

JOB SAFETY ASSESSMENTS

Introduction

This SOP is intended for supervisors and is designed to assist in understanding the process for conducting a Job Safety Assessment for the purpose of planning safe conduct of work by employees. In accordance with **UNL's Injury and Illness Prevention Program (IIPP)**, existing and potential work area hazards are to be identified and actions implemented to eliminate or minimize risk of injury, illness, property damage, environmental degradation, or other loss. The entire process (identifying hazards, minimizing risks, and managing residual hazards) is reflected in a Job Safety Assessment. A "Job Safety Assessment" is essentially a risk assessment process. It need not be overly complicated, and consists of four practical steps:

1. Identifying safety hazards.
2. Evaluating receptors (who or what might be harmed) and the manner in which harm may be inflicted.
3. Evaluating risks, including the likelihood of an adverse event and the magnitude of consequences.
4. Selecting appropriate controls to eliminate hazards and/or minimize risk.

Identifying Safety Hazards

Hazards can be identified in a variety of ways- observation, review of past accidents/injuries and near misses, interviews with employees who conduct the work, literature searches, failure analysis, and other methods. When identifying hazards consider:

- Environmental hazards (e.g., noise, illumination, vibration, radiation, temperature extremes, uneven or wet walking surfaces that present potential for slips/trips/falls, working at heights, entrapment, etc.)
- Equipment/tool/mechanical hazards (e.g., potential for stored energy, pinch points, rotating parts, flying projectiles, sharp edges, etc.)

- Chemical hazards (both physical and health hazards)
- Biological hazards (e.g., potential contact with viruses, bacteria, fungi, parasites, body fluids, etc.)
- Ergonomic stressors (e.g., force, posture, position, repetitive motion, lifting, twisting, bending, etc.)

Evaluating Receptors

For each of the identified hazards, identify who or what is at risk. Does the hazard pose risk of injury to workers performing the work, persons in the vicinity, or persons at a distance? Does the hazard pose risk of environmental damage (air, water, soil contamination), harm to animals, or harm to structures or equipment? Also consider the manner in which identified receptors could encounter hazards and worst case scenarios.

Developing a Risk Mitigation Plan

When a recognized hazard exists, feasible controls should be implemented to eliminate or minimize associated risk. Primary consideration should be given to hazard elimination, followed by engineering controls, followed by administrative controls, and finally personal protective equipment. In reality, when a hazard cannot be eliminated an effective risk mitigation plan is likely to incorporate a combination of all three types of controls.

Hazard Elimination

When considering hazard elimination, consider the following possible solutions:

- Substitution – changing the material, process, or equipment to a less hazardous alternative.
- Modification – changing the layout, operating conditions, or work practices.
- Automation – using robotics or automated processes.
- Separation – placing the source in a different location than the receptor
- Isolation – enclose major identifiable sources or the employee

Engineering Controls

When the hazard cannot be completely eliminated through one of the strategies presented above, consider the availability and feasibility of engineering controls. Engineering controls are essentially physical barriers that are placed between the hazard and the receptor (people, property, environment), and which function to prevent or reduce exposure. Examples include enclosures for noisy equipment, fume hoods or other special ventilation devices for airborne chemical contaminants, blast shields for handling of energetic materials, gates and fences to segregate animals from people, machine guards that prevent contact with rotating shafts, cutting blades, etc. In all cases, feasible engineering controls are to be implemented. Administrative controls and Personal Protective Equipment (PPE) are not to be relied upon in lieu of feasible engineering controls.

Administrative Controls

If the hazard cannot be eliminated and is not completely controlled through engineering controls, consider administrative controls that can be implemented to reduce the risk associated with the hazard. At a minimum, administrative controls typically consist of written protocols/procedures and employee training. Examples of other administrative controls include work rotation, job sharing, scheduling considerations, reporting and review of near misses and accidents, etc. Several EHS tools can be used as the basis for administrative controls, including:

- Safe Operating Procedures (SOPs): EHS publishes many SOPs on specific topics on the EHS web site. They serve as a reference source on appropriate controls and may assist supervisors with training efforts.
- Virtual Manual: The EHS Virtual Manual is a tool that can be used to create a safety/compliance manual that is specific to a user. A user creates their unique Virtual Manual by completing a short assessment. The assessment allows assembly of pertinent EHS-published guidance material. Once created, a user (and employees reporting to them) can access their manual on-line at any time and the content of the manual is updated as EHS materials are updated. The Virtual Manual tool is available on the EHS web site. Supervisors are strongly encouraged to use the Virtual Manual tool.
- Training: EHS provides a variety of on-line and instructor-led training classes. EHS offerings can be located on the EHS web site. Other sources for training include trade organizations and safety organizations (such as the National Safety Council). Often, training is required to ensure compliance with regulatory requirements. In all cases, EHS training (or training obtained from outside sources) must be supplemented with

job-specific training. Consult the EHS Training Needs Assessment on the EHS web site to determine applicable required and recommended training (<https://ehs.unl.edu/training/training-needs-assessment/>).

