed gases Burns (welding)	Change the way the work is done Lifting assistance Keep things clean and uncluttered Exhaust ventilation Stooping/Benching Protection methods such as isolation emergency stops, double hand starts, guarding, and cages Lasers Shielding materials	Mechanics process	Lock-Out/Tag-Out Create standard operating procedures Hearing Conservation Hot Work Permit Fall Protection Radiation badges Electrical Safety Program Do not wear loose clothing and tie hair back Monitoring Proper body position Attend safety training Follow safe work practices	Use safety glasses, brimmed goggles, insulated gloves, hearing protection, fall protection, safety boots, and hard hat, Lead aprons, leather gauntlets, welding helmets, cut resistant gloves, Correct tools	Sources of motion that could result in being hit by objects, such as falling objects Moving machinery such as grinders, drilling machines, engines, motors, pumps, etc.) Sources of sharp objects, moving machinery, or points that could pierce, catch, or pinch the body Electrical Hazards such as exposed wiring or switches, exposed receptacles, power boxes, damaged tool wiring, etc. Improper grounding Work requiring energized electrical components Pressurized equipment (i.e., boilers, pots, tanks, piping, hoist, etc.) Material handling equipment components (i.e., hoists, lifts, pneumatics, etc.) Inadequate clearance Elevated work areas over four feet Sources of high or low temperature that could result in burns, heat stress, hypothermia or frostbite Sources of electromagnetic radiation such as UV welding emissions, germicidal lamps, lasers, microwaves, and magnets Ionizing sources such as X-rays Sources of sudden release (either physical or electrical) that could harm Uneven surfaces, slippery surfaces and outside ground conditions Look for water depth and potential for falling into water

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Step 2: Review the Plan Tools

General Workplace Personal Protective Equipment (PPE) examples

General Workplace Hazard Assessment



Appendix D: PPE for Certain Jobs

Type of PPE	Activities/Job Tasks
Eye/Face Protection (includes safety glasses, goggles, face shields, welding helmets, and laser goggles)	<ul style="list-style-type: none"> • Sawing, cutting, drilling, sanding, grinding, hammering, nailing, chiseling, blasting, wood working and pneumatic tools • Pressurized spraying or high speed pressure cleaning • Plowing, mowing, painting, sharpening, dip tanks, battery charging, dental and health care • Inhaled fiberglass insulation, compressed air or gas operation • Lasers • Cleaning/lubricating sprays • Chemicals
Foot/Leg Protection (includes safety boots, metatarsals, welding boots, leather pants, coveralls, knee-pads, etc.)	<ul style="list-style-type: none"> • Construction, plumbing, building maintenance, trenching, utility work, grass cutting, forklifts, materials handling, welding, cryogenics handling, electrical, chemicals, etc.
Hand/Arm Protection (includes gloves, sleeves, leather gauntlets)	<ul style="list-style-type: none"> • Construction, plumbing, building maintenance, trenching, utility work, grass cutting, materials handling, chemicals, electrical, cryogenics handling
Head (includes hard hats)	<ul style="list-style-type: none"> • Work stations or traffic routes located under catwalks or conveyor belts • Construction, confined spaces, building maintenance, wiring, work on or near communication equipment • Construction sites, tree trimming, trenching/excavations
Hearing (includes ear plugs and ear muffs)	<ul style="list-style-type: none"> • Construction, machining, grinding, sanding, pneumatic equipment, generators, ventilation fans, motors, punch and brass presses, etc.
Respirator (includes HEPA dust masks, N face cartridge or purifying, full-face, cover or supplied, and air supplied systems)	<ul style="list-style-type: none"> • When work activities or presses emit excessive amounts of gases, vapors, dusts, mists, or infectious agents that could cause harm. Includes welding, health services, painting, pesticide agents, applying pesticides, plumbing, etc.

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Step 2: Laboratory Tools

Laboratory Hazard Assessment and Controls Form

Laboratory Hazard Assessment



Appendix A: Comprehensive Hazard Assessment and Controls Form

Laboratory, Work Site, Project, or Grant: _____

Department/College: _____

Completed by (print name and title): _____

Principal Investigator (print name): _____

Department Head (print name): _____

Instructions: Review the object description (column 1) of each Biological Hazards (column 2) and check the area that are present (column 3). For every condition present, show the Examples of Engineering Controls and Personal Protective Equipment (PPE) (column 4) and then complete the Specific Engineering Controls and Personal Protective Equipment (PPE) (column 5). This will be used to reduce or eliminate the hazard.

