



**Environmental
Health & Safety**

FLORIDA INTERNATIONAL UNIVERSITY

Job Hazard Analysis (JHA)

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1. Introduction

- Job-related injuries and fatalities occur every day in the workplace. These injuries often occur because employees are not trained in the proper job procedure.
- One way to prevent workplace injuries is to establish proper job procedures and train all employees in safer and more efficient work methods. Establishing proper job procedures is one of the benefits of conducting a job hazard analysis carefully studying and recording each step of a job, identifying existing or potential job hazards (both safety and health), and determining the best way to perform the job or to reduce or eliminate these hazards. Improved job methods can reduce costs resulting from employee absenteeism and workers' compensation, and can often lead to increased productivity.
- Accidents are awful, workers can be hurt and killed, equipment can be damaged, and there are investigations to find out what went wrong. Why not figure out what could go wrong before it does? JHA is a way of planning ahead in the workplace, is a way to spot hazards before they cause accidents.
- This procedure explains what a job hazard analysis is and contains guidelines for conducting your own step-by-step analysis. A sample of a completed job hazard analysis and a blank job safety analysis form are included at the end of this procedure.
- It is important to note that the job procedures in this document are for illustration only and do not necessarily include all steps, hazards, or protections for similar jobs in industry.

2. Overview

- A JHA is essentially a risk assessment process and need not be overly complicated. It consists of four practical steps: (1) identifying safety hazards, (2) Evaluating receptors (who or what might be harmed) and the way the harm may be inflicted, (3) evaluating risks, including the likelihood of an adverse event and the magnitude of consequences, and, (4) selecting appropriate controls to eliminate and/or minimize risk. A JHA is not like standard operating procedures or job instructions. Instead, it focuses only on those steps that can create a hazard to the safety or health of personnel.

3. Selecting jobs for analysis

- A job hazard analysis can be performed for all jobs in the workplace, whether the job task is special (non-routine) or routine. Even one-step-jobs such as those in which only a button is pressed can and perhaps should be analyzed by evaluating surrounding work conditions.
- To determine which jobs should be analyzed first, review your job injury and illness reports. Obviously, a job hazard analysis should be conducted first for jobs with the highest rates of disabling injuries and illnesses.
- Also, jobs where close calls or near misses have occurred should be given priority. Analyses of new jobs and jobs where changes have been made in processes and procedures should follow. Eventually, a job hazard analysis should be conducted and made available to employees for all jobs in the workplace.

4. Involving the Employee

- Once you have selected a job for analysis, discuss the procedure with the employee performing the job and explain its purpose. Point out that you are studying the job itself, not checking on the employee's job performance. Involve the employee in all phases of the analysis from reviewing the job steps and procedures to discussing potential hazards and recommended solutions. You also should talk to other workers who have performed the same job.
 - a. Are lockout procedures used for machinery deactivation during maintenance procedures?

5. Conducting the Job Hazard Analysis (JHA)

- Before beginning the job hazard analysis, take a look at the general conditions under which the job is performed. Below are some sample questions you might ask.
- Are there materials on the floor that could trip a worker?
- Is lighting adequate?
- Are there any live electrical hazards at the jobsite?
- Are there any chemical, physical, biological, or radiation hazards associated with the job or likely to develop?
- Are tools including hand tools, machines, and equipment in need of repair?
- Is there excessive noise in the work area, hindering worker communication or causing hearing loss?
- Are job procedures known and are they followed or modified?
- Are emergency exits clearly marked?
- Are trucks or motorized vehicles properly equipped with brakes, overhead guards, backup signals, horns, steering gear, and identification, as necessary?
- Are all employees operating vehicles and equipment properly trained and authorized?
- Are employees wearing proper personal protective equipment for the jobs they are performing?
- Have any employees complained of headaches, breathing problems, dizziness, or strong odors?
- Is ventilation adequate, especially in confined or enclosed spaces?
- Have tests been made for oxygen deficiency and toxic fumes in confined spaces before entry?
- Are work stations and tools designed to prevent back and wrist injuries?
- Are employees trained in the event of a fire, explosion, or toxic gas release?
 - Naturally this list is by no means complete because each worksite has its own requirements and environmental conditions. You should add your own questions to the list. You also might take photographs of the workplace, if appropriate, for use in making a more detailed analysis of the work environment.
 - a. Is the worker wearing clothing or jewelry that could get caught in the machinery or otherwise cause a hazard?

6. Breaking down the job

- Nearly every job can be broken down into job tasks or steps. In the first part of the job hazard analysis, list each step of the job in order of occurrence as you watch the employee performing the job.
- Be sure to record enough information to describe each job action, but do not make the breakdown too detailed. Later, go over the job steps with the employee.
- When listing the job steps, it is important to describe only the actual job steps that contains a hazard or hazardous condition. Each step recorded in the JHA form should describe what is done not how it is done in a few words.
- List the job steps in column one and in a sequential order, list hazard description in column 2 and mitigation measures in column 3 following the same sequential order: 1, 2, 3 and so on. This will allow the worker or the team to refer to each step by number. It is also easier to keep track of the hazard descriptions you will list in column 2 and mitigation measures in Column 3.