- In general, the above tools provided by EHS are a starting point. Most often, supervisors must supplement them with site/task/machine/equipment-specific information, procedures, and/or training, as appropriate.

Personal Protective Equipment

Personal Protective Equipment (PPE) should be used to protect people from residual risk remaining after implementation of engineering and administrative controls. Supervisors are responsible to select the appropriate ensemble of PPE and must ensure that employees are trained to properly use and maintain assigned PPE. Consider PPE for the feet, head, hands, face, eyes, skin, and ears.

Consider hazards presented by sharp objects, heavy materials, animals, loud noises, chemicals or dust, falling objects, vibrating tools, intense light, electrical shock, arc blasts, etc. PPE may also consist of personal fall protection devices when working at heights. EHS offers general PPE training as an online module, located on the EHS web site. This training provides instruction in selection, use, limitations, and care of PPE. It is appropriate for supervisors and employees.

Numerous SOPs are also available on the EHS web site to provide guidance on proper selection of PPE (<https://ehs.unl.edu/resources/safe-operating-procedures/#node-1593>). Specialized PPE such as hearing protectors, respirators and fall protection devices require further evaluation by EHS or other authority. Contact EHS if you decide workers may need specialized PPE.

Reviewing Job Safety Assessments/Risk Mitigation Plans

Update job safety assessments/risk mitigation plans in response to newly introduced hazards, as processes/procedures/protocols are changed, in response to near-miss incidents or accidents, or as more effective control measures become available. Regularly review job safety assessments/risk mitigation plans to verify effective implementation. Periodically observe employees conducting tasks to ensure adherence to prescribed controls

Job Safety Assessment

The job safety assessment (JSA) is a tool for documenting hazards and developing risk minimization plans that incorporate engineering, administrative controls and personal



protective equipment. A JSA may be completed in one of three ways. Choose the method that best fits the situation. The JSA can be based on:

1. **An individual employee.** In this way, a supervisor of three people would have three separate JSAs.
2. **Job Classification.** If several employees within the unit are assigned the same duties, the JSA can be based upon a job classification, such as Secretary III or Mechanic II. A supervisor would have as many JSAs as they have different job classifications under their supervision.
3. **A specific task.** JSAs can be task-based such as operating a chain saw, transferring chemicals from the stockroom to the laboratory, or cleaning a boiler. A supervisor would have as many JSAs as there are tasks under their supervision. If this method were chosen, a supervisor would collect the JSAs for all tasks done by a particular employee to make up a complete safety assessment file for each employee.



Example of a JSA/Risk Mitigation Plan Based on Task:

Task	Potential Hazard(s)	Engineering Controls	Administrative Controls		PPE
			Recommended procedures/ references	Training	
Emptying Trash and Cleaning Trash Containers	<p>Environmental: Trash compactor is located on exterior concrete pad, subject to elements of the weather (ice, rain, etc.) which could lead to slips/trips/falls.</p> <p>Equipment: Trash compactor can crush and entrap body parts.</p> <p>Chemical: Trash debris, cleaning material and water may spray into eyes.</p> <p>Biological: Trash supports the growth of bacteria and other microorganisms, which can cause skin and other infections.</p> <p>Ergonomic: Trash cans may be heavy and lend to strained muscles.</p>	<p>Concrete is roughed to increase traction.</p> <p>Compactor has a safety switch to prevent operation when hopper door is open. Do not defeat interlock. Report malfunctioning interlocks and tag equipment as "out-of-service."</p> <p>Use Product A, a mild detergent (rather than phosphoric acid)</p> <p>Empty trash daily to prevent overloading of containers. Empty trash at beginning of shift, before fatigued. Use a hand cart to transport bags to the compactor. The compactor is located so that bags are not lifted higher than the shoulder.</p>	<ol style="list-style-type: none"> 1. Notify Landscape Services of icy conditions at compactor. 2. Read compactor operator's manual- do not override safety switch. Do not perform maintenance on compactor- report problems or malfunctions to supervisor. Do not place body parts in hopper. Avoid loose clothing and jewelry that could become entangled in compactor hopper. 3. Use a gentle water stream- do not use high pressure. 4. Read SDS for detergent. Use PPE. Avoid skin, eye, and mucus membrane contact. 5. Avoid skin and eye contact with trash and receptacles. Wash hands after handling and after removing PPE. 	<p>EHS IIPP, Emergency Preparedness, Chemical Safety, and PPE (or department equivalent)</p> <p>Supervisor instruction and demonstration on safe lifting techniques and compactor operation.</p>	<p>ANSI approved eye and/or face protection and chemical resistant gloves when cleaning the containers.</p> <p>Sturdy, slip-resistant shoes.</p>