Check if Present	Biological Condition	Hazard Description	Examples of Engineering Controls and Personal Protective Equipment (PPE)	Specific Engineering Controls and Personal Protective Equipment (PPE)
<input type="checkbox"/>	Aerobic	Bacteria, fungi, yeasts, or some body fluids, toxins due to pressure, length, splashes, and aerosols	Requires approval by AGLC	
<input type="checkbox"/>	Carcinogens	Cancer	Roller lock shoes, glove box, fume hood, special controls, and gloves	
<input type="checkbox"/>	Human Blood or other potentially infectious materials	Disposal (transmission)	Wear hood, eye protection, gloves, and special controls	
<input type="checkbox"/>	Infectious Pathogens	Disposal (transmission)	Good microbiological methods, engineering controls, gloves	
<input type="checkbox"/>	Nanoparticles	Unknown health hazards due to small size	Containment, respirators	
<input type="checkbox"/>	Recombinant DNA	Disposal or release of DNA segments, host vector systems, reproduction of foreign genetic material into prokaryotic or eukaryotic	Requires BIC Approval, Good microbiological methods, engineering controls, gloves	

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Step 2: Review the Tools in the Plan

Laboratory Standard Operating Procedures (SOP) Template

Laboratory Hazard Assessment



Standard Operating Procedure for _____

Standard operating procedures for Chemicals or Processes		
1. Process if applicable:		
2. Hazardous Materials and Chemicals		
3. Environmental/Ventilation		
4. Personal Protective Equipment (PPE)		
5. Special Handling Procedures & Storage Requirements		
6. Spill and Accident Procedures		
7. Waste Disposal		
8. Special Precautions for Animal Use if applicable		
Hazardous materials	<input type="checkbox"/> YES	Boxes 9 & 11 are Mandatory
Hazardous wastes?	<input type="checkbox"/> NO	Boxes 9 & 11 are Optional
9. Approval Required		
10. Decommission		
11. Designated Area		
Name (PI) (Assessor)		Title
Signature (Assessor)		Date
Name (PI/Lab Manager or Unit Head)		Title
Signature (PI/Lab Manager or Unit Head)		Date
Date Sent to EHS		

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Step 2: Review the Tools in the Plan

Laboratory SOP Format and Components

Laboratory Hazard Assessment



Appendix B: Standard operating procedure format and required components

Standard Operating Procedure Format

- Standard operating procedures must be personalized to accurately describe the process, hazards and controls at hand. The standard operating procedure format depends upon the situation. Examples of formats are provided in the appendix.
- Attach additional information, such as Material Safety Data Sheets (MSDSs) to the standard operating procedure. Chemical-specific hazard information is available in the appendices of certain regulations (such as for arsenic and lead), the EHS website, internet websites and reference books.
- If your laboratory generates a standard operating procedure and would like to make it available to other labs, please attach an electronic copy to an email addressed to uwesh@uwyo.edu.
- In the standardized standard operating procedure form (at the end of this appendix), items 1 through 8 must be completed for each process, class of chemicals, or individual chemical.

Safety Operating Procedure Required Components.

- Process of Experiment Description.** Identify the chemicals, process or equipment involved in such a way that there will be no confusion as to what the standard operating procedure does (and doesn't) pertain to.
- Hazardous Materials and Chemicals.** Identify all hazardous materials involved in the process (e.g., highly hazardous chemicals, biologicals, and radioactive materials). Even if the chemicals that will be produced in the process are not known, identify the stock chemicals, intermediates, final compounds and wastes involved. Also detail other factors involved in the process, such as catalysts, inert compounds, heat, cold, and varied operating pressures.
- Engineering/Ventilation Controls.** List all environmental controls and ventilation systems required by the process. This may include hoods, environmental rooms, steroid suppression devices, flaring or absorption devices, etc. Describe ways to verify that the fume hood, survey meters, monitors, and other control system(s) are operating correctly before being used.
- PPE – Personal Protective Equipment.** Clearly describe what personal protective equipment is required, and at what stages of the procedure it shall be used. Refer to the EHS General Workplace Hazard Assessment and Controls document for PPE descriptions.

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Step 3: Review additional tool(s)

Office Hazard Assessment

Office Hazard Assessment Form

Date:	Location:
Job Title (person doing evaluation):	Department:
Completed by (print name):	Checked by (signature):

Note: It is recommended that the person using this tool take pictures of any defective conditions found. Once completed please send a copy to ehs@uwyo.edu.

