The Grainger College of Engineering
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Job Hazard Analysis (JHA)

Activity, Task or Job:	
Completed by:	**Date completed:**
Group name:	**Job location:**
Other information:	

Work steps	Hazards identified for each step	Hazard Controls/Safe Work Procedures/PPE	Residual Risk level

Work steps continued (if needed)

Work steps	Hazards identified for each step	Hazard Controls/Safe Work Procedures/PPE	Residual Risk level

See following pages for instructions and job aids.

Instructions for writing the Job Hazard Analysis (JHA)

Select the Job to be Analyzed
Jobs that have potential to cause injuries or illnesses are good candidates for a JHA, such as those that use hazardous materials or involve hazardous processes, especially those with a history of accidents. A JHA can be written by those familiar with the task, or by someone observing a worker as they perform the job.

Break Down the Job into Steps
Most jobs can be described in 6-8 steps. If a job requires many more steps, divide into two or more sub-tasks, each with their own JHA. Keep the steps in order, since listing out of order may cause an oversight.

Identify Hazards
Examine each step to identify hazardous actions, conditions and potentials that can lead to an accident. Use the Energy Wheel, (**Fig. 1** in the next page) to assist with hazard identification. All hazards should be identified especially those that are not obvious.

Determine Hazard Controls and Preventive Measures
List the hazard controls that are being used during each step of the procedures. For every hazard associated with a job step, there should be one or (ideally) more controls that mitigates that hazard. Make sure the controls are readily available, otherwise they will likely *not* be utilized, which will only increase the Risk Level.

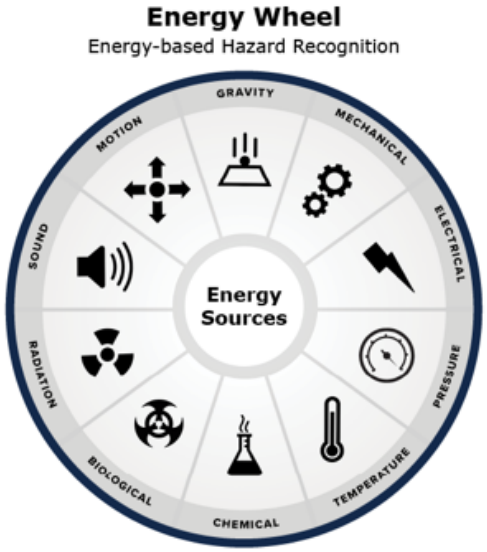
Estimate Risk Level
Using the Risk Matrix (**Figs. 5**), identify the Risk Level of each step by thinking about the severity of the consequences (**Fig. 3**) in combination with the likelihood of occurrence (**Fig. 4**) considering the controls already listed. If the risk level remains High or Critical, consider adding controls or changing how the job is done to reduce the Risk Level. Update the JHA until an acceptably low risk level is achieved. If unsure, reach out to the Office of Safety (engrsafety@illinois.edu) for a safety consultation.

Write SOP, train and inform personnel
A JHA is a helpful precursor to writing the Standard Operating Procedure (SOP) that is required by the Division of Research Safety. Review these documents with personnel prior to performing the job, ensuring that they recognize all hazards and understand the appropriate control measures to use or specific procedures to take to prevent injuries and incidents.

Review and Update the JHA
The JHA should be reviewed regularly and may need to be updated whenever there is a change in the nature and circumstances of the job and those performing it, such as:

- There is a change in how the job is performed (changes in procedure, tools, materials, or environment).
- There are personnel who are new or unfamiliar with the task they will perform.
- There was a near miss or an incident involving the job.

Aids to writing a JHA (part 1)



Energy Sources	Examples
GRAVITY	Enables objects to fall, roofs to collapse, people to trip and fall
MECHANICAL	Rotating equipment, drive belts, conveyors, motors, compressed springs
ELECTRICAL	Power lines, transformers, static charges, lightning, wiring, batteries
PRESSURE	Piping, compressed cylinders, hoses, pneumatic, hydraulic equipment
TEMPERATURE	Ignition sources, hot or cold surfaces, steam, friction, weather
CHEMICAL	Chemical vapors, toxic compounds, combustibles, corrosives
BIOLOGICAL	Bacteria, viruses, animals, insects, human materials, contaminated food or water
RADIATION	Solar rays, microwaves, X-rays, radioactive materials, welding arcs
SOUND	Equipment noise, vibration, high-pressure release
MOTION	Vehicles, vessels, water, wind, body movement

Figure 1 Energy Wheel
Hallowell, M. R. (2021) Prof. Safety 66 (12): 27–33.