Example of job steps:

For an employee that will be loading boxes

Sequence Of Steps	Potential Incidents or Hazards	Controls In Place
1 Bend to reach box on floor		
2 Lift box from floor		
3 Turn to left		
4 Place box on cart		

7. Identify the hazards

After you have recorded the job steps, next examine each step to determine the hazards that exist or that might occur. 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.)

- Ask yourself these kinds of questions:

- Are there hazards that would require the use of personal protective clothing and equipment that are appropriate for the job?
- Are work positions, machinery, pits or holes, and hazardous operations adequately guarded?
- Are lockout procedures used for machinery deactivation as required?
- Is the worker wearing clothing or jewelry, or have long hair that could get caught in the machinery or otherwise cause a hazard?
- Are there fixed objects that may cause injury, such as sharp edges?
- Is the flow of work organized (e.g., is the worker required to make movements that are too rapid)?
- Can the worker get caught in or between moving parts?
- Can the worker be injured by reaching over moving machinery parts or materials?
- Is the worker at any time in an off-balance position?
- Is the worker positioned to the machine in a way that is potentially dangerous?
- Is the worker required to make movements that could lead to or cause hand or foot injuries, or strain from lifting the hazards of repetitive motions?
- Can the worker be struck by an object or lean against or strike a machine part of object?
- Can the worker fall from one level to another?
- Can the worker be injured from lifting or pulling objects, or from carrying heavy objects?
- Do environmental hazards (dust, chemicals, radiation, welding rays, heat, or excessive noise) result from the performance of the job?

- In addition when describing hazards, be specific. What is it about the job step that is hazardous? What accident could happen during each steps? What body parts could be injured?

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- Don't write "could get hurt" or "electrical hazard" be specific and identify the electrical hazard.
 - In many cases, there may be more than one specific hazard associated with the given job step. For example, if job step 2 poses three hazard, number them as 2a 2b 2c and so on. This make it obvious that job step 2 contains more three separate hazards.

Example of hazards:

For an employee that will be loading boxes

Task steps	Hazards	Hazard control
1 Bend to reach box on floor	1a Repeated bending 1b Strike head against table	
2 Lift box from floor	2a repetitive lifting, possible back strain 2b Repeated bending	
3 Turn to left	3 twisting, possible back strain	

- Sometimes, you will have a job step listed but find that there is no corresponding hazard for the step, at this point you can remove the step from the JHA.
- Make sure that you list only the steps that represent a hazard to employees doing the job and others.

8. Recommending Safe procedures, hazard mitigation and elimination

- After you have listed each hazard or potential hazard and have reviewed them with the employee performing the job, determine whether the job could be performed in another way to eliminate the hazards, such as combining steps or changing the sequence, or whether safety equipment and precautions are needed to control the hazards. An alternative or additional procedure is to videotape the worker performing his or her job and analyze the job procedures.
- If safer and better job steps can be used, list each new step, such as describing a new method for disposing of material. List exactly what the worker needs to know to perform the job using a new method. Do not make general statements about the procedure, such as "Be Careful." Be as specific as you can in your recommendations.
- You may wish to set up a training program using the job safety analysis to retrain your employees in the new procedures, especially if they are working with highly toxic substances or in hazardous situations. (Some OSHA standards require that formal training programs be established for employees.)
- If no new procedure can be developed, determine whether any physical changes such as redesigning equipment, changing tools, adding machine guards, personal protective equipment, or ventilation will eliminate or reduce the danger.
- Ask yourself what exactly should the employee do or not do to avoid the accident.
- Describe specific precautions and control measurements in details in column 3 while maintaining the same corresponding number as the step and hazard. See example below.
- If hazards are still present, try to reduce the necessity for performing the job or the frequency of performing it.
- Go over the recommendations with all employees performing the job. Their ideas about the hazards and proposed recommendations may be valuable. Be sure that they understand what they are required to do and the reasons for the changes in the job procedures.

Task steps	Hazards	Hazard control
1 Bend to reach box on floor	1a Repeated bending 1b Strike head against table	Lifting SOP Lifting Training
2 Lift box from floor	2a Repetitive lifting, possible back strain 2b Repeated bending	Lifting SOP Lifting Training
3 Turn to left	3 Twisting, possible back strain	xxxx xxxx xxxx....

- Sometimes you will find that a hazard belongs with another step, as long as you capture the hazard that repeats in another step you don't have to list it again. It is recommended however that you list it and add a note: "addressed on step number xx"
- Consider new or different way to perform a job entirely, also consider a new engineering solution, new equipment or process were the hazardous task is eliminated by a new and more efficient way. Example: If you look at the scenario we are using "lifting boxes" by getting an automated packaging equipment all hazards identified will be removed therefore a safer and more efficient operation.