Check if yes	Office Related Safety and Health Considerations	Comments/Corrective Action
<input type="checkbox"/>	Is there an active safety and health program in operation?	
<input type="checkbox"/>	Has the office staff taken Hazard Communication?	
<input type="checkbox"/>	Has the office staff taken the online courses in Office Safety and Ergonomics?	
<input type="checkbox"/>	Is one person clearly responsible for the overall activities of office safety in the department? (Who is this person?)	
<input type="checkbox"/>	Is there a procedure to handle complaints regarding safety and health?	
<input type="checkbox"/>	Does everyone know how to locate the nearest exit or hazard?	
<input type="checkbox"/>	Are emergency numbers and procedures posted?	
<input type="checkbox"/>	Are fire exit signs clearly accessible to each work area?	
<input type="checkbox"/>	Are people familiar with basic fire and procedure in case of an emergency?	
<input type="checkbox"/>	Are all work areas clean and orderly?	
<input type="checkbox"/>	Are floor surfaces, stairs, dry, level, and in good condition? (including stairs, ramps, and elevator stairs)	
<input type="checkbox"/>	Are electrical cords secured to the floor and free of loose or frayed wires?	
<input type="checkbox"/>	Are stairs and downspouts free from obstructions to permit stability and movement?	
<input type="checkbox"/>	Are there sufficient exits to permit prompt escape in case of an emergency?	
<input type="checkbox"/>	Are all exits clearly marked and unobstructed?	
<input type="checkbox"/>	Are emergency exits adequately lighted and free of obstructions?	
<input type="checkbox"/>	Does everyone know where emergency exits are and how to reach them? (Do they know where to meet (stroller park) in case alarms go off?)	
<input type="checkbox"/>	Are stairways in good condition and covered with slip resistant material?	
<input type="checkbox"/>	Is there a designated "area of refuge" where disabled people should congregate in the case of an emergency?	



Step 3: Review additional tool(s)

Shop Safety Checklist

Shop Checklist

OSHA expects an annual hazard assessment of shops to be done annually. This checklist represents a tool to use to assist in this assessment.

Building:	Room # (if):
Inspection performed by:	Department:
Office Phone:	Shop Phone:

General Safety	Yes	No	N/A	Comments
a. Appropriate warning signs are posted (i.e., wet, eye protection)				
b. Shop, work and storage areas are clean and orderly				
c. Exits are identified				
d. Trip hazards have been eliminated (cords, hoses, etc)				
e. Working areas for machines free of obstructions				
f. All light fixtures adequate and functioning properly				
g. The ventilation system adequate for the work being performed				
h. HVAC and exhaust system filters changed routinely				
i. Storage of materials below 12' of sprinklers				
j. Floor clean from spills and absorbent				
k. Subordinates are clear for distribution or fire hazards. Aisles and passageways (28" minimum width)				
l. Erosion/plan available / routes posted				
m. Floor holes covered				
n. Sign height 30-36" high. Open ended floors have standard guard rail with top rail (42"), mid rail (21"), and toe board				
o. Bench grinder work rests adjusted 1/8" opening and tongue guard does not exceed 1/2"				
p. Compressed air less than 30 psi				
q. Forklift maintenance and CO emissions checked				
r. Crane instructions done regularly if applicable				
s. Procedures are written and well documented if applicable				
t. Defective equipment is tagged out/lock-outed as required				
u. All belts, sprockets, wheels, chain drives, drive shafts, etc. have 7' feet must be guarded				
v. Covers and guards provided for open pits, tanks, vats, etc.				



Step 4: Get Organized



- Meet with people involved in operation
- List what areas can potentially hurt people
- Prioritize the list
- Decide who conducts the assessment(s)



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Understand...

- EHS training is available for this process
- Templates: the “look” can change
- Signature required



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Step 5: Conduct the Assessment

- Clipboards, forms, checklists
- Wear appropriate personal protective equipment (PPE)
- Walk through the area(s)
- Look for additional, unique potential safety issues



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Step 5: Conduct the Assessment

- Note hazards with potential for injury or illness
- Choose controls to reduce or mitigate the hazard



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Step 6: Review Findings with Team

- Review and prioritize findings
- Write out the team's findings and controls
- Consider actions needed, resources, dates of completion and responsible people.



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Step 7: Write up Assessment and Develop Standard Operating Procedures

- Share results with others in your work area
- File the documents so everyone has access
- Update documents as needed




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Step 8: Standard Operating Procedures

Developed from the hazard assessment findings

Task/process instructions including the controls and personal protective equipment (can be an addendum to existing SOPs)

Laboratory Hazard Assessment 

Standard Operating Procedure for _____

Standard operating procedure for Chemicals or Processes

1. Hazards of Operations	
2. Hazardous Materials and Chemicals	
3. Environmental Assessment	
4. Reference Materials/Equipment (PPE)	
5. Electrical Wiring/Outlets & Storage Requirements	
6. Spill and Accidents Procedures	
7. Waste Storage	
8. Other Hazards (for Animal Use if applicable)	
9. Potentially Hazardous Substance Involved?	<input type="checkbox"/> YES <input type="checkbox"/> No (See PPE and Controls)
10. Approval Required?	<input type="checkbox"/> NO <input type="checkbox"/> No (See PPE and Controls)
11. Justification/Notes	
12. Signature Area	
Name (print) (Assessor)	Title
Signature (Assessor)	Date
Name (print) (PI, Lab Manager, or LHM Need)	Title
Signature (PI, Lab Manager, or LHM Need)	Date
Date Sent to EHS	

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QUESTIONS?

Thank you for helping to promote a
Culture of Safety at UW

The UW Department of
Environmental Health & Safety



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