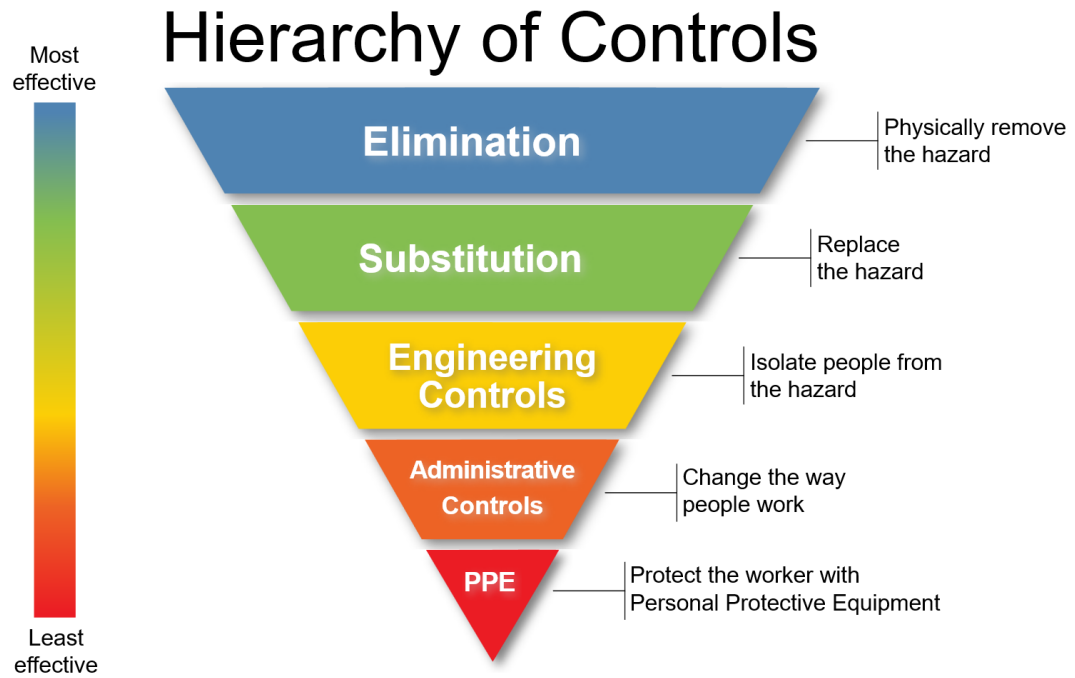


Figure 2 Hierarchy of Controls
https://www.cdc.gov/niosh/hierarchy-of-controls/about/index.html

Aids to writing a JHA (part 2)

Figure 3 Probability of Occurrence
https://institute.acs.org/acs-center/lab-safety/hazard-assessment/fundamentals/risk-assessment.html

	Probability of Occurrence	
Occurrence Rating	**Percent**	**Description**
Rare	negligible	Hazard is fully contained/ Risk is not present
Unlikely	<10%	Unlikely
Possible	10-50%	Possible
Likely	50-90%	Likely
Almost Certain to Certain	>90%	Almost Certain to Certain

Figure 4 Severity of Consequence
https://institute.acs.org/acs-center/lab-safety/hazard-assessment/fundamentals/risk-assessment.html

	Impact to …				
Consequence Rating	**Personnel Safety**	**Resources**	**Work Performance**	**Property Damage**	**Reputation**
No Risk	No injuries	No impact	No delays	Minor	No impact
Minor	Minor injuries	Moderate impact	Modest delays	Moderate	Potential damage
Moderate	Moderate to life impacting injuries	Additional resources required	Significant delays	Substantial	Damaged
High	Life threatening injuries from single exposure	Institutional resources required	Major operational disruptions	Severe	Loss of confidence

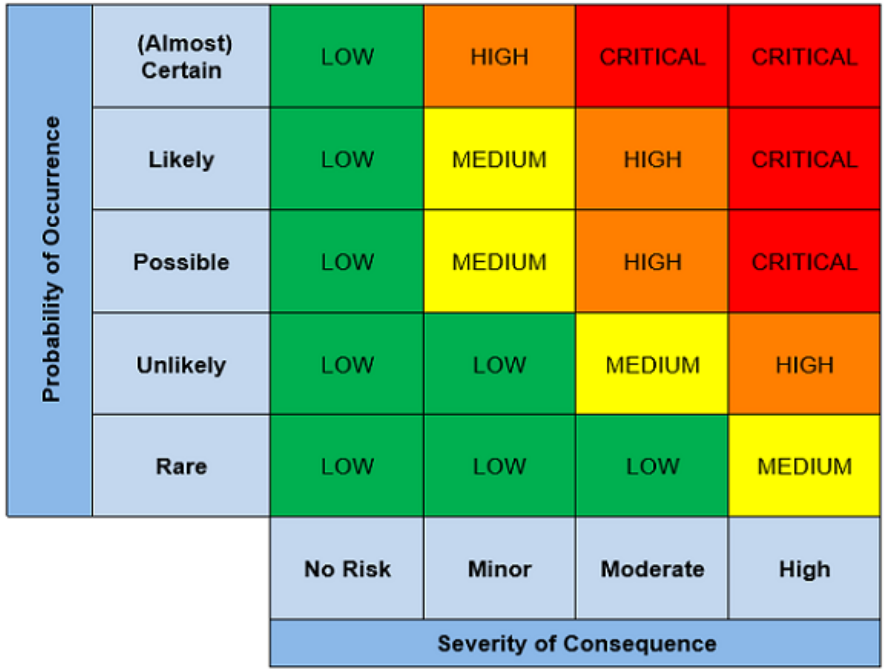


Figure 5 Risk Level
https://ehs.ucla.edu/integrated-safety-management