9. Priority Ranking

- Each job step listed on the JHA will be priority ranked using the following criteria:

Priority Ranking (PR) = Severity (S) * Probability (P)

Severity Numbering: 1 – Imminent Danger 2 – Serious 3 – Minor 4 – Not Applicable

Probability A = Probable B = Reasonably Probable C = Remote D = Extremely Remote

- The purpose of implementing a priority ranking system is to identify the more hazardous steps of the job with the current controls in place.
- Once the initial priority ranking is established, additional control measures can be implemented as necessary to reduce risk and a revised risk or priority rank can be determined to determine the effectiveness of these controls.

Example of priority rankings:

For an employee that will be loading boxes

Task steps	Priority Ranking	Additional Controls Required/Revised Priority Ranking
1 Bend to reach box on floor	2B	Several injuries and near misses related to lifting, lifting training is optional PR=2C
2 Lift box from floor	2B	Several injuries and near misses related to lifting, lifting training is optional PR=2C
3 Turn to left	2B	Several injuries and near misses related to lifting, lifting training is optional PR=2C

10. JHA Review Prior To Performing Work

- Prior to performing work a JHA should be completed prior to starting work.
- If a JHA has previously completed for the job, it should be reviewed by the employee performing the job with his/her supervisor and (for Maintenance activities as appropriate), with the area/building owner.
- A sign-off is required on the back of each JHA to communicate the job and the hazards it presents to the employee and the surroundings

11. Revising the Job Hazard Analysis

- A job hazard analysis can do much toward reducing accidents and injuries in the workplace, but it is only effective if it is reviewed and updated periodically. Even if no changes have been made in a job, hazards that were missed in an earlier analysis could be detected.
- If an illness or injury occurs on a specific job, the job hazard analysis should be reviewed immediately to determine whether changes are needed in the job procedure. In addition, if a close call or near miss has resulted from an employee's failure to follow job procedures, this should be discussed with all employees performing the job.
- Any time a job hazard analysis is revised, training in the new job methods, procedures, or protective measures should be provided to all employees affected by the changes. A job hazard analysis also can be used to train effectively new employees on the steps and job hazards.

12. Training

- All employees that perform a task where hazards maybe present should go through the JHA training available at fiumdl.fiu.edu under Environmental Health and Safety find "Job Safety Analysis: Pro-Active Planning" or click the following link:
<https://fiumdl.fiu.edu/course/view.php?id=14597>.

13. Record Keeping

- Completed form must be reviewed with all personnel involved in the job before the job starts
- When the job is completed the original form must be submitted to EH&S for final record keeping

14. JHA Forms

- The JHA form is attached at the end of this procedure



Environmental Health & Safety

FLORIDA INTERNATIONAL UNIVERSITY

Jobs Hazard Analysis (JHA)

DATE:

JOB/ACTIVITY/TASK NAME:

DEPARTMENT/GROUP NAME

BLDG/AREA LOCATION(s):

TOOLS/EQUIPMENT REQUIRED

MATERIAL REQUIRED

PRIORITY RANKING:

Severity (S) * Probability (P) = Priority Ranking (PR)

SEVERITY: 1=Imminent Danger 2=Serious 3=Minor 4=Not Applicable

Example: An employee working at a height of 20 feet without fall protection:
 $S(1) * P(A) = 1A$ or Probable Imminent Danger

PROBABILITY: A=Probable B=Reasonably Probable C=Remote

D= Extremely Remote

Step	Sequence Of Steps	Potential Incidents Or Hazards	Controls In Place	Controls In Place	Controls In Place	Priority Ranking	Revised Priority Ranking with additional controls
			Engineering	Administrative	PPE		

I understand & will adhere to the steps, hazards & controls as described in this JHA. I understand that performing steps out of sequence may pose hazards that have not been evaluated, nor authorized. I will contact my supervisor prior to continuing work, if the scope of work changes or new hazards are introduced. I understand I have the authority and responsibility to stop work I believe to be unsafe.

Worker Name (please print)

Signature

Date

I have reviewed the steps, hazards & controls described in this JHA with all workers listed above and authorize them to perform the work. Workers are qualified (i.e. licensed or certified, as appropriate, & in full compliance with FIU training requirements) to perform this activity.

Supervisor

Signature

Date

REQUIRED ONLY FOR MAINTENANCE ACTIVITIES WHERE OCCUPANTS MAY BE AFFECTED BY THE TASK - I have communicated area hazards with the supervisor or listed worker(s) for this activity and have coordinated the described activity with affected occupants. The above listed workers are released to perform described scope of work in the following area(s): _____

Area or Building Manager

Signature

Date
